

**MIL-STD-1165**

**25 MARCH 1968**

**MILITARY STANDARD**

**GLOSSARY OF  
ENVIRONMENTAL TERMS (TERRESTRIAL)**



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**DEPARTMENT OF DEFENSE**

**Washington, D. C. 20301**

**Glossary of  
Environmental Terms (Terrestrial)**

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1. This Military Standard is mandatory for use by all Departments and Agencies of the Department of Defense.

2. Recommended corrections, additions, or deletions should be addressed to the Commanding General, U.S. Army Natick Laboratories, Attention: AMXRE-E, Natick, Massachusetts 01760.

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## **FOREWORD**

1. The purpose of this Glossary is to facilitate the exchange of information within the broad field of environmental engineering, by providing a common vocabulary for use in this field. It is intended primarily for engineers, technicians, and administrators of the Department of Defense and its contractors, who are engaged in developmental and testing activities involving any aspect of the terrestrial environment but who are not specialists in the sciences that treat these subjects. A secondary but important purpose is to suggest a selected standard terminology for environmental scientists within the Department of Defense.

2. Preparation of this Glossary by the U. S. Army Natick Laboratories was authorized by letter from the Office of the Assistant Secretary of Defense, dated 24 May 1965, establishing Project MISC-0346.

3. Contributions by the Weapons Engineering Standardization Office, Naval Air Engineering Center, under former Project MISC-0014, are acknowledged, as are the many constructive comments submitted by agencies that reviewed various drafts of the Glossary.

4. Appreciation is expressed to the American Society of Agronomy, the Colorado Scientific Society, John Wiley and Sons, Inc., McGraw-Hill Book Company, Inc., the Society of American Foresters, and the United States of America Standards Institute, for permission to quote copyright material from sources cited in the Appendix.

5. The rapidly changing state of the art and the multiplicity of disciplines included in the environmental sciences make it essential that some degree of flexibility be exercised in enforcing the use of this document.

6. Users are requested to submit to the preparing activity new terms and definitions that have been officially adopted by an agency of the U. S. Government or by a professional organization. It is requested that submissions be accompanied by citations of appropriate glossaries or other published sources.

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## Glossary of Environmental Terms (Terrestrial)

### 1. SCOPE

The terms included in this Glossary refer to environments on the land surfaces of the earth and adjacent portions of the oceans and lower atmosphere that have a direct effect on surface conditions. For terms used in describing upper atmospheric and space environments, see the *Air Force Glossary of Standardized Terms and Definitions* and the *NASA Dictionary of Technical Terms for Aerospace Use*, listed in the Appendix. Similarly, an authoritative glossary for marine environments is the *Glossary of Oceanographic Terms* issued by the U. S. Naval Oceanographic Office. The *Glossary of Meteorology* is the accepted standard for terms relating to atmospheric phenomena, except for definitions that have been modified in official publications of Defense agencies, such as the *Handbook of Geophysics and Space Environments*.

In order to establish a consistent basis for decisions as to what terms should be included or omitted, certain criteria were established after consultation with representatives of prospective using agencies. It was decided to include the following general classes of terms in the Military Standard: (1) environmental terms that have been standardized by the Department of Defense; (2) terms used in describing any aspect of the environment having a direct effect on men or machines; (3) names of sciences concerned with significant aspects of environment; (4) units used in measuring environmental phenomena (except as noted below); (5) abbreviations of terms commonly used in measuring or describing environmental phenomena within a particular field (e.g., *A, d.b.h.*); (6) terms used in describing specific effects of the environment on materiel (e.g., *alligating*); and (7) names of general classes of instruments or other devices that are used in studying and measuring environmental phenomena (but not minor variants or brand names of such instruments).

There has been no attempt to make this document a comprehensive glossary of science or technology, of which there are adequate representatives already in existence (see Appendix). Rather, all terms considered were screened for *relevance to environmental research or engineering*, and such relevance was the first test for their inclusion. In addition, it was decided to omit the following classes of terms, for which the reader is referred either to a standard dictionary or to one of the specialized glossaries listed in the Appendix: (1) terms that are likely to be encountered only by users who are specialists in the field to which the term applies; (2) terms that are common to science in general or to a number of sciences (for example, *millimeter* is omitted because it is a unit of measurement common to many sciences, but *angstrom* is included as a unit used chiefly in radiometry; likewise, general scientific terms such as *theory, atom, and energy* are not included); (3) foreign terms and localisms, unless they have been adopted as a generic term in scientific usage (for example, *Santa Ana* is omitted although *foehn* wind is included); (4) physiological, psychological, and medical terms, even when they refer to a direct effect of environmental phenomena; (5) terms used in discussing the theory of a specialized field, which require lengthy explanations to be meaningful to the non-specialist; (6) military terms that pertain to materiel, organization, or operations not directly related to the environment; and (7) trade names and copyrighted words.

Many words are used in different senses in various technologies and contexts, and not all of these usages are appropriate for inclusion in this Glossary. In cases where this might cause confusion, definitions that reflect specialized usages are identified by the name of the field to which they apply. It will be understood that inclusion of a definition in this Glossary does not prejudice the use of a defined word in other senses in other contexts. For example, the definition given for *sound*

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does not preclude the use of this term in a landforms context or as an adjective meaning "free from defects."

At any one time and place there is only one environment, consisting of the sum total of external conditions affecting material, equipment, men, or other organisms. This environment comprises a large number of components or elements, some of which are *natural*, occurring independently of any human activities, while others are *induced* by the action of machines or other man-made devices. The same element may be natural in some situations and induced in others; for example, wind resulting from a pressure gradient in the atmosphere is natural, while wind resulting from the motion of a vehicle is induced.

Natural environmental factors include climatic elements such as solar radiation, rainfall, and free-air temperatures; surface types such as sand and rock; terrain features such as mountains and plains; biological entities such as individual plants and animals as well as forests and other complex assemblages of organisms; and sporadic occurrences such as lightning and earthquakes. Most of these factors can be altered or reproduced artificially, but only on a vastly smaller scale than their occurrence in nature.

On the other hand, certain environmental factors are characteristically associated with the operation of machines or other man-made devices. Examples of these induced factors include mechanical shock, exhaust fumes, acoustical and mechanical vibration, nuclear radiation, and blast effects. Environments which are associated with the operation of particular weapons, vehicles, or other kinds of equipment may be characterized by particular induced factors and are therefore termed *operational* environments. It is not uncommon to find an operational environment within an environmental complex that is essentially natural. Thus within an aircraft there may be a distinctive environment in-

cluding induced conditions of pressure, temperature, sound, vibration, etc., while outside the conditions are largely natural. Even the environment outside the aircraft may have induced elements, however, such as smog, wind resulting from motion, radio waves, and pavement on a runway.

This Glossary includes terms commonly used in describing and studying both natural and operational environments. Because of the impossibility of drawing a sharp line between the natural and induced factors, no attempt has been made to distinguish between them or to identify them separately in the Glossary.

## 2. REFERENCED DOCUMENTS

The definitions in this Glossary reflect, to the maximum extent possible, usage that has already been standardized within the Department of Defense. Definitions of environmental terms that appear in current editions of the *Dictionary of United States Military Terms for Joint Usage (JD)*, or official glossaries of the Army, Navy, or Air Force, are quoted verbatim in this Glossary and their sources are identified in parentheses after the definitions. (The letters used to identify sources are explained in the list of references in the Appendix.) Terms for which definitions have not been standardized within the Department of Defense are defined according to usage that has been adopted by other Governmental agencies or by professional organizations, to the extent that these organizations have adopted official glossaries that include suitable definitions. Definitions from such sources are quoted in their entirety for some terms, while for others the original source may include explanatory material, additional detail, or alternate meanings that were not considered essential in the Military Standard. Where the original has been abridged or paraphrased, the source symbol has been marked by an asterisk, and users requiring additional information are referred to the original source as listed in the Appendix. Also given in the Appendix is a third list of references,

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primarily for terms that are not in this Glossary or for alternative meanings that are not given here.

### **3. DEFINITIONS**

Terms shown in capital letters in the definitions herein are defined elsewhere in the Glossary. Terms shown in *italic* represent alternative usage or subordinate variants not

separately defined.

Compound terms are generally listed in the form that is customarily used. The inverted form (e.g., CHAMBER, ALTITUDE) is used when it is considered desirable to place two or more related terms together for ready comparison. Direct and inverted forms of compound terms are not cross-referenced in this Glossary.

## A

A (or Å), — Abbreviation for ANGSTROM.

AA, n. — Rough, scoriaceous lava; contrasted with PAHOEHOE.

ABC SOIL — *Pedology*. A soil with a distinctly developed profile, including A, B, and C horizons. See SOIL HORIZON. (SSS)

ABLATION, n. — *Meteorol.* The combined processes (such as sublimation, melting, evaporation) which removes snow or ice from the surface of a glacier, snowfield, etc.; in this sense, the opposite of *alimentation*. (AMS)\*

ABLATION AREA — That portion of a glacier below the FIRN LINE, where ablation exceeds accumulation. (AMS)

ABRASION, n. — The process of rubbing, grinding, or wearing away by friction.

ABSOLUTE HUMIDITY — In a system of moist air, the ratio of the mass of water vapor present to the volume occupied by the mixture; that is, the density of the water vapor component. (AMS)\*

ABSOLUTE MAXIMUM (MINIMUM) TEMPERATURE — The highest (lowest) temperature recorded during the period of record at a station.

ABSOLUTE RANGE OF TEMPERATURE — The difference between the highest and lowest temperatures on record at a station.

ABSOLUTE TEMPERATURE SCALE — The KELVIN TEMPERATURE SCALE, a scale for measuring temperature from ABSOLUTE ZERO independent of the molecular motion and body heat of a substance.

ABSOLUTE ZERO — The zero point of the ABSOLUTE TEMPERATURE SCALE (zero degree KELVIN), of fundamental

significance in thermodynamics. It may be interpreted as the temperature at which the volume of a perfect gas would vanish. The value of absolute zero in degrees CELSIUS is  $-273.15$ , by definition. (AMS)\*

ABSORBED DOSE — The quantity of energy acquired by a mass of material exposed to RADIATION. The unit of measurement is the RAD.

ABSORBENT, n. — A substance, material, or solution able to imbibe or "attract into its mass" or trap liquids or gases, commonly used to remove them from a given medium or region.

ABSORBER, n. — In general, a medium, substance, or functional part that takes up matter or energy. In radiation and particle physics, an absorber is a body of material introduced between a source of radiation and a detector to determine the energy or nature of the radiation; to shield the detector from radiation; or to transmit selectively one or more components of the radiation, so that the radiation undergoes a change in its energy spectrum. Such an absorber may function through a combination of processes of true absorption, scattering, and slowingdown.

ABSORPTANCE, n. — The ratio of the radiant flux absorbed in a body of material to the radiant flux incident upon it. Commonly, the material is in the form of a parallel-sided plate and the radiation in the form of a parallel beam incident normally on the surface of the plate. The absorptance may be measured for any radiation, for visible light (optical absorptance), or a function of the wave length of the radiation (spectral absorptance).

ABSORPTION, n. — 1. The process whereby the total number of particles emerging from a body of matter is reduced relative to the number entering, as a result of interaction of the particles with the body. 2. The process whereby the kinetic energy

\* Definition paraphrased, or source not quoted entirely.

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of a particle is reduced while traversing a body of matter. The loss of kinetic energy of corpuscular radiation is also referred to as moderation, slowing, or stopping. 3. The process whereby some or all of the energy of sound waves or electromagnetic radiations is transferred to the substance on which they are incident or which they traverse. 4. The process of "attraction into the mass" of one substance by another so that the absorbed substance disappears physically. 5. *Hydrology*. The entrance of water into the soil or rocks by all natural processes. It includes the infiltration of precipitation or snowmelt, gravity flow of streams into the valley alluvium, into sinkholes or other large openings, and the movement of atmospheric moisture. (MH)

**ABSORPTION COEFFICIENT** — 1. As applied to radiation (electromagnetic and corpuscular), a measure of the rate of decrease of a beam of photons as a result of absorption by the material in which the radiation is propagating. 2. The ratio of the sound energy absorbed by a surface of a medium (or material) exposed to a sound field (or to sound radiation) to the sound energy incident on the surface.

**ACCELERATION**, n. — 1. In mechanics, a change in the velocity of a body, or the rate of such change, with respect to speed or direction, or both. (NASA) 2. In a more restricted sense but more popular usage, the act or process of moving, or of causing to move, with increasing speed; the state or condition of so moving. (NASA)

**ACCELERATION OF GRAVITY** — The acceleration produced by the force of gravity at the surface of the earth, which varies with the latitude and elevation of the point of observation. By international agreement, the value  $9.80665 \text{ m/sec}^2$  has been chosen as the standard acceleration due to gravity for observation at  $45^\circ \text{ N}$ . Lat. and sea level. (ISO)\*

**ACCELERATION, EQUIVALENT STATIC**

— An approximate expression of maximum acceleration obtained from a shock spectrum of an assembly of single-degree-of-freedom systems as a result of shock excitation, when expressed as a function of frequency. (ISO)\*

**ACCELEROMETER**, n. — A TRANSDUCER that senses and responds to accelerative forces, for measuring, indicating, or recording such forces. (NASA)\*

**ACCLIVITY**, n. — An ascending slope, as opposed to DECLIVITY. (GS)

**ACCUMULATION**, n. — The snow and other solid precipitation deposited on a glacier or snowfield; the quantity deposited. (ADT)

**ACID SOIL** — *Pedology*. Soil with a pH value less than 7.0. For most practical purposes a soil with a pH value less than 6.6. The pH values obtained vary greatly with the method used and, consequently, there is no unanimous agreement as to what constitutes an acid soil. (The term is usually applied to the surface layer or to the root zone unless specified otherwise.) (SSS)\*

**ACOUSTIC (ACOUSTICAL)**, adj. — Containing, producing, arising from, actuated by, related to, or associated with sound. Acoustic is used when the term being qualified designates something that has the properties, dimensions, or physical characteristics associated with sound; *acoustical* is used when the term being qualified does not designate explicitly something that has such properties, dimensions, or physical characteristics. (ASA)\*

*Note 1:* The following examples qualify as having the "properties or physical characteristics associated with sound waves" and hence would take *acoustic*: impedance, inductance, load (radiation field) output (sound power), energy, wave, medium, signal, conduit, absorptivity, transducer.

*Note 2:* The following examples do not have the requisite physical characteristics and therefore take *acoustical*: society,

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method, engineer, school, glossary, symbol, problem, measurement, point of view, end-use, device.

*Note 3:* As illustrated in the preceding notes, usually the generic term is modified by acoustical, whereas the specific technical implication calls for *acoustic*.

**ACOUSTIC NOISE** — Any undesired sound. The frequencies involved include at least the band from 15 cycles per second (cps) to 20,000 cps. (See **NOISE**).

**ACOUSTICS**, n. — The science of sound, including its production, transmission, and effects. (ASA)\*

**ACOUSTIC VELOCITY** — The speed of sound or similar pressure waves through the atmosphere.

**ACOUSTIC WAVE VELOCITY** — A vector quantity that specifies the speed and direction with which a sound wave travels through a medium. Sonic speed is sometimes used to describe the speed of a body when it is equal to the acoustic wave velocity in the medium in which the body is moving.

**ACTINIC**, adj. — Pertaining to electromagnetic radiation capable of initiating photochemical reactions, as in photography or the fading of pigments. Because of the particularly strong action of ultraviolet radiation on photochemical processes, the term has come to be almost synonymous with *ultraviolet*, as in "actinic rays." (AMS)

**ACTINOMETER**, n. — The general name for any instrument used to measure the intensity of radiant energy, particularly that of the sun. Actinometers may be classified, according to the quantities which they measure, in the following manner: (a) *pyrheliometer*, which measures the intensity of direct solar radiation; (b) *pyranometer*, which measures global radiation (the combined intensity of direct solar radiation and diffuse sky radiation); and (c) *pyrgeometer*, which measures the effective terrestrial radiation. (See **RADIOMETER**) (AMS)

**ACTIVE LAYER** — 1. Annually thawed layer. Layer of ground that thaws in the summer and freezes again in the winter. (AD) 2. Equivalent to seasonally frozen ground. (AD)

**ACTIVE ZONE** — Equivalent to annual extent of the **ACTIVE LAYER**. (AD)

**ADAPTATION LUMINANCE** — The average luminance (or **BRIGHTNESS**) of those objects and surfaces in the immediate vicinity of an observer estimating the visual range. Also called *adaptation brightness*, *adaptation illuminance*, *brightness level*, *field brightness*, *field luminance*. (AMS)\*

**ADFREEZING**, n. — The process by which two objects adhere to one another because of the binding action of ice. (ADT)

**ADIABATIC PROCESS** — A thermodynamic change of state of a system in which there is no transfer of heat or mass across the boundaries of the system. In an adiabatic process, compression always results in warming, expansion in cooling. In meteorology the adiabatic process is often also taken to be a reversible process. (AMS)\*

**ADSORPTION**, n. — The adherence of molecules of dissolved substances (gases or liquids) to the surface with which they are in contact, thereby reducing the quantity of fluid in the original substance.

**ADVECTION**, n. — *Meteorol.* The process of transport of an atmospheric property solely by the mass motion of the atmosphere; also, the rate of change of the value of the advected property at a given point. Regarding the general distinction (in meteorology) between *advection* and *convection*, the former describes the predominantly horizontal, large-scale motions of the atmosphere while *convection* describes the predominantly vertical, locally induced motions. (AMS)\*

**ADVECTION FOG** — Fog resulting from the movement of moist air over a cold surface and the consequent cooling of this air to

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below its dew point. See SEA FOG. (AMS)\*

**AEROBIC**, adj. — 1. Having molecular oxygen as a part of the environment. (SSS)  
 2. Growing only in the presence of molecular oxygen, as aerobic organisms. (SSS)  
 3. Occuring only in the presence of molecular oxygen (said of certain chemical or biochemical processes such as aerobic decomposition). (SSS)

**AERODYNAMICS**, n. — That field of dynamics concerned with the motion of air and other gaseous fluids, or of the forces acting on bodies in motion relative to such fluids. (AFD)

**AEROLOGY**, n. — The study of the free atmosphere throughout its vertical extent, as distinguished from studies confined to the layer of the atmosphere adjacent to the earth's surface. Aerological investigations are made directly by means of sounding balloons and aircraft. They are also made indirectly by visual observations from the ground, including observations of clouds, meteor trails, the aurora, etc. (ND)

**AEROMETEOROGRAPH**, n. — Instrument that records the pressure and temperature of the air, the amount of moisture in the air, and the rate of motion of the wind. An aerometeorograph designed to transmit its record by radio from a balloon is called a *radio meteorograph* or **RADIOSONDE**. (AD)\*

**AERONOMY** — The physics of the upper atmosphere; it includes the study of the composition, physical properties, and chemical reactions of the upper atmosphere. (AMS)\*

**AEROSOL**, n. — 1. In atmospheric sciences, a colloid suspension of liquid or solid particles in the air, e.g., HAZE. Some fogs and clouds are colloidal systems, but only if the drop size is small enough (usually less than one micron) to allow colloidal stability. (AMS)\* 2. A term used to denote a method of packaging in which gas

under pressure, or a liquified gas which has a pressure greater than atmospheric at ordinary temperatures, is used to spray a liquid. In insecticide aerosols, as defined by the U. S. Department of Agriculture, all particles must be less than 50 microns in diameter, and 80% (by weight) must be less than 30 microns in diameter.

**AEROSPACE**, adj. — Of, or pertaining to, the earth's envelope of atmosphere and the space above it; two separate entities considered as a single realm for activity in launching, guidance, and control of vehicles which will travel in both realms. (JD) (For other meanings in Air Force usage, see AF.)

**AFTERWINDS**, n. — Wind currents set up in the vicinity of an atomic explosion directed toward the blast center and resulting from the updraft following the rise of the fireball.

**AGGLOMERATION**, n. — In cloud physics, the process in which precipitation particles grow by collision with and assimilation of cloud particles or other precipitation particles. (AMS)\*

**AGGREGATE**, n. — Natural or manmade material, with rocklike particles ranging from 1/4 to 2 1/2 inches in diameter and with or without sand and artificial binder used as a subgrade, base, or surface for a road. Usually refers to gravel or crushed rock. Sometimes called *road metal* (in England).

**AGGREGATE (OF SOIL)** — A single mass or cluster of soil consisting of many particles held together, such as a clod, prism, crumb, or granule. (YA)\*

**AGGRADATION OF PERMAFROST** — Growth of PERMAFROST under the present climate due to natural or artificial causes. Opposite to degradation. (AD)

**AGING**, n. — A gradual process involving physical change(s) in the properties or characteristics of a material which proceeds in a manner predictable chiefly as a function of time. In addition, the aging

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- process may be accelerated or slowed when the material is also subjected to other factors than time, such as high or low temperature, ozone, etc. Aging can weaken or destroy specific properties in a material, or, conversely, aging can enhance the desired properties, as in curing lumber.
- AGING, ACCELERATED** — Exposure of material to accelerated, simulated climatic conditions by using hot or cold chambers, intense sprays, continuous light, or other artificial means.
- AGING, ARTIFICIAL** — The change of material exposed to an artificial environment, as in a test chamber.
- AGING, NATURAL** — The change of material exposed in the natural environment.
- AGING, UNDISTORTED ACCELERATED** — A short-term exposure of an item which generates the same aging effects as the related long-term natural exposure.
- A-HORIZON** — *Pedology*. See ABC SOIL and SOIL HORIZON.
- AIR, n.** — The mixture of gases comprising the earth's atmosphere. Since the composition of the atmosphere is slightly variable with respect to certain components, the term "pure air" has no precise meaning, but it is commonly used to imply freedom from non-gaseous suspensoids (dust, hydrometeors) and also freedom from such gaseous contaminants as industrial effluents. (AMS)\*
- AIRBORNE DUST** — Particles of mineral and other substances, usually of silt size, suspended in the air, such as those raised by operation of equipment over dry, loessial terrain, or those resulting from dust storms.
- AIRBURST, n.** — An explosion of a bomb or projectile above the surface, as distinguished from an explosion on contact with the surface or after penetration. (JD)
- AIR CHECKS** — Surface marking and depressions caused by air trapped in rubber and plastics during the curing process.
- AIR CONDITIONING** — The artificial control of humidity, temperature, "purity", and motion of the air within buildings and other enclosed spaces; also the operation of equipment for such controls. The objective may be to secure either maximum human comfort or the best environment for a given industrial operation. (AMS)
- AIR DENSITY** — 1. The ratio of the mass of air to the volume occupied by it. In a continuous medium the density is defined by a limiting process and is a point function. (AMS)\* 2. See BALLISTIC DENSITY.
- AIR DISCHARGE** — A form of lightning discharge, intermediate in nature between a cloud discharge and a cloud-to-ground discharge, in which the multibranching lightning channel descending from a cloud base does not reach the ground, but rather succeeds only in neutralizing the space charge distributed in the sub-cloud layer. (AMS)\*
- AIR-DRY, adj.** — The state of dryness (of a soil) at equilibrium with the moisture content in the surrounding atmosphere. The actual moisture content will depend upon the relative humidity and the temperature of the surrounding atmosphere. (SSS)
- AIR-DRY, v.t.** — To allow to reach equilibrium in moisture content with the surrounding atmosphere. (SSS)
- AIR-EARTH CURRENT** — The transfer of electric charge from the positively-charged atmosphere to the negatively-charged earth. This current is made up of the air-earth conduction current, a precipitation current, a convection current, and miscellaneous smaller contributions. Of these, the first is by far the largest. (AMS)\*
- AIR LOSS** — The loss in weight by an object or substance on exposure to air at room temperature for a specified period of time.
- AIR MASS** — A widespread body of air that

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is approximately homogeneous in its horizontal extent, particularly with reference to temperature and moisture distribution; in addition, the vertical temperature and moisture variations are approximately the same over its horizontal extent. (AMS)\*

**AIR-MASS CLASSIFICATION** — A system used to identify and to characterize the different air masses according to a basic scheme. A number of systems have been proposed, but the Bergeron classification has been the most widely accepted. In this system, air masses are designated according to the thermal properties of their source regions: tropical (*T*); polar (*P*); and less frequently, arctic or antarctic (*A*). For characterizing the moisture distribution, air masses are distinguished as to continental (*c*) and maritime (*m*) source regions. Further classification according to whether the air is cold (*k*) or warm (*w*) relative to the surface over which it is moving indicates the low-level stability conditions of the air, the type of modification from below, and is also related to the weather occurring within the air mass. This outline of classification yields the following identifiers for air masses: *cTk*, *cTw*, *mTk*, *mTw*, *cPk*, *cPw*, *mPk*, *mPw*, *cAk*, *cAw*, *mAk*, *mAw*; the last of which is never used. (AMS)\*

**AIR, MOIST** — 1. In atmospheric thermodynamics, air that is a mixture of dry air and any amount of water vapor. (AMS) 2. Generally, air with a high relative humidity. (AMS) 3. In environmental engineering, a mixture of air and condensed or entrained beads of airborne water, specifically air containing water in the liquid state.

**AIR PRESSURE** — The static pressure exerted by air. Although this is a very general term, it is best used in cases where a limited volume of air is concerned, as within an enclosed space. This term should never be used to denote a dynamic effect such as wind pressure. (AMS)\*

**AIRSPACE**, n. — The space above the surface of the earth and its appurtenances, such as buildings, trees, etc., or a part of such space. (ND)\*

**AIR STABILITY** — The condition of the atmosphere as affected by the gradient of air temperature in the vertical direction, which determines the extent of mixing or exchange between air layers at different altitudes. (AD)

**ALBEDO**, n. — The ratio of the amount of electromagnetic radiation reflected by a body to the amount incident upon it, commonly expressed as a percentage. The albedo is to be distinguished from the *reflectivity*, which refers to one specific wave length (monochromatic radiation). (AMS)\*

**ALBEDOMETER**, n. — An instrument used for the measurement of the reflecting power (the albedo) of a surface. A pyranometer or radiometer adapted for the measurement of radiation reflected from the earth's surface is sometimes employed as an albedometer. (AMS)

**ALGA** (pl. **ALGAE**), n. — 1. A thallophyte possessing chlorophyll; includes almost all seaweeds. (NOO) 2. A plant of relatively simple structure which grows chiefly in water, such as the various forms of seaweed. Algae range in size from a microscopic plant, large numbers of which sometimes cause discoloration of water, to the giant kelp which may have a length of more than 600 feet. (ND)\*

**ALIMENTATION**, n. — Generally, the process of providing nourishment or sustenance; thus in glaciology, the combined processes which serve to increase the mass of a glacier or snowfield; the opposite of **ABLATION**. The deposition of snow is the major form of glacial alimentation, but other forms of precipitation along with sublimation, refreezing of melt water, etc. also contribute. The additional mass produced by alimentation is termed *accumulation*. (AMS)

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**ALKALI FLAT** — A PLAYA; the bed of a dried-up saline lake that is heavily impregnated with alkaline salts. (GS)

**ALKALI SOIL** — 1. A soil with a high degree of alkalinity (pH of 8.5 or higher) or with a high exchangeable sodium content (15% or more of the exchange capacity), or both. 2. A soil that contains sufficient alkali (sodium) to interfere with the growth of most crop plants. (SSS)

**ALKALINE SOIL** — Any soil that has a pH greater than 7.0. (See ACID SOIL). (SSS)

**ALL-AGED** — Applied to a stand in which theoretically trees of all ages up to and including those of the felling age are found. (SAF)

**ALLIGATORING**, n. — A coating failure attributed to improper use or application of paints, varnishes, lacquers, and allied formulations. It is characterized by the formation or separation of large surface cracks and segments in the characteristic pattern resembling the hide of an alligator.

**ALLUVIAL CONE (or ALLUVIAL FAN)** — A body of alluvium, shaped like a segment or sector of a low cone, formed where the gradient of a stream valley decreases abruptly, as where a steep mountain canyon emerges into an open valley or onto a plain. The surface of an alluvial fan is normally marked by stream channels and former channels that radiate from the apex of the cone, at the mouth of the mountain canyon, in a pattern somewhat like that of the ribs of an open Japanese fan. The profile of a large alluvial fan is normally concave, the slope decreasing progressively away from the apex.

**ALLUVIUM**, n. — A general term for all detrital material deposited permanently or in transit by streams. It includes gravel, sand, silt, and clay, and all variations and mixtures of these. It is usually applied to the deposits of streams in their channels and over their flood plains and deltas, but

a few writers include material laid down in lakes and estuaries. Unless otherwise noted, alluvium is unconsolidated. (S&V)

**ALP**, n. — 1. A high, steep-sided mountain. (ADT) 2. In botany, a mountain pasture or meadow between timberline and snowline. (ADT)

**ALPHA PARTICLE** — A positively charged particle emitted from the nucleus of certain atoms during radioactive disintegration. The alpha particle has an atomic weight of 4 and a positive charge equal in magnitude to 2 electron charges; hence it is essentially a helium nucleus (helium atom stripped of its two planetary electrons). (AMS)\*

**ALPHA RAY** — A stream of alpha particles. (AMS)

**ALPINE**, adj. — 1. Of, pertaining to, or like the Alps in Europe. 2. Descriptive of the plants, animals, and ecological associations of any high mountain region above timberline, hence *alpine heath*, *alpine meadow*, *alpine pasture*, *alpine fauna*. (ADT)\* 3. Pertaining to ALPINE TOPOGRAPHY. (ADT)

**ALPINE TOPOGRAPHY** — Mountainous terrain modified by glaciation to display an assortment of physiographic features such as arêtes, aiguilles, cirques, and U-shaped valleys. (ADT)

**ALTIMETER**, n. — An instrument for indicating altitude above or below a given datum, usually the ground or sea level.

**ALTIMETER SETTING** — The value of atmospheric pressure to which the scale of a pressure altimeter is set.

**ALTITUDE**, n. — 1. The vertical distance between a point and a datum surface. (NOO)\* 2. The vertical angle between the plane of the horizon and the line to the observed point, as a star. (NOO) 3. The height of an airborne object above the earth's surface; above a constant-pressure surface, or above mean sea level. (AMS)\*

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**AMBIENT**, adj. — Surrounding; external; unconfined.

**AMBIENT TEMPERATURE** — The temperature of the air or other medium surrounding an object. (NOO)\*

**AMBIENT VIBRATION** — The all-encompassing vibration associated with a given environment, being usually a composite of vibration from many sources near and far. (ISO)

**AMPHITHEATER**, n. — A relatively flat valley or gulch-like depression, generally oval or circular in outline, formed by glaciation in alpine mountains at or near the head of drainage. (NAS)

**AMPLITUDE**, n. — 1. A measure of the magnitude of the maximum deviation from the rest position of a parameter. Amplitude may be expressed in either a positive or negative direction, polarity, or sense, depending on the parameter. 2. *Mechanics*. The extent of the force, displacement velocity, or acceleration of a vibration. 3. a. *Electricity*. The maximum variation or departure from the average of an alternating current, voltage, charge, or magnetic flux. b. *Electronics*. The greatest value of an alternating radio wave or the like in one direction, measuring from zero. 4. The magnitude of the displacement of a wave from a mean value. For simple harmonic, complex harmonic, or random waves, the amplitudes of concern may be peak, average, root-mean-square, peak-to-peak, or one-half the mean difference between maxima and minima.

**AMPLITUDE, PEAK TO PEAK** — Of an oscillating quantity, the algebraic difference between the extremes of the quantity. Two times the amplitude of a simple harmonic oscillatory quantity is its peak to peak amplitude, or *double amplitude*.

**ANAEROBIC**, adj. — 1. The absence of molecular oxygen. (SSS) 2. Growing in the absence of molecular oxygen (such as anaerobic bacteria). (SSS) 3. Occurring

in the absence of molecular oxygen (as a biochemical process). (SSS)

**ANALOG**, n. — 1. In synoptic meteorology, a past large-scale weather pattern which resembles a given (usually current) situation in its essential characteristics. (AMS)\* 2. Any environmental element or element-complex which has basic similarities to another element or element-complex located in a different part of the world.

**ANCHORAGE**, n. — An area where a vessel anchors or may anchor, either because of suitability or designation. (NOO)\*

**ANCHOR ICE** (Also called **BOTTOM ICE**) — The very solid film of ice that develops on rocks and other obstructions on the bottom of a stream, lake, or shallow sea, irrespective of its nature of formation. (NOO)\*

**ANECHOIC ROOM** — A room whose boundaries absorb effectively all the sound incident thereon, thereby affording essentially free-field conditions.

**ANEMOMETER**, n. — The general name for instruments designed to measure the speed (or force) of the wind. These instruments may be classified according to the means of transduction employed: those used in meteorology include the rotation anemometer, pressure-plate anemometer, pressure-tube anemometer, bridled-cup anemometer, contact anemometer, cooling-power anemometer, and sonic anemometer. (AMS)

**ANGEL**, n. — A radar echo caused by a physical phenomenon not discernible to the eye. Angels are usually coherent echoes and sometimes of great signal strength (up to 40 db above the noise level). They have been ascribed to insects flying through the radar beam, but have also been observed under atmospheric conditions which indicate there must be other causes. Studies indicate that a fair portion of them are caused by strong temperature and/or moisture gradients such as might be found near the boundaries of bubbles of especially

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- warm or moist air. They frequently occur in shallow layers at or near temperature inversions within the lowest few thousand feet of the atmosphere. (AMS)
- ANGLE OF REPOSE** — The maximum slope or angle, measured from a horizontal plane, at which unconsolidated material (soil or loose rock) remains stable. When exceeded, mass movement by creeping, slipping, or sliding may be expected. Also called *critical slope*. (S&V)
- ANGSTROM, n.** — (Abbreviated Å or A) A unit of length used in the measurement of the wave length of light, x-rays, and other electromagnetic radiation and in the measurement of molecular and atomic diameters. One angstrom equals  $10^{-8}$  cm or  $10^{-4}$  microns. The wavelength of visible light ranges from about 4000 to 7000 angstroms; whereas x-ray wavelengths and atomic diameters are of the order of a few angstroms. The unit is named in honor of the nineteenth century Swedish spectroscopist, A. J. Angstrom. (AMS)
- ANNUAL FLOOD** — The highest peak discharge in a water year. (MH)
- ANNUAL RANGE OF TEMPERATURE** — The difference between the highest and lowest temperatures recorded at a station in any given year.
- ANODIZING, v. part.** — Forming a protective coating on a metal surface by anodic oxidation; most frequently applied to aluminum. Generally, anodized coatings are hard, abrasion resistant, and offer excellent resistance to corrosion.
- ANTARCTIC AIR** — A type of air whose characteristics are developed in an antarctic region. Antarctic air appears to be colder at the surface in all seasons, and at all levels in fall and winter, than arctic air. (AMS)\*
- ANTIFOULING, adj.** — Pertaining to a protective coating, usually containing copper compounds such as cuprous oxide or metallic copper powder. These are formulated in a suitable vehicle to provide a toxic environment which retards or prevents the growth of barnacles and other marine organisms on the underwater hull of vessels or other objects submerged in sea water.
- ANTINODE, n.** — A point, line, or surface in a **STANDING WAVE** where some characteristic of the wave field has maximum amplitude. (SVH)
- ANTIRESONANCE, n.** — A phenomenon of a system of forced oscillation wherein any change, however small, in the frequency of excitation causes an increase in the response. (SVH)
- APOGEAN TIDAL CURRENT** — A tidal current of decreased speed occurring at the time of **APOGEAN TIDE**. (NOO)
- APOGEAN TIDES** — Tides of decreased range occurring when the moon is near apogee. The range at this time is called apogean range and usually does not occur until 1 to 3 days after the moon reaches apogee. (NOO)\*
- APOGEE, n.** — The point at which a missile trajectory or a satellite orbit is farthest from the center of the gravitational field of the controlling body or bodies. (JD)
- APPARENT HORIZON** — The visible line of demarcation between land/sea and sky. (JD)
- APPLIED CLIMATOLOGY** — The scientific analysis of climatic data in the light of a useful application for an operational purpose. "Operational" is interpreted as any specialized endeavor, within such as industrial, manufacturing, agricultural or technical pursuits. This is the general term for all such work and includes agricultural climatology, aviation climatology, bioclimatology, industrial climatology, and probably others. (AMS)
- APPLIED ENVIRONMENTAL RESEARCH** — The collation of statistical, meteorological, climatic, and geographical

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data, the interpretation of these data, and the presentation of the evaluated information in suitable form for application to logistics problems of equipment, personnel and operational functions, and as an aid to designers of military equipment.

**APPLIED METEOROLOGY** — The application of current weather data, analyses, and forecasts to specific practical problems. It is distinguished from applied climatology, which deals with the similar application of long-period, statistically treated weather data. (AMS)

**APPLIED RESEARCH** — Application of the results of basic research to accomplish specific objectives. See also **BASIC RESEARCH**. (JD)

**APPLIED SHOCK (SHOCK EXCITATION)** — Any excitation that, if applied to a system, would produce mechanical shock. The excitation may be either a force applied to the system or a motion of its support. (ISO)\*

**APRON**, n. — An extensive alluvial deposit with generally low outward slope, essentially a mature coalesced series of **ALLUVIAL FANS** or a well-developed **BAJADA**.

**AQUATIC**, adj. — Growing or living in, or frequenting, or performing in or on water.

**AQUIFER**, n. — A water-bearing bed or stratum of earth, gravel, or porous stone.

**ARCTIC AIR** — A type of air whose characteristics are developed mostly in winter over arctic surfaces of ice and snow. Arctic air is cold aloft and it extends to great heights, but the surface temperatures are often higher than those of polar air. For two or three months in summer arctic air masses are shallow and rapidly lose their characteristics as they move southward. (AMS)

**ARCTIC-ALPINE**, adj. — 1. *Ecol.* Pertaining to areas above timberline. (ADT) 2. *Botany and Zool.* Pertaining to the distributional pattern or specific habitat of a plant

or animal in areas above timberline. (ADT)

**ARCTIC REGIONS** — That portion of the northern hemisphere which is characterized by having an average temperature for the warmest month of between 32 degrees Fahrenheit and 50 degrees Fahrenheit. These areas generally correspond with those seasonally frozen lands which do not support forest vegetation and include the adjacent lakes, seas or oceans. (AD)

**ARCTIC ZONE** — The area north of the Arctic Circle (66°32'N). (AMS)\*

**AREA OF NORTHERN OPERATIONS** — A region of variable width in the Northern Hemisphere that lies north of the 50 degree isotherm—a line along which the average temperature of the warmest four-month period of the year does not exceed 50 degrees Fahrenheit. Mountain regions located outside of this area may be included in this category of operations provided these same temperature conditions exist. (AD)

**ARETE**, n. — An acute and rugged crest of a mountain range, or a subsidiary ridge between two mountains, or of a mountain spur, such as that between two cirques. (GS)

**ARIDITY**, n. — The degree to which a climate lacks effective, life-promoting moisture; the opposite of humidity, in the climatic sense of the term. (AMS)\*

**ARROYO**, n. — A deep, usually dry gully or channel in an arid area. Typically, it is cut in unconsolidated material and has steep vertical walls at least several feet high. See **DRY WASH** and **BARRANCA**. (S&V)

**ARTESIAN WATER** — Ground water that is under sufficient pressure to rise above the level at which it is encountered by a well, but which does not necessarily rise to or above the surface of the ground.

**ARTIFICIAL DAYLIGHT** — Illumination of an intensity greater than the light of a full

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moon on a clear night. (The optimum illumination is the equivalent of daylight.) (JD)

**ARTIFICIAL ENVIRONMENT** — An environment that exists in a test facility under controlled conditions, some elements of which are an imitation of conditions found in nature.

**ARTIFICIAL MOONLIGHT** — Illumination of an intensity between that of starlight and that of a full moon on a clear night. (JD)

*Note:* The illumination of starlight is  $9 \times 10^{-3}$  foot candles. The illumination of a full moon on a clear night is  $2 \times 10^{-2}$  foot candles.

**ASPECT**, n. — 1. The compass direction toward which a land slope faces. The direction is taken downslope and normal to the contours of elevation. (AMS) 2. The gross physical appearance of a plant type. (SAF) 3. The seasonal appearance of a formation, for example, the spring aspect. (SAF)

**ASSOCIATION**, — *Ecol.* An assemblage of plants, usually over a wide area, that has one or more dominant species from which it derives a definite aspect.

**ATMOMETER**, n. — The general name for an instrument which measures the evaporation rate of water into the atmosphere. Four main classes of atmometers may be distinguished: (a) large evaporation tanks sunk into the ground or floating in water; (b) small evaporation pans; (c) porous porcelain bodies; and (d) porous paper wick devices. (AMS)\*

**ATMOSPHERE**, n. — 1. *Meteorol.* The envelope of air surrounding the earth and bound to it more or less permanently by virtue of the earth's gravitational attraction. The earth's atmosphere extends from the solid or liquid surface of the earth to an indefinite height, its density asymptotically approaching that of interplanetary space. (AMS)\* 2. *Physics.* A unit of pressure equal to 101,325 newtons per square meter (14.70 pounds per square inch), rep-

resenting the atmospheric pressure of mean sea level under standard conditions.

**ATMOSPHERE, STANDARD** — A hypothetical vertical distribution of atmospheric temperature, pressure, and density which, by international agreement, is taken to be representative of the atmosphere for purposes of pressure altimeter calibrations, aircraft performance calculations, aircraft and missile design, ballistic tables, etc. The current standard atmosphere is that which was adopted on 15 March 1962 by the United States Committee on Extension to the Standard Atmosphere (COESA). The U. S. Standard Atmosphere, 1962, up to 32 km, has been adopted by the International Civil Aeronautical Organization (ICAO). (AMS)\*

**ATMOSPHERIC ACOUSTICS** — The study of (a) sounds of meteorological origin and (b) the role of the atmosphere in the propagation of sound. Examples of sounds of meteorological origin are thunder and any of the varied aeolian sounds, such as the humming of telegraph wires or the murmuring of trees when winds are blowing. The atmosphere influences the propagation of sound in many ways; the velocity of sound in the atmosphere is governed by the air temperature and by its molecular composition; sharp inversions may produce marked sound reflection; strong temperature gradients yield sonic refraction; small turbulent eddies may cause diffraction and scattering of sound that results in acoustical scintillation. (AMS)

**ATMOSPHERIC DENSITY** — The ratio of the mass of the atmosphere (or any part of it) to the volume occupied by it. This ratio is greatest at sea level and decreases with increasing altitude; it also may vary horizontally depending on conditions of **ATMOSPHERIC TEMPERATURE** and **ATMOSPHERIC PRESSURE**. It is usually expressed in grams per cubic meter, although any other unit system may be used. (AMS)\*

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**ATMOSPHERIC ELECTRIC FIELD** — A quantitative term, denoting the electric field strength of the atmosphere at any specified point in space and time. In areas of fair weather, the atmospheric electric field near the earth's surface typically is about 100 volts per meter and is directed vertically in such a sense as to drive positive charges downward to the earth. In areas of fair weather this field decreases in magnitude with increasing altitude, falling, for example, to only about 5 volts per meter at an altitude of about 10 km. (AMS)\*

**ATMOSPHERIC ELECTRICITY**—Electrical phenomena, regarded collectively, which occur in the earth's atmosphere. These phenomena include not only such striking manifestations as LIGHTNING and ST. ELMO'S FIRE, but also less noticeable but more common effects such as atmospheric IONIZATION, the AIR-EARTH CURRENT, and other quiescent electrical processes. (AMS)\*

**ATMOSPHERIC OPTICS** — The study of the optical characteristics of the atmosphere and of the optical phenomena produced by the atmosphere and by particles suspended in the atmosphere, e.g. AEROSOLS and WATER VAPOR. It includes the study of refraction, reflection, diffraction, scattering, and polarization of light, but is not commonly regarded as including the study of other kinds of radiation. (AMS)\*

**ATMOSPHERIC PHENOMENON** — As commonly used in weather observing practice, an observable occurrence of particular physical (as opposed to dynamic or synoptic) significance within the atmosphere. Included are all hydrometeors (except clouds, which are usually considered separately), lithometeors, igneous meteors, and luminous meteors. From the viewpoint of weather observations thunderstorms, tornadoes, waterspouts, and squalls are also included. The above usage excludes such "phenomena" as the local or large-

scale characteristic of wind, pressure, and temperature; it also excludes clouds, although it includes many products of cloud development and composition. In aviation weather observation, atmospheric phenomena are divided into two categories: weather and obstructions to vision. (AMS)

**ATMOSPHERIC PRESSURE** — The pressure exerted by the atmosphere as a consequence of gravitational attraction exerted upon the "column" of air lying directly above the point in question. (AMS)\* Pressure is usually given in millibars (mbs), inches of mercury, pounds per square inch, or pounds per square foot. Its standard value at sea level is about 14.7 pounds per square inch (101,325 newtons per sq. m.).

**ATMOSPHERIC RADIATION**—1. Electromagnetic radiation emitted by the atmosphere. 2. In meteorology, thermal radiation (about 3 to 80 micron wavelengths) emitted by, or propagating through, the atmosphere which interacts with the atmosphere and provides one of the important mechanisms by which the heat balance of the earth-atmosphere system is maintained; also called *long-wave* radiation. (AMS)\*

**ATMOSPHERIC TEMPERATURE** — The degree of heat or cold in the envelope of air surrounding the earth as measured on some definite temperature scale (usually CELSIUS or FAHRENHEIT) by means of any of various types of thermometers. (AMS)\*

**ATMOSPHERICS, n.**—The radio-frequency electromagnetic radiations originating, principally, in the irregular surges of charge in thunderstorm lightning discharges. Atmospheric are heard as a quasi-steady background of crackling noise (static) in ordinary amplitude-modulated radio receivers. (AMS)\* (See SFERICS)

**ATOLL, n.**— A ring-shaped organic reef that is surrounded by the open sea and encloses a LAGOON in which there is no land above sea level. (NOO)\*

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**ATTENUATION**, n. — 1. In general, the decrease in flux density (or power, amplitude, intensity, particles, etc.) with distance from the energy source by any process; it includes diminution by distance (inverse square law), absorption, scattering, refraction, and diffusion, 2. In atmospheric sciences, the decrease in flux of a "parallel beam" of radiation caused by the effects of the transmitting medium (mainly absorption and scattering by the atmosphere); the effect of distance from the source (inverse square law) is specifically excluded. (AMS)\* 3. In vibration mechanics, resonant response attenuation will occur if a structure or system is detuned, or if resonant damping increases progressively with fatigue, or if elastic isolation media are inserted. Electrical attenuation is used in the standardization of multichannel recording of accelerometer signals, and with filters for signal conditioning and random vibration equalization.

**ATTERBERG LIMITS** — Measures of soil consistency for differentiation between materials of appreciable plasticity (clays) and slightly plastic or nonplastic materials (silts). The measures include the **LIQUID LIMIT**, the **PLASTIC LIMIT**, and the **PLASTICITY INDEX**. (BR)

**AUDIBLE SOUND** — Sound containing frequency components lying between about 15 and 20,000 cycles per second with sufficient sound pressure to be heard.

**AUDIO**, adj. — Pertaining to frequencies of audible sound waves between about 15 and 20,000 cycles per second.

**AUDIO FREQUENCY** — Any frequency corresponding to a normally audible sound wave. Audio frequencies range roughly from 15 to 20,000 cycles per second. (ASA)\*

**AVAILABLE WATER** — The portion of water in a soil that can be readily absorbed by plant roots. Considered by most workers to be that water held in the soil against a pressure of up to approximately 15 bars.

(SSS)

**AVALANCHE**, n. — A large mass of snow or ice, or other surface materials, moving rapidly down a mountain slope. (ADT)\*

**AVERAGE DISCHARGE** — In the annual series of the Geological Survey's reports on surface-water supply—the arithmetic average of all complete water years of record whether or not they are consecutive. Average discharge is not published for less than 5 years of record. The term "average" is generally reserved for average of record and "mean" is used for averages of shorter periods, namely, daily mean discharge. (MH)

**AWASH**, adj. & adv. — 1. Tossed about or bathed by waves or tide. (NOO) 2. A rock exposed or one just bare at any stage of the tide between the datum of mean high water and the sounding. (NOO)

**AZIMUTH**, n. — Direction expressed as horizontal angle usually in degrees or mils and measured clockwise from north. Thus, azimuths will be true azimuths, grid azimuths, or magnetic azimuths, depending on which north is used. (AD)

**AZONAL SOILS** — Soils without distinct genetic horizons. (SSS)\*

**B**

**BABBLE**, n. — The combined signal consisting of a number of interfering signals received together. (ND)

**BACK BLAST** — Rearward blast of gases from the breech of recoilless weapons upon the burning of the propellant charge. It is sometimes referred to as *breech blast*. (AD)

**BACKGROUND**, n. — Ever-present effects in physical apparatus above which a phenomenon must manifest itself in order to be measured. "Background" can take various forms, depending on the nature of the measurement.

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**BACKGROUND COUNT** — The evidence or effect on a detector of radiation, other than that which it is desired to detect, caused by any agency. In connection with health protection, the background count usually includes the radiations produced by naturally occurring radioactivity and cosmic rays. (JD)

**BACKGROUND LUMINANCE** — In visual-range theory, the luminance (brightness) of the background against which a target is viewed. In estimating the visual range by objects on the horizon, for example, the background luminance is that of the sky near the horizon. In the problem of downward oblique visual range, the pertinent background luminance is that of the earth's surface. (AMS)

**BACKSHORE, n.** — That part of a **BEACH** which is usually dry, being reached only by the highest tides, and, by extension, a narrow strip of relatively flat coast bordering the sea. (NOO)

**BACKWARD SCATTER** — The scattering of radiant energy into the hemisphere of space bounded by a plane normal to the direction of the incident radiation and lying on the same side as the incident ray; the opposite of **FORWARD SCATTER**. In radar usage, **BACKWARD SCATTER** refers only to that radiation scattered at 180° to the direction of the incident wave. (AMS)\*

**BACTERIA, n. pl.** — Unicellular microscopic organisms, simpler and less complex in structure than the fungi and only obscurely related to other organisms. Their unicellular form, lack of definite nucleus, and method reproduction by fission remotely suggest relationship with blue-green algae, from which most are distinguished by the absence of pigments. The absence of chlorophyll makes it necessary for bacteria to obtain their nutritional requirements from organic sources.

**BADLANDS, n.** — Terrain produced by excessive erosion of poorly consolidated ma-

terials and characterized by intricate and sharp erosional features. Vegetation is scanty or absent and there is a notable lack of coarse detritus. Hills are steep, furrowed, and often of fantastic forms. Badlands occur chiefly in arid or semiarid climates where the rainfall is concentrated in sudden, heavy showers. (S&V)\*

**BAJADA, n.** — A long outwash detrital slope at the base of a mountain range, resulting from the coalescence of alluvial fans. (GS)

**BALLAST, n.** — Selected materials (usually crushed rock that is irregular in shape, easily tamped, fireproof, well drained, resistant to plant growth and evenly distributed) placed on a railroad to hold the track in proper alinement.

**BALL ICE** — Small spheres of sea ice, 1 to 2 inches in diameter, rounded and shaped by the waves. They are very soft and spongy, and are generally found in belts similar to sludge which forms at the same time. (AMS)

**BALLISTIC DENSITY** — A representation of the atmospheric density actually encountered by a projectile in flight expressed as a percentage of the density according to the standard artillery atmosphere. Thus, if the actual density distribution produced the same effect upon a projectile as the standard density distribution, the ballistic density would be 100 per cent. (AMS)

**BALLISTIC EFFICIENCY** — Ability of a projectile to overcome the resistance of the air. Ballistic efficiency depends chiefly on the weight, diameter, and shape of the projectile. (AD)

**BALLISTIC IMPACT** — The impact of a body during or at the end of its ballistic flight, i.e., target impact. The impact caused by the impingement of particles, fragments, bullets or other objects on the target after their trajectory flight through space. This type of impact is differentiated from the impacting of components in a weapon system during environmental impact tests.

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**BALLISTIC PENDULUM** — A type of accelerometer calibrator in which the resultant velocity of an initially stationary suspended mass, to which the accelerometer is mounted, is measured when the mass is struck by a second suspended mass released from a predetermined height. (SVH)

**BALLISTICS, n.** — The science or art that deals with the motion, behavior, appearance, or modification of missiles or other vehicles acted upon by propellants, wind, gravity, temperature, or any other modifying substance, condition or force. (JD)

**BALLISTIC TEMPERATURE** — A computed constant temperature that would have the same total effect on a projectile traveling from the gun to the target as the varying temperatures actually encountered. (AD)

**BALLISTIC WIND** — Assumed constant wind that would have the same total effect on a projectile traveling from the gun to the target as the varying winds actually encountered. (AD)

**BAND, FREQUENCY**—In communications and electronics, a continuous range of frequencies extending between two limiting frequencies. The term may also be applied to those frequencies which are encountered in shock and vibration excitation.

**BAND, NARROW** — The waves contained within a relatively small portion of the spectrum. If a narrow band pass filter is used, the intensity at the two cutoff wavelengths is a certain percentage of the maximum intensity within the interval.

**BAND, WIDE** — The waves contained within a relatively large portion of the spectrum. If a wide band pass filter is used, the intensity at the two cutoff wavelengths is a certain percentage of the maximum intensity within the interval.

**BAND WIDTH**—The difference between the cutoff wavelengths of a band.

**BAND WIDTH, EFFECTIVE** — The band

width of an ideal transmission system which (1) has uniform transmission in its pass band equal to the maximum transmission of the specified system and (2) transmits the same power as the specified system when the two systems are receiving equal input signals having a uniform distribution of energy at all frequencies. (SVH)

**BANK, n.** — 1. An elevation of the sea floor located on a continental (or island) shelf and over which the depth of water is relatively shallow but sufficient for safe navigation. It may support shoals or bars on its surface which are dangerous to navigation. (NOO) 2. In its secondary sense, a shallow area consisting of shifting forms of silt, sand, mud, gravel, etc., but in this case it is only used with a qualifying word such as "sand-bank," "gravel-bank," etc. (NOO) 3. A ridge of any material such as earth, rock, snow, etc., or anything resembling such a ridge, as a *fog bank* or *cloud bank*. (ND) 4. The border or shore of a river. (ND) 5. The margin of a channel. Banks are called right or left as viewed facing in the direction of the flow. (MH)

**BAR, n.** — 1. *Meteorol.* A unit of pressure equal to  $10^9$  dyne per  $\text{cm}^2$  ( $10^6$  barye), 1000 millibars, 29.53 inches of mercury. (AMS) 2. As a coastal landform, a ridge of unconsolidated material lying seaward of a shore (offshore bar). A bar may be submerged even at low tide, it may be tidal, or it may rise above high tide level. Most bars consist of sand or gravel. 3. As a landform in a stream channel, an accumulation of alluvium, usually ridgelike and elongate in the direction of the current. Most river bars consist of sand (sandbars) or gravel (gravel bars), but some are of mud (sometimes called mudbanks) and some consist of cobbles or even boulders. Many river bars are emergent at low water, and some are only covered at flood stage.

**BARCHAN, n.** — An independent, traveling, crescent-shaped dune or drift of wind-blown sand or snow, with the crescent fac-

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ing toward the prevailing winds. A transverse type dune, it has an asymmetrical and crested cross-section with a steep inner-slope and a relatively gentle outer-slope. Conditions under which barchans form include a relatively small to moderate supply of material and winds of almost constant direction and moderate speed.

**BARNACLE, n.** — A marine crustacean having feathery appendages (cirri) for gathering food, and found attached to rocks, floating logs, and ships' bottoms.

**BAROGRAPH, n.** — A recording barometer. Barographs may be classified on the basis of their construction into the following types: (a) *aneroid barograph* (including microbarograph), (b) *float barograph*, (c) *photographic barograph*, and (d) *weight barograph*. The aneroid barograph, which is the least complicated and possibly least accurate of the barographs, is the one most commonly used in weather stations. (AMS)

**BAROMETER, n.** — An instrument for measuring ATMOSPHERIC PRESSURE. (NOO) A mercurial barometer employs a column of mercury supported by the atmosphere. An *aneroid barometer* has a partly exhausted, thin-metal cylinder somewhat compressed by atmospheric pressure.

**BAROMETRIC CORRECTIONS** — The corrections which must be applied to the reading of a mercury barometer in order that this observed value may be rendered accurate. There are four kinds. (a) The *instrument correction* is the mean difference between the readings of a given mercury barometer and those of a standard instrument. It is a composite correction, including the effects of capillarity, index misalignment, imperfect vacuum, and scale correction, which are the barometric errors. (b) The *temperature correction* is applied to account for the difference between the coefficient of expansion of mercury and that of the scale. (c) The *gravity correction* is necessary because the acceleration

of gravity varies both with altitude and latitude. (d) The *removal correction* is applied when the barometer elevation differs from the adopted station elevation and/or climatological station elevation. (AMS)

**BAROMETRIC PRESSURE** — Atmospheric pressure as indicated by a barometer. This atmospheric pressure is the pressure exerted by the atmosphere as a consequence of gravitational attraction exerted upon the "column" of air lying directly above the point in question. (AMS)\*

**BAROTHERMOHYGROGRAPH, n.** An instrument which automatically records pressure, temperature, and humidity of the atmosphere. (ND)

**BARRANCA, n.** — A DRY WASH or RAVINE having steep sides and a narrow bed less than two meters wide. See ARROYO and WADI.

**BARRENS, n.** — A relatively desolate area, where vegetation is lacking (as in an ice-cap or desert) or is scanty and is restricted to a few species, as compared with adjacent areas, because of adverse soil, wind, or other environmental factors.

**BARRIER MATERIAL** — A material designed to withstand, to a specified degree, penetration of water, oils, water vapor, or certain gases such as CO<sub>2</sub> and N<sub>2</sub>. Materials are also used as thermal and acoustic barriers.

**BARRIER REEF** — A coral reef parallel to and separated from the coast by a LAAGOON that is too deep for coral growth. Generally, barrier reefs follow the coasts for long distances and are cut through at irregular intervals by channels or passes. (NOO)

**BASALT, n.** — Any one of a group of fine-grained, dark, heavy, widely distributed volcanic rocks. No strict definition of basalt as a mineralogic type has been agreed upon.

**BASE SURGE** — A cloud which rolls out

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from the bottom of the column produced by a subsurface burst of a nuclear weapon. For underwater bursts the surge is, in effect, a cloud of liquid droplets which has the property of flowing almost as if it were a homogeneous fluid. For subsurface land bursts the surge is made up of small solid particles but still behaves like a fluid. (JD)

**BASIC RESEARCH** — Efforts directed toward an increase in fundamental knowledge. See also **APPLIED RESEARCH**. (JD)

**BASIN**, n. — 1. A depression of the sea floor more or less equidimensional in form and of variable extent. (NOO) 2. An area in a tidal region in which water can be kept at a desired level by means of a gate. Also called tidal basin. (ND) 3. A relatively small cavity in the bottom or shore, usually created or enlarged by excavation, large enough to receive one or more vessels for a specific purpose. (ND) 4. An area of land which drains into a particular lake or sea through a river and its tributaries. (ND) 5. The drainage or catchment area of a stream or lake. (GS)\*

**BATHYMETER**, n.—An instrument primarily designed for measuring depth of water. Bathymetric surveys, previously done by lead line, are now performed by using an echo sounder and precision depth recorder. (NOO)

**BATTLEFIELD ILLUMINATION** — The lighting of the zone of action of ground combat and combat support troops by artificial means other than invisible rays. (JD)

**BEACH**, n. — 1. The area extending from the shoreline inland to a marked change in physiographic form or material, or to the line of permanent vegetation (coastline). (JD) 2. In amphibious operations, that portion of the shoreline designated for landing of a tactical organization. (JD) 3. A gently sloping area of wave-deposited unconsolidated material bordering a sea or

lake; also, the unconsolidated material making up such a beach.

**BEAT FREQUENCY** — Either of the two additional frequencies obtained when signals of two frequencies are combined, equal to the sum or difference, respectively, of the original frequencies. (ND)

**BEAUFORT WIND SCALE** — A system of estimating and reporting wind speeds, invented in the early nineteenth century by Admiral Beaufort of the British Navy. In its present form for international meteorological use it equates (a) Beaufort force (or Beaufort number), (b) wind speed, (c) descriptive term, and (d) visible effects upon land objects or sea surface. As originally given, Beaufort numbers ranged from 0, calm, to 12, hurricane. They have now been extended to 17. (AMS)\*

**BED**, n. — A layer of rock differing from layers above and below, or set off by more or less well marked divisional planes; a layer in a series of stratified (sedimentary) rocks.

**BEDROCK**, n. — The more or less solid, undisturbed rock in place either at the surface or beneath superficial deposits of gravel, sand, or soil. According to local conditions and usages, bedrock may be soft or hard, consolidated or unconsolidated. (S&V)

**BEL**, n. — A unit expressing the relation between amounts of signal power and differences in sound-sensation levels. The number of bels is equal to the common logarithm of the ratio of the two powers or sound levels involved. Two powers or levels differ by one bel when their actual ratio is 10:1. See **DECIBEL**. (U.S. Army TM 11-486-11)

**BELGIUM BLOCK COURSE** — A test facility for simulating the conditions of transportation. The course is a specially prepared road bed having varying degrees of roughness, waviness, and other controlled characteristics over which wheeled equipment is moved at varying speeds to study

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the effects of shock and vibration caused by transportation. Belgium Block is only one section of the *Munson Test Course* which also includes a course washboard, a radial washboard, and a single corrugation section.

**BENCH, n.**—A strip of relatively level earth or rock, raised and narrow. A small terrace or comparatively level platform breaking the continuity of a declivity. (GS)

**BERGY BIT, n.**— A medium-sized piece of ice, generally less than 5 meters (16.4 feet) high and about the size of a small cottage. It usually originates from glacier ice but occasionally from a massive piece of sea ice or hummocked ice. When it is known to be sea ice, the term *floeberg* may be used. (NOO)\*

**BERM, n.**— The nearly horizontal portion of a beach or backshore having an abrupt fall and formed by deposition of material by wave action and marking the limit of ordinary high tides. (NOO)\*

**BETA PARTICLE**— A positive or negative electron emitted by the nucleus during radioactive transformation; also called *beta ray*. By extension, electrons accelerated to extremely high speeds (kinetic energies about one million electron volts or more) are called beta particles.

**BEVAMETER, n.**— A mobile or portable instrument developed by the Land Locomotion Laboratory for measuring horizontal and vertical stress-deformation curves of natural soils or soil simulating materials, and consisting of one or more rotating horizontal shear heads and one or more vertical displacement penetrometers.

**B-HORIZON**— See **SOIL HORIZON**.

**BIOFOG, n.**— Basically, a type of steam fog caused by contact between extremely cold air and the warm, moist air surrounding human or animal bodies or generated by human activity. These fogs are sometimes named after their specific sources, such as *animal fog, human fog, town fog*. (AMS)

**BIOLOGICAL AGENT**— A microorganism

which causes disease in man, plants or animals or causes the deterioration of material. (JD)

**BLACK BODY**— A hypothetical "body" which absorbs all of the electromagnetic radiation striking it; that is, one which neither reflects nor transmits any of the incident radiation. No actual substance behaves as a true black body, although platinum black and other soots rather closely approximate this ideal (AMS)\*

**BLACK-BODY RADIATION**— The electromagnetic radiation emitted by an ideal black body; it is the theoretical maximum amount of radiant energy of all wavelengths which can be emitted by a body at a given temperature. (AMS)\*

**BLACK-BULB THERMOMETER**— A thermometer whose sensitive element has been made to approximate a black body by covering it with lamp black. The thermometer is placed in an evacuated transparent chamber which is maintained at constant temperature. The instrument responds to insolation, modified by the transmission characteristics of its container. (AMS)

**BLACK FROST**— 1. A dry freeze, with respect to its effects upon vegetation, that is, the internal freezing of vegetation unaccompanied by the protective formation of hoarfrost. A black frost is always a killing frost, and its name derives from the resulting blackened appearance of affected vegetation. (AMS)

**BLACKOUT, n.**— Radio fadeout due to ionospheric disturbances, often accompanied by a magnetic storm, prevalent in the Arctic and Antarctic. Also called *arctic blackout, polar blackout*. (ADT)\*

**BLAST, n.**— The brief and rapid movement of air vapor or fluid away from a center of outward pressure, as in an explosion or in the combustion of rocket fuel; the pressure accompanying this movement. This term is commonly used for "explosion", but the two terms may be distinguished. (JD)

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**BLAST EFFECT** — Destruction of or damage to structures and personnel by the force of an explosion on or above the surface of the ground. Blast effect may be contrasted with the cratering and ground shock effects of a projectile or charge which goes off beneath the surface. (JD)

**BLAST WAVE** — A sharply defined wave of increased pressure rapidly propagated through a surrounding medium from a center of detonation or similar disturbance. (JD)

**BLINK, n.** — A glare on the underside of extensive cloud areas, created by light reflected from snow or ice-covered surfaces. *Snow blink* is whitish and brighter than the yellowish-white glare of *ice blink*. (ND)

**BLISTERING, n.** — A coating failure common to paints, varnishes, lacquers, and related formulations. It is characterized by the formation of local or scattered blisters varying in size from small pimples to large patches, usually attributed to surface contamination or endo-osmosis of water as the result of exposure of coatings to excessive moisture.

**BLIZZARD, n.** — A severe weather condition characterized by low temperatures and by strong winds bearing a great amount of snow (mostly fine, dry snow picked up from the ground). The U.S. Weather Bureau specifies, for blizzard, a wind of 32 mph or higher, low temperatures, and sufficient snow in the air to reduce visibility to less than 500 ft; and for severe blizzard, wind speeds exceeding 45 mph, temperature near or below 10°F, and visibility reduced by snow to near zero. (AMS)\*

**BLOCK, n.** — 1. *Hydrography* A sea ice fragment more than 6 feet but less than 30 feet in diameter. (ADT) 2. *Geomorphology*. An elongate or quadrangular, often tilted section of a faulted part of the earth's crust, hence *block mountains*. (ADT)

**BLOOM, n.** — A surface coating failure asso-

ciated with high gloss paints, varnishes, lacquers, and related formulations. It is characterized by the formation of a surface haze which lowers the original specular gloss, imparting a dull or semigloss appearance to the coating.

**BLOW-DOWN** — 1. A windfall. (ADT) 2. Trees knocked down as a result of an explosion (e.g., nuclear detonation).

**BLOWING DUST** — Dust picked up locally from the surface of the earth and blown about in clouds or sheets. It may completely obscure the sky; in its extreme form it is a dust storm. (AMS)\*

**BLOWING SAND** — Sand picked up from the surface of the earth by the wind and blown about in clouds or sheets. In its extreme form, blowing sand constitutes a sand storm. (AMS)\*

**BLOWING SNOW** — Snow lifted from the surface of the earth by the wind to a height of six feet or more above the surface (higher than drifting snow), and blown about in such quantities that horizontal visibility is restricted at and above that height. Blowing snow is one of the classic requirements for a blizzard. (AMS)\*

**BLOWN-OUT LAND** — Areas from which all or almost all of the soil and soil material has been removed by wind erosion. Usually barren, shallow depressions with a flat or irregular floor consisting of a more resistant layer and/or an accumulation of pebbles, or a wet zone immediately above a water table. Usually unfit for crop production. (SSS)\*

**BLUFF, n.** — A cliff with a broad face, or a relatively long strip of land rising abruptly above surrounding land or a body of water. (ND)

**BLUSH, v.** — Of a doped fabric or surface: To become dull or pale as a result of rapid evaporation or high humidity, with a consequent weakening of the dope film. (NASA)

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**BLUSHING**, n. — A condition in which a cloudy film appears on a newly lacquered surface. It is caused directly by the precipitation of a portion of the solid content of the material. This is usually due to oil or water mixed in the lacquer, a relatively high humidity condition, or too rapid drying.

**BOG**, n. — 1. A quagmire or morass; an area of wet, peaty, spongy ground, usually lacking in mineral nutrients, often interspersed with pools of open water, where any dense body is likely to sink. (ADT) 2. *Botany*. The vegetation of saturated, peaty land in open or forest areas; hence moss bog, juncus bog, carex or sedge bog, sphagnum bog, birch bog, tamarack bog, black spruce bog. (ADT)\*

**BOLE**, n. — 1. The stem or trunk of a tree, usually the lower, usable or merchantable portion of the tree trunk. 2. A lump of earth formed of any of several varieties of friable clay, usually colored red by iron oxide.

**BOLOMETER**, n. — An instrument which measures the intensity of radiant energy by employing a thermally-sensitive electrical resistor. (AMS)\*

**BORA**, n. — A fall wind whose source is so cold that when the air descends to the lowlands or coast the dynamic warming is insufficient to raise the air temperature to the normal level for the region; hence it appears as a cold wind. The terms *borino* and *boraccia* denote a weak bora and strong bora, respectively. The term was originally and still is applied to the cold northeast wind on the Dalmatian coast of Yugoslavia in winter when cold air from Russia crosses the mountains and descends to the relatively warm coast of the Adriatic. The term bora is now applied to similar winds in other parts of the world. (AMS)\*

**BORE**, n. — A restricted tidal current of considerable force and size. Also called an *eagre*. (ADT)

**BOTTOM**, n. — Any ground covered by water. Bed refers more specifically to the whole submerged basin, and floor is the essentially horizontal surface of the ground beneath the water. (NOO)

**BOTTOM ICE** — See ANCHOR ICE.

**BOTTOMING**, n. — In shock and vibration mechanics, the metallic or elastomeric snubbing of resiliency-mounted devices wherein the response displacements, under shock or resonant vibration loading, exceed the normal resilient displacement limits, and applied acceleration levels are multiplied. (SVH)\*

**BOULDER**, n. — A piece of rock, separate from bedrock, more than 256 mm in maximum dimension. Sometimes considered to apply only to rounded stones of this size.

**BOUNCE**, n. — 1. A colloquial term used in sound recording, implying that reverberation is relatively high for high-frequency components. 2. In shock and vibration mechanics, a term used to denote repetitive resonant **BOTTOMING**.

**BOUNDARY LAYER** — 1. The layer of fluid in the immediate vicinity of a bounding surface, referring ambiguously to the laminar boundary layer, turbulent boundary layer, planetary, or surface boundary layer. (AMS) 2. A thin layer of fluid next to the surface of a body in a moving stream (as an airfoil in an airstream) having distinctive flow characteristics as a result of friction between the fluid and the surface of the body. The flow in the boundary layer may be laminar, turbulent, or transitional between laminar and turbulent. (NASA)

**BOURDON TUBE** — A closed curved tube of elliptical cross-section used in some temperature-sensing and pressure-sensing instruments. The expansion of the fluid due to a temperature change causes an increase in the radius of curvature of the tube. The curvature may then be measured by the travel of the tip of the tube. The curvature is a measure of the difference between the

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pressure inside the tube and that outside. (AMS)\*

BOX, n. — See CHAMBER.

BRACKISH, adj. — Containing salt to a moderate degree, such as sea water which has been diluted by fresh water, as near the mouth of a river. Brackish water has salinity values ranging from approximately 0.50 to 17.00 parts per thousands. (NOO)\*

BRAIDED STREAM — A stream flowing in several channels, which divide and reunite in a pattern resembling the strands of a braid.

BRASH, n. — Loose accumulation of fragments of sea ice (or fresh-water ice); each piece is less than 6 feet across and called a "bit" of ice. Sometimes called *rubble*.

BRASHNESS, n. — An abnormal condition that causes some pieces of wood to be relatively low in shock resistance for the species and, when broken in flexure, to fail abruptly without splintering and at comparatively small deflections. Sometimes associated with fungus attack or short grain. (SAF)

BREAKAWAY, n. — The action of a boundary layer separating from a surface. (NASA)

BREAKER, n. — A wave breaking on the shore, over a reef, etc. Breakers may be roughly classified into three kinds, although the categories may overlap: (1) *Spilling breakers* break gradually over a considerable distance; (2) *Plunging breakers* tend to curl over and break with a crash; and (3) *Surging breakers* peak up, but then instead of spilling or plunging they surge up on the beach face. (NOO)\*

BREAKS, n. — An area in rolling land eroded by small ravines and gullies; also used to indicate any sudden change in topography, as from a plain to hilly country. (GS)

BREAKUP, n. — In general, the spring melting of snow, ice, and frozen ground. Specif., the destruction of the ice cover on rivers

during the spring thaw; or applied to the time when the solid sheet of ice on rivers breaks into pieces that move with the current. (ADT)

BREEZE, n. — 1. Wind of force 2 to 6 (4-31 miles per hour or 4-27 knots) on the Beaufort scale. Wind of force 2 (4-7 miles per hour or 4-6 knots) is classified as a *light breeze*; wind of force 3 (8-12 miles per hour or 7-10 knots), a *gentle breeze*; wind of force 4 (13-18 miles per hour or 11-16 knots), a *moderate breeze*; wind of force 5 (19-24 miles per hour or 17-21 knots) a *fresh breeze*; and wind of force 6 (25-31 miles per hour or 22-27 knots), a strong breeze. 2. Any light wind. A *land breeze* flows from the land to the sea, and usually alternates with a *sea breeze* blowing in the opposite direction. A *mountain breeze* blows down a mountain slope due to gravity flow of cooled air, and a *valley breeze* blows up a valley or mountain slope because of the warming of the mountainside and valley floor by the sun. A puff of wind, or light breeze affecting a small area, may be called a *cat's paw*. Absence of wind is sometimes called *ash breeze*. (ND)

BRIGHTNESS, n. — See LUMINANCE.

BRINE, n. — Sea water containing a higher concentration of dissolved salt than that of the ordinary ocean. Brine is produced by the evaporation or freezing of sea water, for, in the latter case, the sea ice formed is much less saline than the initial liquid, leaving the adjacent unfrozen water with increased salinity. The liquid remaining after sea water has been concentrated by evaporation until salt has crystallized is called *bittern*.

BRISANCE, n. — The shattering effect of an explosion on materials.

BRITTLENESS, n. — The quality of a material that leads to crack propagation without appreciable plastic deformation.

BROKEN ICE — In sea ice reporting, ice that covers one-half to four-fifths of the

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- local sea surface. Also called *loose ice*, *open ice*, *slack ice*. (ADT)
- BRUSH**, n. — Shrubs and stands of short, scrubby tree species that do not reach merchantable size. (SAF)
- BUMP**, n. — A mechanical shock of relatively low magnitude. (ISO)\*
- BUMP TESTER** — A shock machine that is capable of generating bumps repetitively.
- BURBLE**, n. — 1. A separation or breakdown of the streamline flow past a body. (NASA)  
 2. The eddying or turbulent flow resulting from this. (NASA)
- BURIED SOIL** — Soil covered by an alluvial, loessial, or other deposit, usually to a depth greater than the thickness of the solum. (SSS)
- BUOYANCY**, n. — 1. That property of an object that enables it to float in a liquid, or ascend through and remain freely suspended in a compressible fluid such as the atmosphere. Quantitatively, it may be expressed as the ratio of the specific weight of the fluid to the specific weight of an object; or, in another manner, by the weight of the fluid displaced minus the weight of the object. (AMS) 2. The upward force exerted upon a parcel of fluid (or an object within the fluid) in a gravitational field by virtue of the density difference between the parcel (or object) and that of the surrounding fluid. (AMS)\*
- BURN**, n. — A section of forest or scrub devastated by fire; the clearing made by fire. (ADT)
- BURST**, n. — Increased energy transmission of brief duration; particularly, increased radio wave or thermal radiation from the sun, lasting from a fraction of a second to about a minute. An isolated burst is one of large magnitude occurring during a relatively quiet period. (ND)
- BUSH**, n. — *Meteorol.* The mass of spray or dense water vapor thrown outward from the base of a **WATERSPOUT**. Also called *bonfire*, *cascade*. (ND)
- BUTTE**, n. — An isolated, flat-topped hill or mountain with steep sides, smaller than a **MESA**. Buttes are most common in arid regions.
- BUZZ**, n. — 1. A rapid vibration or oscillation of a structure or body. (NASA) 2. The noise resulting from the rapid vibration or oscillation of a structure or body. (NASA)\*
- BUZZ**, v. — To vibrate or oscillate rapidly, making a humming noise. (NASA)

### C

**C** — Abbreviation for the **CELSIUS** or **CENTIGRADE TEMPERATURE SCALE**.

**CABINET**, n. — See **CHAMBER**.

**CABLE EFFECT** — In electrical cables used to transmit **TRANSDUCER** output signals to associated instrumentation, the effect of cable weight and stiffness upon the response of the measured structure, the introduction of electrical noise resulting from mechanical cable distortion, and the effect of cable resistance, capacitance, and inductance upon the frequency response of the signal. (SVH)

**CALCAREOUS SOIL** — Soil containing sufficient calcium carbonate (often with magnesium carbonate) to effervesce visibly when treated with cold 0.1N hydrochloric acid. (SSS)

**CALDERA**, n. — A basin-shaped volcanic depression with a diameter many times greater than that of the included volcanic vent or vents. Many calderas contain one or more volcanic cones within them.

**CALIBRATE**, v.t. — To fix, check, or correct a measuring instrument to agree with a reference standard; to **STANDARDIZE**.

**CALICHE**, n. — 1. A layer near the surface, more or less cemented by secondary carbonates of calcium or magnesium precipitated from the soil solution. It may occur as a soft

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- thin soil horizon, as a hard thick bed just beneath the solum, or as a surface layer exposed by erosion. Not a geologic deposit. (SSS) 2. Alluvium cemented with sodium nitrate, sodium chloride, and/or other soluble salts in the nitrate deposits of Chile and Peru. (SSS)
- CALM**, n. — The absence of apparent motion of the air. In the Beaufort wind scale, this condition is reported when smoke is observed to rise vertically, or the surface of the sea is smooth and mirror-like. In United States weather observing practice, the wind is reported as calm if it is determined to have a speed of less than one mile per hour (or one knot). (AMS)
- CANOPY**, n. — In a forest, the cover of leaves and branches formed by the crowns of all the individual trees. Its density is ordinarily expressed as the amount (or percentage) of the ground that would be completely covered by the forest if the sun were directly overhead.
- CANYON**, n. — 1. A deep ravine or gorge with steep sides. (ND) 2. A long narrow submarine depression with relatively steep sides. If the sides are more gently sloping, the depression is called a *submarine valley*. Most canyons penetrate a continental or insular shelf more or less perpendicularly to the coast line. Also called *submarine canyon*. (ND)
- CASCADE**, n. — 1. The mass of spray thrown outward from around the base of a **WATERSPOUT**. Also called *bonfire*, **BUSH**. (NOO)\* 2. A fall of water over steeply sloping rocks. (ND) 3. Disturbed ice of a glacier over a steep incline, called *ice cascade*. (ND)
- CATARACT**, n. — A waterfall, usually of great volume; a cascade in which the vertical fall has been concentrated in one sheer drop or overflow. (GS)
- CATENA**, n. — *Pedology*. A sequence of soils of about the same age, derived from similar parent material, and occurring under similar climatic conditions, but having different characteristics due to variation in relief and in drainage. (SSS)
- CATHODIC PROTECTION** — Reduction or prevention of corrosion on a metal by a change of polar qualities by either electrical, magnetic or electrostatic means so that the surface will repel corrosive oxide producing material, e.g. by use of sacrificial anodes or impressed currents.
- CAT ICE** — Ice, on a body of water, that remains as an unbroken surface when the water level drops so that a cavity is formed between the water surface and the ice. Also called **SHELL ICE**. (NOO)
- CAVERN**, n. — A large natural underground cave or series of caves. Often but not always used to imply largeness or indefinite extent to distinguish from *cave*.
- CAVITATION**, n. — The formation of local cavities in a liquid or vapor, as a result of the reduction of total pressure. For non-degassed liquids, these cavities are filled with the gases dissolved in the liquids and are produced whenever the instantaneous pressure falls below the vapor pressure. This effect is sometimes called *pseudo-cavitation*, to distinguish it from the effect in pure degassed liquids, where an actual rupture of the medium occurs (at much higher sound pressures). Collapse of such cavities produces very large impulsive pressures that may cause considerable mechanical damage to neighboring solid surfaces.
- CAVITATION DAMAGE** — Wearing away of solid material through the formation and collapse of cavities in an adjacent liquid.
- CEILING**, n. — The height above the earth's surface of the lowest layer of the clouds or obscuring phenomena that is reported as broken, overcast, or obscuration, and not classified as thin or partial. (ND)
- CEILING LIGHT** — A type of cloud-height indicator which uses a searchlight to project vertically a narrow beam of light onto a cloud base. The height of the cloud base

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is determined by using a clinometer, located at a known distance from the ceiling light, to measure the angle included by the illuminated spot on the cloud, the observer, and the ceiling light. (AMS)

**CEILOMETER, n.**—An automatic, recording, cloud-height indicator. (AMS)\*

**CELSIUS TEMPERATURE SCALE**—Same as **CENTIGRADE TEMPERATURE SCALE**, by recent convention. The Ninth General Conference on Weights and Measures (1948) replaced the designation "degree centigrade" by "degree Celsius." (Originally, Celsius took the boiling point as 0 degrees and the ice point as 100 degrees.) (AMS)

**CENTIGRADE TEMPERATURE SCALE**  
 —A temperature scale with the ice point at 0 degrees and the boiling point of water at 100 degrees. Conversion to the Fahrenheit temperature scale is according to the formula

$$^{\circ}\text{C} = \frac{5}{9} (^{\circ}\text{F} - 32). \quad (\text{AMS})$$

**CENTRIFUGE, n.**—A machine used in environmental testing to subject material to steady state rotational acceleration about a fixed axis.

**CHALK, n.**—A very soft, white to light gray, fine-grained variety of limestone composed largely of the calcareous shells of small marine organisms.

**CHALKING, n.**—A surface coating failure common to paints, varnishes, lacquers, and related formulations, particularly when exposed to exterior environmental weathering. It is characterized by the formation of a chalklike powder on the surface attributed to film deterioration by the blue and ultra-violet wavelengths of the sun's radiant energy. In white exterior paints, chalking may be desirable to impart self-cleaning properties. In colored exterior paints on buildings or equipment, chalking imparts a faded-out appearance and dullness from accumulation of surface chalk.

**CHAMBER, n.**—An enclosed environmental

laboratory facility used for duplicating, accelerating, or simulating one or more natural environmental phenomena, singly or in various combinations.

**CHAMBER, ACCELERATED WEATHERING**—A type of laboratory facility designed to accelerate the effects of natural aging. Some are oriented to a single material, others to several materials. Usually contains controls for light and heat, and, in some cases, for humidity.

**CHAMBER, ALTITUDE**—A combined-function test chamber furnishing controlled conditions of temperature and low absolute pressure (altitude). Temperature requirements vary from  $-100^{\circ}\text{F}$ ., or lower, to  $1000^{\circ}\text{F}$ . Altitude requirements vary up to and above 500,000 feet ( $3.385 \times 10^{-3}$  psi or 1.8 millimicrons).

**CHAMBER, ARID**—An environmental test facility simulating high temperature, low humidity, and solar radiation heat and light as found in arid areas of the earth.

**CHAMBER, CLEAN**—An enclosed area in which airborne contamination (particulate matter) and, if necessary, temperature, humidity, and air pressure are controlled to a far higher degree than in conventional air-conditioned areas. Commonly referred to as **CLEAN ROOM**. (Federal Standard No. 209).

**CHAMBER, CLIMATIC**—See **CHAMBER, HUMIDITY**.

**CHAMBER, FOG**—A confined space in which supersaturation of air or other gas is produced by reduction of pressure, cooling, or other means, producing an artificial fog.

**CHAMBER, HIGH TEMPERATURE**—An enclosed facility for producing thermostatically controlled high temperatures (usually by resistance heaters) used to determine the effect of high temperatures on a test item.

**CHAMBER, HUMIDITY**—A laboratory facility constructed with a conditioning device used to maintain a specified humidity at a specified temperature. The control

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- range may vary with specific applications and construction purposes. Normal construction range: Humidity, frost point (F.P.)  $-15^{\circ}$  C. to dewpoint  $85^{\circ}$  C.; dry bulb temperature,  $15^{\circ}$  C. to  $93^{\circ}$  C.; barometric pressure, 24.90 inches of mercury to 30.27 inches of mercury. This chamber is a specialized facility with difficult control requirements.
- CHAMBER, LOW TEMPERATURE** — An enclosed, thermally-insulated facility with equipment and controls to produce an internal temperature below the ambient temperature. Refrigeration can be accomplished by mechanical single stage systems, mechanical two-stage compound systems, multi-stage cascade systems, dry ice, or liquid carbon dioxide. Low temperatures can be attained down to  $-150^{\circ}$  F., depending on the system and the refrigerant used. The chambers maintain internal temperature conditions by convection and/or radiation.
- CHAMBER, REVERBERANT** — A type of acoustical testing facility in which a specimen is subjected to simultaneous impingement of acoustical energy from many directions. It is characterized by highly reflective walls and may have non-parallel opposing walls or multiple energy sources.
- CHAMBER, SALT SPRAY** — An environmental test chamber for accelerated corrosion testing. A salt solution is atomized by the use of suitable nozzles in conjunction with a compressed air supply. The chamber is also equipped for heating the system.
- CHAMBER, SOLAR RADIATION** — An enclosed facility provided with a means for producing a simulated solar radiation environment including thermostatically controlled temperature. There are two types of solar simulation: (1) terrestrial; and (2) space.
- CHAMBER, TEMPERATURE** — An enclosed, thermally-insulated space with equipment and controls to produce a chamber temperature differing from ambient.
- CHANNEL, n.** — 1. A band of radio frequencies wide enough to allow transmission without interference from transmission on adjacent bands. 2. A natural or artificial waterway which either periodically or continuously contains moving water, or which forms a connecting link between two bodies of water. (NOO) 3. The part of a body of water deep enough to be used for navigation through an area otherwise too shallow for navigation. (NOO) 5. The deepest portion of a stream, bay, or strait through which the main volume or current of water flows. (NOO) 6. A lead in pack ice. (NOO) 7. The complete route for transmission of data, from source to recorder.
- CHANNEL, TELEMETER** — The complete route for transmission of a telemetered function, including pick-up, commutator, modulator, transmitter, receiver, demodulator, decoder, and recorder.
- CHAPARRAL, n.** — Low dense scrub vegetation, principally drought-resistant shrubs and bushes, which is characteristic of regions having a subtropical summer-dry (Mediterranean) climate; usually applied to that part of California which enjoys this climate. It corresponds to the *maquis* of the Mediterranean area in Europe. In some places it is almost impenetrable, consisting of thickets of stiff or thorny shrubs or dwarf trees.
- CHATTER CALIBRATION** — A method of accelerometer calibration in which the accelerometer and a gravity-constrained "chatter-ball" are mounted on a vertical vibration table, the one G downward acceleration being indicated by separation of the ball. (SVH)
- CHECKING, n.** — A surface coating failure of paints, varnishes, lacquers, and related formulations. It is characterized by the formation of small surface breaks in the coating which do not penetrate to the underlying surface. If the underlying surface is visible, *crackling* is the term used to denote these breaks.

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**CHEMICAL CONVERSION COATINGS —**

Thin inorganic films produced by chemical or electrochemical reactions with the surface of the base metal. They differ from paints and most metallic coatings in that they are an integral part of the base metal. Conversion coatings can be divided into phosphate, chromate, chemical oxide, and anodic coatings.

**CHEMICAL STABILITY —** The ability of a material to resist decomposition caused by such factors as heat, light, and chemical attack.

**CHERNOZEM, n. —** *Pedology.* A zonal great soil group consisting of soils with a thick, nearly black or black, organic matter-rich "A" horizon high in exchangeable calcium, underlain by a lighter colored transitional horizon above a zone of calcium carbonate accumulation; occurs in a cool subhumid climate under a vegetation of tall and mid-grass prairie. (SSS)

**CHINOOK —** See FOEHN.

**CHLORINITY, n. —** A measure of the chloride content, by mass, of sea water (grams per kilogram of sea water, or per mille). Originally chlorinity was defined as the weight of chlorine in grams per kilogram of sea water after the bromides and iodides had been replaced by chlorides. To make the definition independent of atomic weights, chlorinity is now defined as 0.3285233 times the weight of silver equivalent to all the halides. (AMS)\*

**CHOCKING, n. —** The condition which prevails in compressible fluid flow when the upper limit of mass flow is reached, or when Mach 1 is reached in a duct.

**CHOPPY, adj. —** 1. Of the sea, having short, abrupt, breaking waves dashing against each other; chopping. (ND) 2. Of the wind, variable, unstable, changeable; chopping. (ND)

**CINDER-CONE —** A conical elevation formed by the accumulation of volcanic ash or cinder-like material around a vent; called also *ash cone*. (GS)

**CINDERS, n. —** Same as VOLCANIC CINDERS.

**CINDER SURFACE —** The surface formed by small particles of vesicular lava ejected from a volcano. Often many feet deep around the vent and gradually thinning out until the layer is no thicker than the individual cinder at distances of a few miles.

**CIRQUE, n. —** A deep, steep-walled recess in a mountain, caused by glacial erosion.

**CLASTICS, n. —** Deposits which are made up of fragments of pre-existing rocks or of the solid products formed during the chemical weathering of such older rocks. Familiar examples of sediments belonging to this group are GRAVEL, SAND, MUD, and CLAY, and their consolidated equivalents, CONGLOMERATE, SANDSTONE, and SHALE. (S&V)\*

**CLAY, n. —** 1. *Soil mechanics.* In the Unified Soil Classification System, defined as a soil that contains more than 50 percent particles with diameters less than 0.047 mm and has a plasticity in relation to its LIQUID LIMIT. Types are identified as CL (lean clay), CH (heavy clay), OL (organic clay of low plasticity), and OH (organic clay of high plasticity). (Mil Std 619) 2. A soil separate consisting of particles less than 0.002 mm in equivalent diameter. (SSS) 3. *Pedology.* The U.S. Department of Agriculture textural class name for soil that contains 40 percent or more of clay, less than 45 percent of sand, and less than 40 percent of silt. (YA)

**CLAY LOAM —** Soil that contains 20 to 45 percent sand and 27 to 40 percent clay. (YA)

**CLAYPAN, n. —** A dense, compact layer in the subsoil having a much higher clay content than the overlying material, from which it is separated by a sharply defined boundary; formed by downward movement of clay or by synthesis of clay in place during soil formation. Claypans are usually hard when dry, and plastic and sticky when wet. Also, they usually impede the move-

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- ment of water and air, and the growth of plant roots. (SSS)
- CLEAN ROOM** — See **CHAMBER, CLEAN**
- CLEAR AIR TURBULENCE** — Turbulence encountered by aircraft when flying through air space devoid of clouds. The main causes are wind shears and small-scale rising currents of clear air (**THERMALS**). (AMS)\*
- CLIFF, n.** — A high steep face of rock. A cliff of considerable length is often called an **ESCARPMENT** or **SCARP**. Cliffs are usually produced by erosion, less commonly by faulting. (S&V)\*
- CLIMATE, n.** — The long-term manifestations of **WEATHER**, however they may be expressed. More rigorously, the climate of a specified area is represented by the statistical collective of its weather conditions during a specified interval of time (usually several decades). (AMS)\*
- CLIMATIC SNOW LINE** — The altitude above which snow accumulates in excess of wastage. Also called *regional snow line*, and *firn line* when referable to a glider or ice cap. The climatic snow line specifically applies to flat surfaces fully exposed to sun and wind; however, most glaciologists consider the precise application as theoretical, rarely observable in nature. (ADT).
- CLIMATIC TEST** — A generic term describing any test designed to evaluate the effects of climatic conditions on the equipment undergoing the test. Climatic tests usually include sunshine, rain, hail, snow, sleet, wind, humidity, sand, dust, temperature, fungus, salt spray, etc.
- CLIMATIZATION, n.** — All measures taken to provide for the satisfactory operation, packaging, transportation, and storage of equipment under specified climatic conditions.
- CLIMATOLOGY, n.** — The scientific study of climate. In addition to the presentation of climatic data (climatography), it includes the analysis of the causes of differences of climate (*physical climatology*), and the application of climatic data to the solution of specific design or operational problems (*applied climatology*). Climatology may be further subdivided according to purpose or point of view: agricultural climatology, air-mass climatology, aviation climatology, bioclimatology, dynamic climatology, medical climatology, macroclimatology, mesoclimatology, microclimatology, paleoclimatology, synoptic climatology, upper-air climatology, descriptive climatology, and others. (AMS)\*
- CLINOMETER, n.** — Any of various instruments for measuring angles of slope, inclination, elevation, or the like, such as the angle between the horizontal and the line of sight to the spot of light thrown by a ceiling projector, or between the horizontal and a ship's axis. (NASA)
- CLO, n.** — The unit of measurement used in evaluating the insulative quality of clothing. A clo is the amount of insulation needed to assure a mean skin temperature of 92° F in an ambient temperature of 70° F, with relative humidity not over 50 percent and air movement of 20 feet per minute or less, and with an assumed metabolic rate of 50 Kcalories per square meter per hour. Allowing 76 percent heat loss through clothing, a clo has been defined as the amount of insulation required to permit the escape of one Kcalorie per square meter per hour with a temperature gradient of .18° C between the two surfaces. (AMS)\*
- CLOD, n.** — A compact, coherent mass of soil ranging in size from 5 or 10 mm to as much as 8 or 10 inches; produced artificially, usually by the activity of man by plowing, digging, etc., especially when these operations are performed on soils that are either too wet or too dry for normal tillage operations. (SSS)
- CLOSE ICE** — Ice that covers from 8/10ths (80 percent) to 10/10ths (100 percent) of the sea surface. The floes are not frozen together if the cover is 10/10ths (100 percent). (IG)\*
- CLOUD, n.** — 1. A hydrometeor consisting of

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- a visible aggregate of minute water and/or ice particles in the atmosphere above the earth's surface. Cloud differs from FOG only in that the latter is, by definition, in contact with the earth's surface. (AMS)\*
2. Any collection of particulate matter in the atmosphere dense enough to be perceptible to the eye, as a *dust cloud* or a *smoke cloud*. (AMS)
- CLOUD BANK — Generally, a fairly well defined mass of cloud observed at a distance; it covers an appreciable portion of the horizon sky, but does not extend overhead. (AMS)
- CLOUDBURST, n. — A sudden and extremely heavy downpour of rain. (ND)
- CLOUD-CHAMBER EFFECT — The condensation of moisture in the air due to cooling which is caused by the rapid expansion of air (in the negative phase) after an explosion (analogous to the effect used by nuclear physicists in the Wilson cloud chamber).
- CLOUD COLUMN — The visible column of smoke which may extend to the tropopause subsequent to an air burst of an atomic weapon, and the corresponding smoke column subsequent to any other type of burst.
- CLOUD PHYSICS — The body of knowledge concerned with physical properties of clouds in the atmosphere and the processes occurring therein. Cloud physics, broadly considered, embraces not only the study of condensation and precipitation processes in clouds, but also radiative transfer, optical phenomena, electrical phenomena, and a wide variety of hydrodynamic and thermodynamic processes peculiar to natural clouds. (AMS)\*
- CLUTTER, n. — Atmospheric noise, extraneous signals, etc. which tend to obscure the reception of a desired signal in a radio receiver, radar scope, etc. As compared with *interference*, clutter refers more particularly to unwanted reflections on a radar PPI, such as ground return, but the terms are often used interchangeably. (ND)
- COALESCENCE, n. — In cloud physics, the merging of two water drops into a single larger drop. (AMS)
- COATING, ANODIZED — An oxide coating, produced by electrolytic means, for aluminum, magnesium, and their alloys. Generally, anodized coatings are hard, abrasion resistant, and offer excellent resistance to corrosion. See ANODIZING.
- COBBLE (COBBLESTONE), n. — Rounded or partially rounded rock or mineral fragment between 3 and 10 inches in diameter. (SSS)\*
- COEFFICIENT OF EXPANSION — The relative increase of the volume of a system (or substance) with increasing temperature in an isobaric process. (AMS)\*
- COHESION, n. — *Soil Mechanics*. The capacity of sticking or adhering together. In effect, the cohesion of soil is that part of its shear strength which does not depend upon inter-particle friction. True cohesion is attributed to the shearing strength of the cement or the absorbed water films that separate the individual grains at their areas of contact. Apparent cohesion of moist soils is due to surface tension in capillary openings and disappears completely on immersion. (S&V)
- COL, n. — A short ridge connecting two higher elevations; a narrow pass joining two valleys; a pass between adjacent peaks in a mountain chain. (GS)
- COLD DRY — In military climatology, a weather condition in which cold, or very cold temperatures are unaccompanied by wet precipitation or wetness on the ground, except that dry snow may be falling or dry snow or ice may be underfoot. (ADT)\*
- COLD SOAK — The effect of exposing equipment to low temperatures for an extended period of time. Cold soak of engines sometimes necessitates preheating before their use, as lubricants have thickened, metal has

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become brittle, and tolerances have diminished. (ADT)\*

**COLD WET** — 1. *Military climatol.* A weather condition in which cool, cold, or very cold temperatures are accompanied by rain, fog, or wet snow in the air and by the presence of water, wind, slush, or wet snow on the ground. (ADT)\* 2. *Physiol.* An environmental condition in which clothing is essential to prevent the loss of body heat from exceeding the production of metabolic heat when the problem is complicated by the presence of moisture in the air or underfoot which wets clothing, especially footwear. (ADT)\*

**COLLOID, SOIL** — Organic or inorganic matter of very small particle size and very large surface area per unit of mass. Inorganic colloidal matter consists almost entirely of CLAY minerals of various kinds. Not all clay particles are colloids; usually only particles smaller than .00024 mm are so designated. (NAS)

**COLLUVIUM, n.** — A deposit of rock fragments and soil material accumulated at the base of steep slopes as a result of gravitational action. (SSS)\*

**COMPACTION, n.** — 1. *Geology.* The changing of loose sediments to hard, firm rocks. 2. *Soil Mechanics.* Any process by which soil grains are rearranged to decrease void space and bring them into closer contact with one another, thereby increasing the weight of solid material per cubic foot. Non-cohesive soils are most effectively compacted by vibration; moderately cohesive soils are compacted by sheepsfoot or other types of rollers. (S&V)\*

**COMPATIBILITY, n.** — The particular quality or characteristic of a component, an item of equipment, or a system which permits it to function in harmony with other equipment, environments, or systems with a minimum amount of adapters, extensions, transformers, or other equalizer units.

**COMPLIANCE, n.** — The reciprocal of

STIFFNESS. (SVH)

**CONCRETION, n.** — A local concentration of a chemical compound, such as calcium carbonate or iron oxide, in the form of a grain or nodule of varying size, shape, hardness, and color. (SSS)

**CONDENSATION, n.** — The physical process by which a vapor becomes a liquid or solid; the opposite of evaporation. In meteorological usage, this term is applied only to the transformation from vapor to liquid; any process in which a solid forms directly from its vapor is termed sublimation, as is the reverse process. In meteorology, condensation is considered almost exclusively with reference to water vapor which changes to dew, fog, or cloud. It is indispensable to avoid confusing condensation with precipitation, for the former is by no means equivalent to the latter, though it must always precede the latter. (AMS)\*

**CONDUCTION, n.** — The transfer of energy within and through a conductor by means of internal particle or molecular activity, and without any net external motion. Conduction is to be distinguished from convection (of heat) and radiation (or all electromagnetic energy). Heat is conducted by molecular motion within a few centimeters of the heat source (e.g., the earth's surface). The distribution of heat away from that source is accomplished by convection and (in analogy to molecular conduction) by eddy heat conduction. (AMS)\*

**CONE INDEX** — *Soil Mechanics.* An index of the shearing resistance of soil obtained with the CONE PENETROMETER; a number representing resistance to penetration into the soil of a 30-degree cone with a one-half inch base (actually, load in pounds on cone base area in square inches).

**CONE OF SILENCE** — An inverted cone-shaped space directly over the aerial towers of some forms of radio beacons in which signals are unheard or greatly reduced in volume. (JD)

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**CONE PENETROMETER** — An instrument used to measure the ability of a soil to support traffic movements. (AD)

**CONGELIFRACTION**, n. — See **FROST ACTION**

**CONGELITURBATION**, n. — See **FROST ACTION**

**CONGLOMERATE**, n. — Hard rock formed by the natural cementing together of rounded pebbles (gravel). A similar rock formed of larger fragments may be called a cobble conglomerate or a boulder conglomerate, as the case may be.

**CONIFER**, n. — A tree or shrub belonging to the order *Coniferales*. Most conifers are needleleaf plants, but some have scalelike leaves ranging from small, as in many junipers and cedars, to more than an inch wide, as in the monkeypuzzle tree. Most species of conifers are evergreen, but the larches, and some others, are deciduous.

**CONSOLIDATED ICE** — Ice that covers 10-10ths (100 percent) of the sea surface; the floes are frozen together. (IG)

**CONSOLIDATION**, n. — 1. *Geology*. Any or all of the processes whereby loose, soft, or liquid earth materials become firm and coherent. Any action that increases the solidity, firmness, and hardness is important in consolidation. Cementation is probably the most important factor, followed by mechanical rearrangement of constituents through pressure, crystallization, and loss of water. The term also describes the change of lava or magma to firm rock. 2. *Soil Mechanics*. The adjustment of a saturated soil in response to increased load, involving the squeezing of water from the pores and decrease in void ratio. The rate of consolidation depends upon the rate at which the pore water escapes, and hence upon the permeability of the soil. (S&V) \*

**CONTACT HAZARD** — A hazard resulting from direct bodily contact with foreign substances (nuclear, chemical, biological), or from prolonged contact with contaminants.

**CONTAMINATION**, n. — The deposit or absorption of radioactive material, biological, or chemical agents on and by structures, areas, personnel, or objects. (JD).

**CONTINENTAL AIR** — A type of air whose characteristics are developed over a large land area and which, therefore, has the basic continental characteristic of relatively low moisture content. (AMS)

**CONTINENTAL CLIMATE** — The climate that is characteristic of the interior of a land mass of continental size. It is marked by large annual, daily, and day-to-day ranges of temperature, low relative humidity, and (generally) by a moderate or small and irregular rainfall. The annual extremes of temperature occur soon after the solstices. (AMS) \*

**CONTINENTAL SHELF** (or **CONTINENTAL PLATFORM**) — A zone adjacent to a continent or around an island, and extending from the low water line to the depth at which there is usually a marked increase of slope to greater depth. (NOO)

**CONTINENTAL SLOPE** — A declivity seaward from a **CONTINENTAL SHELF** edge into greater depth. (NOO)

**CONVECTION**, n. — 1. Mass motions within a fluid resulting in transport and mixing of the properties of that fluid. Convection, along with conduction and radiation, is a principal means of energy transfer. (AMS) \* 2. *Meteorol.* Atmospheric motions that are predominantly vertical, resulting in vertical transport and mixing of atmospheric properties; distinguished from advection. (AMS) \* 3. *Atmospheric Electricity*. A process of vertical charge transfer by transport of air containing a net space charge, or by motion of other media (e.g. rain) carrying net charge. Eddy diffusion of air containing a net charge gradient may also yield a convection current. (AMS)

**COOLING POWER** — In the study of human bioclimatology, one of several parameters devised to measure the air's cooling effect

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- upon a human body. Essentially, cooling power is determined by the amount of applied heat required by a device to maintain it at a constant temperature (usually 34°C); the entire system should be made to correspond, as closely as possible, to the external heat exchange mechanism of the human body.
- COQUINA**, n. — Soft porous limestone composed of broken shells, with or without corals and other organic debris.
- CORAL**, n. — The hard calcareous skeleton of various small sea animals (polyps), or the stony solidified mass of a number of such skeletons. In warm waters colonial coral forms extensive reefs of limestone. In cool or cold water coral usually appears in the form of isolated solitary individuals. Occasionally, large reefs formed in cold waters by calcareous ALGAE have been referred to as coral. (NOO)\*
- CORAL REEF** — A ridge or mass of limestone built up of detrital material deposited around a framework of the skeletal remains of mollusks, colonial coral, and massive calcareous algae. Coral may constitute less than half of the reef material. (NOO)
- CORDUROY ROAD** — A form of support or roadway over soggy or soft terrain, usually made from logs laid crosswise to the direction of travel.
- CORIOLIS EFFECT** — 1. The apparent deflection of an object (e.g. a missile, airplane, or mass of air) in motion above the surface of the earth relative to positions on the surface, which is rotating beneath the moving object; the deflection is to the right in the northern hemisphere and to the left in the southern hemisphere. 2. A phenomenon observed in rotating systems; see **CORIOLIS FORCE**.
- CORIOLIS FORCE** — An apparent force on a body moving within a rotating system. It is always at right angles to the direction of the body's motion and proportional to the angular velocity ( $\omega$ ) of the rotating system and to the body's momentum ( $mv$ ); the magnitude is  $2\omega mv$ . See **CORIOLIS EFFECT**.
- CORONA**, n. — 1. A set of one or more prismatically colored rings of small radii, concentrically surrounding the disk of the sun, moon, or other luminary when veiled by a thin cloud. The corona is due to diffraction by numerous water drops. It can be distinguished from the relatively common halo of 22° by the much smaller angular diameter of the corona, which is often only a few degrees, and by its color sequence, which is from blue inside to red outside, the reverse of that in the 22° halo. (AMS)\* 2. The pearly outer envelope of the sun. It is observed at solar eclipse or with the coronagraph. (AMS)\*
- CORONA DISCHARGE** — The flow of electrical energy from a conductor at high potential to the surrounding air. If the conductor has an insulating covering, the corona discharge will take place at the outer surface of the insulation, and if there are voids or air spaces between the conductor and its insulation, corona discharge will probably take place at these points. The discharge is accompanied by a faint glow and a "frying" noise and has the ability to convert the oxygen of the air to ozone.
- CORONA RESISTANCE** — The ability of a material to withstand the effects of corona discharge.
- CORRASION**, n. — Mechanical erosion performed by moving agents such as wear by glacial ice, wind, running water, etc., but generally restricted to basal rather than lateral excavation. (NOO)\*
- CORROSION**, n. — The gradual deterioration of material by chemical processes, such as oxidation or attack by acids; if caused by atmospheric effects, a form of **WEATHERING**. Of great significance is the corrosion due to the combined effects of atmospheric temperature, humidity, and suspended impurities; for example, the rusting of iron. (AMS)\*

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- CORROSION, CATHODIC** — Corrosion resulting from a cathodic condition of a structure, usually caused by the reaction of alkaline products of electrolysis with an amphoteric metal. (ECS)
- CORROSION, COEFFICIENT OF** — The reciprocal of anode corrosion efficiency. A term used in applied cathodic protection. (ECS)
- CORROSION, CREVICE** — Corrosion of a metal at an area where contact is made with another material, usually non-metallic. Also known as contact corrosion.
- CORROSION, DESTRUCTIVE** — Any type of corrosion which so weakens the basic metal that it can no longer function or support the functions for which it was originally intended.
- CORROSION, ELECTROCHEMICAL** — Localized corrosion that results from exposure of an assembly of dissimilar metals in contact or coupled with one another; or of a metal containing macroscopic or microscopic areas dissimilar in composition or structure. The dissimilar elements form short-circuited electrodes; the corrosive medium is the electrolyte and an electric current is induced, which results in the dissolution of the electrode that has the more anodic solution potential, while the other is unattached. The same condition may result from local differences within the corroding medium.
- CORROSION EMBRITTLEMENT** — The severe loss of ductility of a metal or alloy resulting from corrosion attack, usually intergranular and often not visually apparent.
- CORROSION FATIGUE** — Reduction of fatigue durability by a corrosive environment. (ECS)
- CORROSION FATIGUE LIMIT** — The maximum repeated stress endured by a metal without failure in a stated number of stress applications under defined conditions of corrosion and stressing. (ECS)
- CORROSION, FRETTING** — Corrosion at the interface between two contacting surfaces accelerated by relative vibration between them of amplitude high enough to produce slip. (ECS)
- CORROSION, GALVANIC (COUPLE ACTION)** — Corrosion associated with the current of a galvanic cell made up of dissimilar electrodes. (ECS)
- CORROSION, INTERGRANULAR (INTERCRYSTALLINE CORROSION)** — A type of electrochemical corrosion that progresses preferentially along the grain boundaries of an alloy, usually because the grain boundary regions contain material anodic to the central regions of the grains.
- CORROSION PREVENTION** — The protection given metallic items by covering surfaces subject to corrosion to prevent contact with water, moisture vapor, acids, and other contaminating substances or storage in a dehumidified air. It includes careful cleaning of all or part of the items, the application of a barrier of oil, grease, or moisture vapor proof paper to exclude air and moisture, and the covering of the barrier to provide for its protection. (AD)
- CORROSION PREVENTIVE** — Any agent such as oil, plastic, paint, wrap or other surface treatment of metals whose primary function is to prevent corrosion. May exclude atmosphere by means of a continuous film, or may direct corrosion to another element (cathodic protection). (AD)
- CORROSION PREVENTIVE COMPOUND** — A compound applied to metal surfaces to prevent rust or corrosion. The term is usually applied to compound which can be removed by water or solvent cleaners in order to distinguish them from paint films. (AD)
- CORROSION, STRAY CURRENT** — Corrosion caused by current through paths other than the intended circuit or by an extraneous current in the earth. (ECS)
- CORROSION, STRESS** — Corrosion of a metal accelerated by stress.

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**CORROSION TEST** — A test designed to determine the adequacy of a part for withstanding corrosion under specified conditions for a known length of time. Various test procedures are spelled out in applicable literature of the Institute of Environmental Science, ASTM, American Electroplater's Society (AES), National Association of Corrosion Engineers, and in Government specifications.

**CORROSION, UNDERFILM** — Corrosion that occurs under lacquers and similar organic films in the form of randomly distributed hairlines (most common) or spots. (ECS)

**COSMIC RAYS (or COSMIC RADIATION)** — Extremely high-energy charged particles arriving in the vicinity of earth from beyond the solar system (galactic cosmic rays) or from the sun (solar cosmic rays). They consist mostly of protons (hydrogen nuclei) and alpha particles (helium nuclei). Secondary cosmic rays are produced by the interaction of the incoming (primary) cosmic rays with the atmosphere.

**COSMIC RAYS, HARD COMPONENT** — That portion of cosmic radiation which penetrates a moderate thickness of an absorber (usually 10 cm of lead). The hard component, except near the top of the atmosphere, consists of mesons to a predominant degree but includes some fast protons and electrons.

**COSMIC RAY SHOWER** — The simultaneous appearance of several or many light ionizing particles with or without accompanying photons, the particles being directed predominantly downward and having a common ultimate origin in an event caused by a single cosmic ray. Showers reveal themselves by the simultaneous actuation of separated counters and (sometimes spectacularly) in cloud chambers. They can be roughly classified according to their properties as narrow showers, exclusive (or Auger) showers, penetrating showers, and cascade showers.

**COSMIC RAYS, SOFT COMPONENT** — That portion of cosmic radiation which is absorbed in a moderate thickness of an absorber (usually 10 cm of lead). It consists mainly of electrons, positrons, and photons, but contains some slow mesons, slow protons, and other heavy particles often present in cosmic radiation.

**COULEE, n.** — 1. A steep-walled, trench-like valley of considerable size through which water flows intermittently. See ARROYO, BARRANCA, DRY WASH, and WADI. 2. More specifically, any of a number of steep-walled, trench-like valleys cut into the Columbia Plateau lava sheets in the state of Washington, and formerly occupied by glacial meltwater rivers. (S&V)\*

**COVER, n.** — Shelter or protection, either natural or artificial. (JD) (Other meanings in JD are not applicable to environment).

**COVER, FOREST** — All trees and other woody plants in a forest. (SAF)

**CRACK, n.** — 1. Fissure or crevice in a rock or ice formation. (ADT) 2. A water-revealing narrow break in sea ice that may be expanded to lead size by boring. It is usually possible to jump across a crack. (IG)\* 3. A fissure or crevice type of failure in materials caused by operational or environmental tests.

**CRACKING, n.** — Deterioration of a coating characterized by breaks that extend through to the underlying surface. (ECS)\*

**CRASH SAFETY** — A type of shock test intended to determine the mechanical integrity of equipment hardware under simulated aircraft crash landing loads.

**CRATER, n.** — 1. The bowl-shaped depression around the vent of a volcano or a geyser. 2. A hole formed by the impact of a meteorite, the detonation of a mine, or the like. (GS)

**CRAZING, n.** — A network of checks or cracks caused by extremes of temperature, appearing on a surface. It may also be

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- caused in plastics by certain cleaning fluids, age, and ultraviolet exposure.
- CREEP, n.** — 1. The flow or plastic deformation of materials held for long periods of time at stresses lower than the rupture stress. 2. *Geol.* A slow downslope movement of soil or rock debris, usually imperceptible except by prolonged observation, tree tilt, or ragged scars in the ground cover. Creep is caused by the combined actions of gravity, ground water flow, freezing and thawing or swelling and shrinking of the soil. (ADT)
- CREST, n.** — 1. The summit land of any eminence; the highest natural projection that crowns a hill or mountain, from which the surface dips downward in opposite directions. (GS) 2. The highest part of a wave or swell. (ND)\* 3. The more or less narrow, irregular longitudinal top of an elevation of the sea bottom, such as a ridge or seamount. (ND) 4. A terrain feature of such altitude that it restricts fire or observation in the area beyond resulting in dead space, or limiting the minimum elevation or both. (AD)
- CREVASSE, n.** — 1. A fissure or rift in a glacier or other land ice mass, caused by movement of the ice. (ADT) 2. A break in a levee or other stream embankment. (GS)\*
- CRITICAL ENERGY** — The minimum or critical quantity of heat energy per unit area which is necessary to produce a defined change in a given material, e.g., charring, melting, burning; expressed in Calories per square centimeter.
- CRITICAL POINT** — A point where there is a change in direction or change in slope in a ridge or stream. (JD)
- CRITICAL TEMPERATURE** — 1. The temperature at which magnetic materials lose their magnetic properties; about 800°C for iron and steel. 2. The temperature at which some change occurs in a metal or alloy during heating or cooling. 3. The temperature above which a given gas cannot be liquefied.
- CROCKING, n.** — 1. The loose black particles collected from combustion as on pots and kettles, or in a chimney; soot. 2. Coloring matter which rubs off from cloth, dyed leather, etc.
- CROSS-COUNTRY TERRAIN** — Terrain not specifically improved for vehicular traffic. (WES)
- CROSS TALK** — An interfering signal received from a transmitter other than that to which a receiver is tuned. Cross talk can occur between adjacent channels of multi-channel instrumentation. (ND)\*
- CROSSWIND** — That wind vector component which is perpendicular to the course of an exposed moving object. A wind blowing in a direction approximately 90° from a ship's heading is called a *beam wind*. In common usage these two expressions are often used synonymously, crosswind being favored by aviators and beam wind by mariners. (NOO)\*
- CROWN, n.** — The upper part of a tree, including the branches with their foliage.
- CRUMB, n.** — A soft, porous, more or less rounded unit of soil structure from 1 to 5 mm in diameter. (SSS)\*
- CRUST, n.** — 1. The surface layer of ice or hard snow overlying a deposit of softer snow. A crust is formed by the melting and refreezing of the surficial layer, sometimes augmented by wind compaction. (ADT) 2. A surface layer on soils, ranging in thickness from a few millimeters to perhaps as much as an inch, that is much more compact, hard, and brittle, when dry, than the material immediately beneath it. (SSS)
- CRYOGENICS, n.** — 1. The study of physical phenomena at temperatures below approximately -150° C. (-238° F.). 2. More generally, a term referring to methods of producing very low temperatures.
- CRYOLOGY, n.** — 1. The study of ice and snow. (ADT) 2. The study of sea ice. (ADT) 3. In the United States, the study of refrigeration. (ADT). 4. In Europe a

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synonym for GLACIOLOGY.

*Note:* The term cryology has become almost meaningless unless it is defined in context.

**CRYOPEDOLOGY, n.** — The study of intensive frost action and PERMAFROST, their causes and occurrences, and the engineering devices and practices which overcome difficulties brought about by them. (ADT)

**CRYSTALLINE ROCK** — Rock consisting of closely fitted mineral crystals rather than of cemented grains or volcanic glass; e.g., most metamorphic and igneous rocks.

**CUBIC FEET PER SECOND** — A unit of measure expressing rate of discharge. One cubic foot per second is equal to the discharge of a stream of rectangular cross section, 1 foot wide and 1 foot deep with a liquid flowing at an average velocity of 1 foot per second. Abbreviated *cfs*.

**CUBIC FEET PER SECOND PER DAY** (Abbreviated *cfs-day*) — The volume of water represented by a flow of 1 cubic foot per second for 24 hours. It equals 86,400 cubic feet, 1.983471 acre-feet, or 646,317 gallons. (MH)

**CUBIC FEET PER SECOND PER SQUARE MILE** (Abbreviated *cfs-m*) — The average number of cubic feet of water per second flowing from each square mile of area drained by a stream, assuming that the runoff is distributed uniformly in time and area. (MH)

**CUESTA** — An asymmetric ridge with a steep slope or cliff on one side and a gently sloping plain, the dip-slope, on a gently inclined layer of resistant rock, on the other.

**CULTURE (CARTOGRAPHIC)** — Man-made or artificial features of the terrain. (JD)

**CUP ANEMOMETER** — A rotation anemometer whose axis of rotation is vertical. Cup anemometers usually consist of three or four hemispherical or conical cups mounted with their diametrial planes vertical and distributed symmetrically about the axis of rotation. The rate of rotation of the cups,

which is a measure of the wind speed, is determined indirectly by gearing a mechanical or electrical counter to the shaft. (AMS)\*\*

**CURRENT, n.** — 1. A horizontal movement of water. (NOO) 2. Air in essentially vertical motion, usually called *air current*. (ND)\* 3. The flowing of liquids, gases, particles, or electrons, in conductors.

**CUTOFF, n.** — A new and relatively short channel formed when a stream cuts through the neck of an oxbow or horseshoe bend. (GS)

**CYCLE, n.** — The complete range of states or values through which a phenomenon or periodic function passes before repeating itself identically. (ISO)

**CYCLIC SALT** — Salt deposited on the soil by wind blowing off the sea or off inland salt lakes. (SSS)

**CYCLING, n.** — A type of vibration testing in which the applied frequency is periodically increased and decreased between two frequency limits, the rate of change of frequency being a particular function of time or frequency.

**CYCLING, LINEAR** — A type of CYCLING in which the rate of change of frequency is proportional to time. An equal time is spent at all frequencies in the range of interest.

**CYCLING, LOGARITHMIC** — A type of CYCLING in which the rate of change of frequency is proportional to the frequency. An equal time is spent between half power points for resonant systems of equal transmissibility.

**CYCLING, LOG-LOG** — A type of CYCLING in which the rate of change of frequency is proportional to the square of the frequency. An equal number of vibratory stress reversals is generated between half power points for resonant systems having equal transmissibility.

**CYCLONE, n.** — A closed system of low atmospheric pressure around which the winds

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blow counterclockwise in the northern hemisphere, and clockwise in the southern hemisphere. Because cyclones nearly always are accompanied by inclement weather, they are frequently referred to simply as storms. (AMS)\*

## D

**DAILY MEAN** — 1. The average value of a meteorological element over a period of twenty-four hours. The "true daily mean" is usually taken as the mean of twenty-four hourly values between midnight and midnight, either as continuous values taken from an autographic record or as point readings at hourly intervals. When hourly values are not available, approximations must be made from observations at fixed hours. (AMS)\* 2. The long-period mean value of a climatic element on a given day of the year. (AMS)\*

**DAMAGE SUMMATION** — An analytic process in which the assumed or measured physical parameters of the materials and mechanical structure of a system, and of the fatigue-producing energy applied to the system, are analyzed to establish a relationship between damage accumulation and time, or to predict the time to failure.

**DAMP HAZE** — Small water droplets or very hygroscopic particles in the air, reducing the horizontal visibility somewhat, but to not less than  $1\frac{1}{4}$  miles. Damp haze is similar to a very thin fog, but the droplets or particles are more scattered than in light fog and presumably smaller. (ND)

**DAMPING, n.** — The dissipation of energy with time or distance, such as the effect of friction or its equivalent in reducing oscillation of a system. Other types include coulomb, viscous, structural, eddy-current, nonlinear, material, interface, and tuned dynamic damping.

**DAMPING CAPACITY** — The ability of a material to absorb vibrations by changing the mechanical energy into heat.

**DAMPING COEFFICIENT** — The ratio of a

force applied to a viscous damper to the relative velocity between its connecting points. (SVII)

**DAMPING, CRITICAL** — The minimum viscous damping that will allow a displaced system to return to its initial position without oscillation. (SVH)

**DAMPING RATIO** — See FRACTION OF CRITICAL DAMPING

**DAY WITH PRECIPITATION** — A day in which the total precipitation received equals or exceeds a specified amount (in U.S., water equivalency = .01 in.).

**DEBACLE, n.** — 1. The rush of water or ice in a stream immediately following the BREAKUP. (NOO) 2. Any violent rush or flood of water. (ND)

**DEACTIVATION, n.** — 1. *Metallurgy.* The process of prior removal of the active corrosive constituents, usually oxygen, from a corrosive liquid by controlled corrosion of expendable metal or by other chemical means. 2. Act of rendering explosives inert. (AD)

**DEAD SPACE** — 1. An area within the maximum range of a weapon, radar, or observer, which cannot be covered by fire or observation from a particular position because of intervening obstacles, the nature of the ground, or the characteristics of the trajectory, or the limitations of the pointing capabilities of the weapon. (JD) 2. An area or zone which is within range of a radio transmitter, but in which a signal is not received. (JD) 3. The volume of space above and around a gun or guided missile system into which it cannot fire because of mechanical or electronic limitations. (JD)

**DEBRIS, n.** — Any accumulation of loose material resulting from the decay and disintegration of rocks. It consists of rock fragments, sand, earth, and sometimes organic matter. When occurring at the foot of a steep slope it is identified as TALUS. The term is also applied specifically to the waste silt, sand, and gravel produced by hydraulic operations. (S&V)\*

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- DEBRIS ICE** — Ice which contains mud, stones, shells, etc. Also called *muddy ice*. (ND)
- DECAY**, n. — 1. The decomposition of wood substance by fungi. Two stages of decay, the incipient and advanced stages, are ordinarily recognized, though two supplemental ones, the intermediate and final stages, are sometimes given recognition. (SAF) 2. Rotting or rotted wood. (SAF) 3. The decrease in the energy of anything after new energy ceases to be supplied, as in the case of wind waves after the wind ceases to act. (ND)
- DECAY CURVES (RADIOACTIVE)** — Graph lines representing the decrease of radioactivity with the passage of time. (JD)
- DECAY (RADIOACTIVE)**— The decrease in the radiation intensity of any radioactive material with respect to time. (JD)
- DECAY RATE (RADIOACTIVE)** — 1. The time rate of the disintegration of radioactive material generally accompanied by the emission of particles or gamma radiation. (JD) 2. The rate of disintegration of radioactive material with respect to time. (JD)
- DECIBEL**, n. — (See BEL) — 1. In general, a unit which denotes the magnitude of a quantity with respect to an arbitrarily established reference value of the quantity in terms of the logarithm (to the base 10) of the ratio of the quantities. (SVH)\* 2. A unit for expressing the loudness of sounds, one decibel being approximately the least change detectable by the average human ear. The difference in decibels of two sounds is exactly equal to 10 times the common logarithm of the ratio of their powers. (ND)
- DECIDUOUS**, adj. — In botany, losing the leaves during a certain period of the year, generally either the cold season or dry season.
- DECLIVITY**, n. — A descending slope, as opposed to **ACCLIVITY**. (GS)
- DECOMPOSITION**, n. — The chemical separation of a substance into two or more substances, which may differ from each other and from the original substances.
- DECOMPRESSION**, n. — The act or process of lowering the air pressure within a cabin, chamber, etc., or of subjecting to, or undergoing, a decrease in air or atmospheric pressure. (NASA)
- DECONTAMINATION**, n. — The process of making any person, object, or area safe by absorbing, destroying, neutralizing, making harmless or removing, chemical or biological agents, or by removing radioactive material clinging to or around it. (JD)
- DEEP FORDING** — The ability of a gun or vehicle equipped with built-in waterproofing with its suspension in contact with the ground to negotiate a water obstacle by application of a special waterproofing. (JD)
- DEFILE**, n. — A deep, narrow mountain pass. (GS)
- DEFILADE**, n. — 1. Protection from hostile ground observation and fire provided by an obstacle such as a hill, ridge, or bank. (JD) 2. A vertical distance by which a position is concealed from enemy observation. (JD)
- DEFILADE**, v. — To shield from enemy fire or observation by using natural or artificial obstacles. (JD)
- DEFLATION**, n. — The removal of fine soil particles from soil by wind. (SSS)
- DEFOLIANT**, n. — A chemical used to remove prematurely the leaves from plants. (AD)
- DEFOLIATE**, v.t. — To cause a tree or other plant to lose its leaves.
- DEGRADATION** — Deterioration, usually in the sense of a physical or chemical process rather than a mechanical one. There may be a specific amount of degradation permitted as a result of performance of environmental testing.
- DEGREE DAY** — 1. Generally, a measure of the departure of the mean daily temperature from a given standard: one degree day

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- for each degree ( $^{\circ}\text{C}$  or  $^{\circ}\text{F}$ ) of departure above (or below) the standard during one day. Recently, degree days have been applied to fuel and power consumption, with the standard being  $65^{\circ}\text{F}$ . (AMS)\* 2. As used by U. S. Army Corps of Engineers, degree days are computed as departure above and below  $32^{\circ}\text{F}$ , positive if above and negative if below. Also called *freezing degree-day*. (AMS)\*
- DEGREES-OF-FREEDOM** — In a mechanical system, the minimum number of independent coordinates required to define completely the positions of all parts of the system at any instant of time. In general, it is equal to the number of independent displacements that are possible. (SVH)
- DEGREE HOUR** — As used by the U. S. Army Corps of Engineers, the departure (in  $^{\circ}\text{F}$ ) of the hourly temperature from a standard of  $32^{\circ}\text{F}$ , positive if above and negative if below. Degree hours may be accumulated (summed) over any period of time, depending upon the use to which they are applied. (AMS)
- DEGREES OF FROST** — The number of degrees that the temperature falls below  $32^{\circ}\text{F}$  or  $0^{\circ}\text{C}$ , the freezing point. (ADT)
- DEHUMIDIFICATION**, n. — The condensation of water vapor from air by cooling below the dew point, or removal of water vapor from air by chemical or physical (adsorption) methods.
- DEHUMIDIFY**, v.t. — To reduce, by any process, the amount of water vapor in a space.
- DEICING**, n. — The removal of ice accumulation on aircraft, ships, and other objects by ice pick, shovel steam jet, chemical treatment, mechanical devices, etc. (IG)
- DELAYED FALLOUT** — Fallout resulting from high-yield atomic or thermonuclear detonations which thrust their clouds into the stratosphere. Storage times vary from less than one year to as high as 10 years, depending upon the latitude and altitude of detonation. The particles are of sub-micron size (AMS)\*
- DELIQUESCENT**, n. — The change undergone by certain substances which become damp and finally liquefy when exposed to the air, owing to the very low vapor pressure of their saturated solutions.
- DELTA**, n. — A deposit of alluvium at the mouth(s) of a river. The term refers particularly to that part of the deposit forming a tract of land above water, usually roughly triangular in shape, as the Greek letter  $\Delta$ . (ND)\*
- DENDRITIC DRAINAGE** — A drainage pattern in which streams run in many directions and branch irregularly like a tree. The positions of the streams are not influenced by differences in rock structure or hardness. (S&V)
- DENSITY** — 1. *Soil Mechanics*. The unit weight of a soil in pounds per cubic foot. The type of density, i.e., natural or in place, wet, dry, remolded natural, relative, etc., should be specified. (BR) 2. *Oceanography*. The equivalent of specific gravity, or the ratio, at atmospheric pressure, of the weight of a given volume of sea water to that of an equal volume of distilled water at  $4.0^{\circ}\text{C}$ . ( $39.2^{\circ}\text{F}$ ). (NOO)
- DENSITY ALTITUDE** — The height above sea level at which the existing density of the atmosphere would be duplicated in the standard atmosphere; atmospheric density expressed as height according to a standard scale. (ND)
- DEPOSIT**, n. — Material left in a new position by a natural transporting agent such as water, wind, ice, or gravity, or by the activity of man. (SSS)
- DEPOSIT ATTACK** — Corrosion occurring under or around a discontinuous deposit on a metallic surface. (ECS)
- DEPRESSION**, n. — 1. *Meteorol.* An area of low pressure; a low or a trough. This is us-

ually applied to a certain stage in the development of a tropical cyclone, to migratory lows, and troughs, and to upper-level lows and troughs that are only weakly developed. (AMS)\* 2. *Geomorph.* A low place of any size on a plain surface, with drainage underground or by evaporation; a hollow completely surrounded by higher ground and having no natural outlet for surface drainage. (GS)

**DESERT**, n. — A region where precipitation is insufficient to support any plant life except xerophilous vegetation; a region of extreme aridity. W. Koeppen, in his climatic classification, defines a desert CLIMATE (designated BW) by assigning maximum values of annual precipitation as follows: for precipitation mainly in cold season,  
 $p = 0.22 (t-32)$  ;  
 for evenly distributed precipitation,  
 $p = 0.22 (t-19.4)$  ;  
 for precipitation mainly in the hot season,  
 $p = 0.22 (t-6.8)$  ;  
 where p is the mean annual precipitation in inches, and t is the mean annual temperature in °F. (AMS)\*

**DESERT CRUST** — A hard layer, containing calcium carbonate, gypsum, or other binding material, exposed at the surface in desert regions. (SSS)

**DESERT FLATS** — The essentially flat surface extending from the edges of PLAYAS to the ALLUVIAL FANS or BAJADAS.

**DESERT PAVEMENT** — A mosaic of closely packed pebbles and broken rock fragments usually coated with a stain or crust of manganese or iron oxide (see DESERT VARNISH) and caused by wind removal of sand, silt, and clay particles. See REG.

**DESERT SOIL** — A zonal great soil group consisting of soils with a very thin, light-colored surface horizon, which may be vesicular and is ordinarily underlain by calcareous material; formed in arid regions under sparse shrub vegetation. (SSS)

**DESERT VARNISH** — A glossy sheen or

coating on stones and gravel in arid regions. (SSS)

**DESICCANT**, n. — A drying or dehydrating agent which absorbs water vapor by physical or chemical means.

**DESICCATOR**, n. — An enclosed apparatus in which substances can be kept in a dry atmosphere. The latter is obtained by the inclusion of drying agents such as phosphorus pentoxide or concentrated sulphuric acid.

**DETECTOR, INFRARED** — A device for observing and measuring infrared radiation, such as the bolometer, radiomicrometer, thermopile, pneumatic cell, photocell, photographic plate, and photoconductive cell.

**DETERIORATION**, n. — 1. The loss in the value of a material or a decrease in the ability of a product to fulfill the function for which it was intended. 2. A process of transition from a higher to a lower energy level.

**DETERIORATION PATTERN** — Listing of the various deterioration processes noticed on an item in the order of their intensities or rates of progress or in the order of their deterioration potentials.

**DETERIORATION POTENTIAL** — The minimum change resulting from a deterioration process which affects the suitability of the item to serve its intended purpose.

**DETERIORATION PROCESS** — Any change in physical characteristics or any chemical reaction occurring as the result of the storage or use of an item. As a rule, a deterioration process is the result of the environmental exposure of the item. It can also be generated by internal conditions and promoted by the environmental stresses.

**DETERIORATION PRODUCT** — New or changed compounds formed as a result of a particular deterioration process.

**DETERIORATION RESISTANCE** — The ability of an item to withstand the effects of environmental exposures and to prevent

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deterioration which might result from internal item conditions.

**DETERIORATION-RESISTANT PRODUCTS** — The product designs which prevent undesirable deterioration during their prescribed useful life spans.

**DETRITUS, n.** — An accumulation of the fragments resulting from the disintegration of rocks. (ND)

**DEW, n.** — Water condensed onto grass and other objects near the ground, the temperatures of which have fallen below the **DEW POINT** of the surface air due to radiational cooling during the night, but are still above freezing. If the temperature falls below freezing after dew has formed, the frozen dew is known as *white dew*. (AMS)\*

**DEW CELL** — An instrument used to determine the **DEW POINT**. It consists of a pair of spaced bare electrical wires wound spirally around an insulator and covered with a wicking wetted with a water solution containing an excess of lithium chloride. An electrical potential applied to the wires causes a flow of current through the lithium chloride solution which raises the temperature of the solution until its vapor pressure is in equilibrium with that of the ambient air. (AMS)\*

**DEW POINT** — The temperature to which a given weight of air must be cooled at constant pressure and constant water-vapor content in order for **SATURATION** to occur. When this temperature is below 0°C, it is sometimes called the *frost point*. (AMS)\*

**DIAMETER, BREAST HIGH** — The diameter of a tree at 4.5 feet above average ground level, except that in National Forest practice it is measured from the highest ground level. Abbreviated *d.b.h.* The additional abbreviations *o.b.* and *i.b.* are used to designate whether the diameter refers to the measurement outside or inside the bark. (SAF)

**DIATOM, n.** — One of a class of microscopic

phytoplankton organisms, possessing a wall of overlapping halves (valves) impregnated with silica. Diatoms are one of the most abundant groups of organisms in the sea and the most important primary food source of marine animals. (NOO)

**DIATOMACEOUS EARTH** — A geologic deposit of fine, grayish siliceous material composed chiefly or wholly of the remains of diatoms. It may occur as a powder or as a porous, rigid material. (SSS)

**DIFFRACTION, n.** — 1. The bending of the rays of radiant energy around the edges of an obstacle or when passing near the edges of an opening, or through a small hole or slit, resulting, in the case of light, in the formation of a spectrum or alternate light and dark bands. (ND) 2. The bending of a wave as it passes an obstruction. (ND)

**DIFFRACTION ZONE** — With respect to radio propagation, that portion of any propagation path which lies below a line-of-sight path. It is generally applied to the region below the earth's radio horizon and, in this case, is often referred to as the *earth shadow*. Energy enters this zone by diffraction and scattering processes; and the interference lobes produced by the addition of the direct and surface-reflected waves for line-of-sight conditions are not present. (AMS)

**DIFFUSE SKY RADIATION (or SKY-LIGHT)** — Radiation reaching the earth's surface after having been scattered from the direct solar beam by molecules or suspensoids in the atmosphere. Of the total light removed from the direct solar beam by scattering in the atmosphere (approximately 25 percent of the incident radiation), about two-thirds ultimately reaches the earth as diffuse sky radiation. (AMS)\*

**DIFFUSION, n.** — The spreading out or scattering of anything. For example, light is diffused when reflected from a rough surface. (ND)

**DIKE, n.** — 1. *Geol.* A sheet-like body of igneous rock that fills a fissure in older rocks

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which it entered while in a molten condition. Dikes occur in all types of material, igneous, metamorphic, and sedimentary; if in sedimentary rocks or bedded volcanic rocks, they "cut" the formations or transect the beds at an angle. Dikes vary from less than an inch in width and a few yards in length to thousands of feet in width and many miles in length. (S&V)\* 2. *Civil Engineering*. A bank of earth, stones, etc., constructed to prevent low-lying land from being inundated by the sea, a river, etc.

**DIPCOAT**, n. — A method of applying a protective or decorative coating to an article by dipping the piece into the coating material.

**DIRECT SHEAR TEST** — *Soil Mechanics*. A test to determine the maximum shearing strength and angle of friction of soils for use in stability analyses.

**DIRECTION OF CURRENT** — The direction toward which a current is flowing, called the *set* of the current. (ND)

**DIRECTION OF WAVES** — The direction from which waves are moving. (ND)\*

**DIRECTION OF WIND** — The direction from which a wind is blowing. (ND)

**DIRECT RUNOFF** — The runoff entering stream channels promptly after rainfall or snowmelt. Superposed on base runoff, it forms the bulk of the hydrograph of a flood. (MH)\*

**DIRECT SOLAR RADIATION** — In actinometry, that portion of the radiant energy received at the instrument or pyrheliometer "direct" from the sun, as opposed to **DIFFUSE SKY RADIATION**, effective terrestrial radiation, or radiation from any other source. (AMS)\*

**DISINTEGRATION, NUCLEAR** — A nuclear transformation characterized by the emission of mass and energy from the nucleus. If the emission is spontaneous, it is said to be *radioactive*; if the disintegration results from collision, it is said to be *in-*

*duced*. When numbers of nuclei are involved, the process is characterized by a definite **HALF-LIFE**.

**DISINTEGRATION RATE** — 1. The absolute rate of decay of a radioactive substance, usually expressed in terms of disintegration per unit of time. 2. The absolute rate of the transformation of a nuclide under bombardment.

**DISPERSION**, n. — 1. The process in which radiation is separated into its component wavelengths. Dispersion results when an optical process, such as diffraction, refraction, or scattering, varies according to wavelength. (AMS)\* 2. The rate of change with wavelength of the index of refraction of any refractive interface or discontinuity. (AMS)\*

**DISPLACEMENT** — A vector quantity that specifies the change of position of a body or particle and is usually measured from the mean position or position of rest. In general, it can be represented as a rotation vector or a translation vector, or both. See **AMPLITUDE, PEAK TO PEAK**. (SVH)\*

**DISPLACEMENT PICKUP** — A device which converts a detectable change in a medium, such as that produced by a sound wave or an electromagnetic wave, into some form of electrical energy.

**DISTURBED ICE** — Any land ice which is broken by pressure into a chaotic pattern of elevations and depressions. (ND)

**DITHER**, n. — A signal of controlled amplitude and frequency applied to the servo motor operating a transfer valve, such that the transfer valve is constantly being "quivered" and cannot stick at its null position.

**DIURNAL**, adj. — Daily, especially pertaining to actions which are completed within twenty-four hours and which recur every twenty-four hours; thus, most reference is made to diurnal cycles, variations, ranges, maxima, etc. (AMS)\*

**DIVIDE**, n. — The line of separation between

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drainage systems; the summit of an interfluvium. The highest summit of a pass or gap. (GS)

**DOPPLER EFFECT** — The phenomenon evidenced by the change in the observed frequency of a sound or radio wave caused by a time rate of change in the effective length of the path of travel between the source and the point of observation. (JD)

**DOSAGE (RADIATION)** — The amount of nuclear radiation received by a person under a given set of circumstances.

**DOSE (RADIATION)** — Properly, the absorbed dose from any ionizing radiation. Sometimes refers to the exposure dose, properly expressed in roentgens, which is a measure of the total amount of ionization that x-rays or gamma rays produce in the air. Sometimes improperly used for radiation outside the applicability of the roentgen, as the ionization which would be produced in air. It is more advisable to restrict the term to the absorbed dose, commonly given in RADS.

**DOSIMETER, n.** — An instrument for measuring and registering total accumulated exposure to ionizing radiations.

**DOSIMETRY, n.** — The measurement of radiation doses. It applies to both the devices used (dosimeters) and to the techniques. (JD)

**NOTE, n.** — An early stage of DECAY. It is usually characterized by a change in color of the wood in patches or streaks which may be lighter or darker than normal. (SAF)

**DOWNWASH** — The downward flow of gases under pressure resulting from the application of power to the lifting or propelling, or both, of airborne vehicles, vertiplanes, helicopters, rockets, guided missiles, etc. (AD)

**DOWNWIND, adj. & adv.** — In the direction toward which the wind is blowing. The term applies particularly to the situation of moving in this direction, whether desired or

not. *Before the wind* implies assistance from the wind in making progress in a desired direction. *Leeward* applies to the direction toward which the wind blows, without implying motion. The opposite is *upwind*. (ND)

**DRAG, n.** — The frictional impedance offered by a fluid to the motion of bodies passing through it; more precisely, the component of aerodynamic or hydrodynamic force parallel to the direction of mean flow. (AMS)\*

**DRAINAGE AREA** — The area, measured in a horizontal plane, which is enclosed by a DRAINAGE DIVIDE. (MH)\*

**DRAINAGE BASIN** — A part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water. (MH)

**DRAINAGE DIVIDE** — See DIVIDE.

**DRAW** — A shallow DRY WASH or ARROYO, characterized by low banks which are gentler than those of the wash or arroyo.

**DRIFT, n.** — 1. The effect of the velocity of fluid flow upon the velocity (relative to a fixed external point) of an object moving within the fluid; the vector difference between the velocity of the object relative to the fluid and its velocity to the fixed reference. (NOO) 2. To the mariner, drift is the speed of a current of ice floe usually given in nautical miles per day or in knots. (NOO)\* 3. To the oceanographer, drift is a wide, slow-moving current principally caused by winds. (NOO) 4. The component of an aircraft's ground speed perpendicular to the heading. (ND) 5. Material moved from one place and deposited in another, as sand by a river, rocks by a glacier, material washed ashore and left stranded, snow or sand piled up by wind. (ND)\* 6. Gradual movement from a set position, as of a control by vibration. (ND) 7. The change of frequency

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- in an oscillator during warm-up. (ND)
9. The horizontal component of precession or wander, or the algebraic sum of the two. When it is desired to differentiate between the sum and its components, the sum is called *total drift*. (ND)
- DRIFT, GLACIAL** — All rock material in transport by glacier ice, all deposits made by glacier ice, and all deposits predominantly of glacial origin made in the sea or in bodies of glacial melt water, including rocks rafted by icebergs. Glacial drift occurs as scattered rock fragments, as *till*, and as *outwash*. (ADT)
- DRIFTING SAND** — An ensemble of particles of dust or sand raised from the ground to small or moderate height by a sufficiently strong and turbulent wind. (WMO)\*
- DRIFTING SNOW** — Snow particles being blown about close to the ground (less than 6 feet above the surface), differing from blowing snow in that vertical visibility is not appreciably affected. (ADT)\*
- DRIZZLE, n.** — Fairly uniform precipitation composed exclusively of fine drops of water (diameter less than 0.5 mm or 0.02 in.), very close to one another. (WMO)\*
- DROPLET (or DROP)** — A small spherical particle of any liquid; in meteorology, particularly a water droplet. There is no defined size limit separating droplets from drops of water, but it is sometimes convenient to denote two disparate size ranges, such as the oft-used distinction of liquid cloud particles (droplets) from liquid precipitation (drops), thereby implying that a maximum diameter of 0.2 mm is the limit for droplets. (AMS)
- DROP TEST** — A type of shock test in which a test specimen, or a guided structure to which the specimen is mounted, is released from a specified height and after free fall is decelerated by a specified medium.
- DROSOMETER, n.** — An instrument used to measure the amount of dew formed on a given surface. (AMS)\*
- DROWNED VALLEY** — A valley, the lower part of which has been inundated by the sea as a result of submergence of the land margin.
- DRUMLIN, n.** — A smooth oval hill of glacial origin. Drumlins are composed almost exclusively of boulder clay but sometimes include lenslike masses of gravel and sand, and are thus mainly constructional in origin. They range in length from a few hundred feet to more than a mile, and in height from 25 to about 200 feet. They are steeper on the end of ice approach and taper off to a slender low point on the lee side, thus having a long axis in the direction of ice movement. (S&V)
- DRY AIR** — 1. In atmospheric thermodynamics and chemistry, air that contains no water vapor. (AMS) 2. Generally, air with low relative humidity. (AMS)
- DRY-BULB TEMPERATURE** — The temperature of the air. (AMS)\*
- DRY-BULB THERMOMETER** — A thermometer with an uncovered bulb, used with a wet-bulb thermometer to determine atmospheric humidity. The two thermometers constitute the essential parts of a **PSYCHROMETER**. (ND)
- DRY COLD** — See **COLD DRY**.
- DRY FOG** — A fog that does not moisten exposed surfaces. (AMS)
- DRY WASH** — A broad, dry bed of a stream; a dry stream channel. (GS)\*
- DUMMY LOAD** — See **MOCKUP**.
- DUNE, n.** — 1. A heap of sand or other material accumulated by wind. The external form may be that of a hill or ridge. 2. A sand wave of approximately triangular cross section (in a vertical plane in the direction of flow) with gentle upstream slope and steep downstream slope, which travels downstream by the movement of the sedi-

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ment up the upstream slope and the deposition of it on the downstream slope. For types, see BARCHAN, LONGITUDINAL DUNE, STAR DUNE, TRANSVERSE DUNE, WHALEBACK, and SIEF DUNE.

DUST, n. — 1. Solid materials suspended in the atmosphere in the form of small irregular particles, many of which are microscopic size. Dust is due to many natural and artificial sources: volcanic eruptions, salt spray from the seas, blowing solid particles, plant pollen and bacteria, smoke and ashes of forest fires and industrial combustion processes, etc. (AMS)\* 2. Particles smaller than 75 microns in diameter.

DUST STORM — An unusual, frequently severe weather condition characterized by strong winds and dust-filled air over an extensive area. A thick mass of airborne dust may obscure the atmosphere to the extent that it reduces visibility very considerably — sometimes practically to zero. (AMS)\*

DUST WHIRL — A rapidly rotating column of air, usually about 100 to 300 feet in height, carrying dust, straw, leaves, or other light material. It has no direct relationship to a dust storm, and usually develops on a calm, hot afternoon with clear skies, mostly in desert regions. (ND)\* Also called *dust devil*.

DYNAMIC AGING, n. — Accelerated aging of rubber in the presence of dynamic stresses, in which strain exposes new areas of the molecular structure to attack, the resulting cracks being caused by a combination of dynamic fatigue and oxidation or ozone attack. (SVH)

DYNAMIC DEHUMIDIFICATION — The removal of moisture from the atmosphere by dehumidification machines that use power-driven blowers.

DYNAMIC METEOROLOGY — The branch of meteorology which deals with the motions of the atmosphere and their relations to other meteorological elements. (ND)

DYNE, n. — A unit of force which will produce an acceleration of one centimeter per second if applied to a body with a mass of one gram.

## E

EARLY FALLOUT — Fallout near the site of an explosion.

EARTH, n. — 1. The solid matter of the globe as contrasted with water and air. (S&V) 2. The loose or softer material composing part of the surface of the globe, as distinguished from firm rock. (S&V)

EARTHQUAKE, n. — A perceptible trembling to violent shaking of the ground produced by the sudden shift of part of the earth's crust.

EBB CURRENT — The tidal current associated with the decrease in the height of a tide. Ebb currents generally set seaward, or in an opposite direction to the tide progression. Erroneously called ebb tide. (NOO)

ECHO, n. — The signal received by a radar or sonar set as a result of the reflection of a transmitted radio or sound pulse from objects in the field of scan. (AD)

ECHO FLUTTER — A rapid succession of reflected pulses resulting from a single initial pulse.

ECOLOGY, n. — The science that deals with the interrelations of organisms and their environment. (SSS)

EDAPHIC, adj. — 1. Of or pertaining to the soil. (SSS) 2. Resulting from or influenced by factors inherent in the soil or other substrate, rather than by climatic factors. (SSS)

EDDY, n. — A current of air or fluid that runs contrary to the main stream, especially a small vortex of air that runs counter to the main airflow. Eddies tend to

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form on the lee side of an object. (AFD)\*

**EFFECTIVE GUST VELOCITY**—The vertical component of the velocity of a sharp-edged gust that would produce a given acceleration on a particular airplane flown in level flight at the design cruising speed of the aircraft and at a given air density. (AMS)

**EFFECTIVE PRECIPITATION** — 1. That part of the precipitation that produces runoff. (MH) 2. A weighted average of current and antecedent precipitation that is "effective" in correlating with runoff. (MH) 3. As described by U. S. Bureau of Reclamation, that part of the precipitation falling on an irrigated area that is effective in meeting the consumptive use requirements. (MH)

**EFFECTIVE SOUND PRESSURE** (or **ROOT-MEAN-SQUARE SOUND PRESSURE**) — The effective sound pressure at a point is the root-mean-square value of the instantaneous sound pressures over a time interval at the point under consideration. In the case of periodic sound pressures, the interval must be an integral number of periods or an interval that is long compared to a period. In the case of nonperiodic sound pressures, the interval should be long enough to make the value obtained essentially independent of small changes in the length of the interval. The term *effective sound pressure* is frequently shortened to *sound pressure*. (ASA)

**EFFECTIVE TEMPERATURE** — 1. The temperature at which motionless, saturated air would induce, in a sedentary worker wearing ordinary indoor clothing, the same sensation of comfort as that induced by the actual conditions of temperature, humidity, and air movement. (AMS)\* 2. With respect to radiation, ascribed to an imperfectly radiating body: the temperature at which a perfect radiator (black body) would emit radiation at the same rate. Thus, the effective temperature is always less than the actual temperature.

(AMS) 3. *Phenol*. The temperature at which plants, especially cereals, begin to grow. (AMS)

**EFFECTIVE TERRESTRIAL RADIATION** — The difference between the outgoing (positive) terrestrial radiation of the earth's surface and the downcoming (negative) counterradiation from the atmosphere. It is to be emphasized that this difference is a positive quantity, of the order of several tenths of a langley per minute, at all times of day (except under conditions of low overcast clouds). It typically attains its diurnal maximum during the mid-day hours when high soil temperatures create high rates of outgoing terrestrial radiation. However, in daylight hours the effective terrestrial radiation is generally much smaller than the insolation, while at night it typically dominates the energy budget of the earth's surface. (AMS)\*

**ELASTICITY**, n. — That property of a material by virtue of which it tends to automatically recover its original size and shape after deformation.

**ELECTROLYTIC PROTECTION** — Protection from electrochemical corrosion by use of the protected material as cathode in the corrosion cell. If an electromotive force counter to the normal flow of current in a corroding system can be impressed on the system circuit, the tendency for the anodic metal to go into solution will be decreased.

**ELECTROMAGNETIC**, adj.—Pertaining to the combined electric and magnetic fields associated with radiation or with movements of charged particles.

**ELECTROMAGNETIC LINE-OF-SIGHT**— The maximum distance at which direct wave transmission is possible between transmitting and receiving antennas of given height, neglecting propagation anomalies.

**ELECTROMAGNETIC RADIATION** — Energy propagated through space or through material media in the form of an advanc-

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ing disturbance in electric and magnetic fields existing in space or in the media. The term *radiation*, alone, is used commonly for this type of energy, although it actually has a broader meaning. (AMS)\*

**ELECTROMAGNETIC SPECTRUM** — The ordered array of all known electromagnetic radiations, extending from the shortest gamma rays through x-rays, ultraviolet radiation, visible radiation, infrared radiation, and including microwave and all other wavelengths of radio energy. (AMS)\*

**ELECTROMECHANICAL COUPLING FACTOR** — A factor used to characterize the extent to which the electrical characteristics of a **TRANSDUCER** are modified by a coupled mechanical system, and vice versa. (SVH)

**ELECTROMETEOR**, n. — A visible or audible manifestation of atmospheric electricity. Electrometeors either correspond to discontinuous electrical discharges (**LIGHTNING**, **THUNDER**) or occur as more or less continuous phenomena (**SAINT ELMO'S FIRE**, polar aurora). (WMO)

**ELECTRONIC JAMMING** — The deliberate radiation, reradiation, or reflection of electromagnetic signals with the object of impairing the use of electronic devices by the enemy. (JD)

**ELECTRONICS**, n. — The broad field pertaining to the conduction of electricity through a vacuum, through gases, or through solids, and circuits, associated therewith.

**ELEVATION** — The vertical distance of ground forms, usually measured in feet or meters, above mean sea level (plus elevation) or below mean sea level (minus elevation). (JD)

**EMANOMETER**, n. — An instrument for the measurement of the radon content of the atmosphere. Radon is removed from a sample of air by condensation or adsorp-

tion on a surface, and is then placed in an ionization chamber and its activity determined. (AMS)

**EMBAYED COAST** — A coast with many projecting headlands, bays, and outlying islands. (S&V)\*

**EMBRITTELEMENT** — An increase in the susceptibility of a metal to fracture under stress caused by the introduction of gas or other foreign atoms, by segregation of brittle constituents, by internal oxidation, or by certain types of corrosion.

**EMISSIVITY**, n. — The ratio of the rate of emission of radiant energy in a given wavelength interval from a given surface to the rate of emission of a blackbody at the same temperature in the same wavelength interval with the radiation emitted by the surface is due solely to its temperature (i.e. excluding transmitted radiation, heat generated by chemical or other reactions, etc.)

**EMITTANCE** — A synonym for **EMISSIVITY**, especially in infrared technology.

**END MORaine** — See **TERMINAL MORaine**.

**ENTRAINMENT**, n. — In meteorology, the mixing of environmental air into a pre-existing organized air current so that the environmental air becomes part of the current; the opposite of *detrainment*. (AMS)

**ENTROPY** — 1. A measure of the unavailable energy in a system, that is, energy that cannot be converted into another form of energy. 2. A measure of the degree of mixing of different kinds or sizes of sediments; high entropy approaches an unmixed sediment of one kind. (NOO)

**ENVANAL**, n. — An empirical method of recording data that reflects the performance of equipment and material when operated under various world-wide conditions. It is formed from a contraction of the words *environment* and *analysis*.

**ENVIRONMENT**, n. — 1. The totality of

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natural and induced conditions occurring or encountered at any one time and place. 2. The integrated total of all stresses which influence the performance capability of man and equipment during transit, in storage (or confinement) or under field operating conditions. (AR) See also ARTIFICIAL ENVIRONMENT, INDUCED ENVIRONMENT, NATURAL ENVIRONMENT, OPERATIONAL ENVIRONMENT.

**ENVIRONMENTAL CONTROL**—A method by which the severity of a damaging environmental stress is reduced to a level tolerable by equipment or personnel.

**ENVIRONMENTAL DESIGN CRITERIA**—Environmental parameters which represent a given degree of severity of conditions existing in nature, in equipment operation, or in storage, which are to be incorporated in the design of equipment.

**ENVIRONMENTAL ELEMENT**—An ENVIRONMENTAL FACTOR.

**ENVIRONMENTAL ENGINEERING**—That branch of engineering concerned with the designing, developing, and testing of equipment or materials to function reliably under all environmental conditions expected during their intended operational, transportation, or storage life.

**ENVIRONMENTAL FACTOR**—One of the components of an environment; an environmental element. Environmental factors may be either (a) *induced*, including those conditions resulting from the operation of a structure or item of equipment, or (b) *natural*, including those conditions generated by the forces of nature and whose effects are experienced when the equipment or structure is at rest as well as when it is in operation. The distinction between natural and induced environmental factors cannot always be clearly discerned nor precisely defined.

**ENVIRONMENTAL FIELD TEST**—A test or program of tests in which an item of

materiel is subjected to storage and functional testing in one or more specific environments.

**ENVIRONMENTAL LAPSE RATE**—The rate of decrease of temperature with elevation. The concept may be applied to other atmospheric variables (e.g., lapse rate of density) if these are specified. The environmental lapse rate is determined by the distribution of temperature in the vertical at a given time and place and should be carefully distinguished from the *process lapse rate*, which applies to an individual air parcel. (AMS)\*

**ENVIRONMENTAL OPERATING CONDITIONS**—Those factors of the environment which singly or in combination have a significant effect upon military operations, and must, therefore, be considered in the design and testing of Army materiel. (AR)

**ENVIRONMENTAL PROTECTION**—Research and its application designed to maintain or improve the degree of effective performance of man and equipment under all types of environmental stress.

**ENVIRONMENTAL RESEARCH**—The systematic study and investigation of any environmental factor or combination of factors for the purpose of discovering basic rules or principles governing their cause and behavior, extending knowledge of their occurrence and distribution, or ascertaining the relation between them and other aspects of the environment, both natural and induced. See also RESEARCH and APPLIED ENVIRONMENTAL RESEARCH.

**ENVIRONMENTAL RESISTANCE FEATURES**—The characteristics or the properties of an item which protect the item against the effects of an environmental exposure and which prevent internal conditions that might lead to deterioration.

**ENVIRONMENTAL SUITABILITY OF A PRODUCT**—The suitability of a product

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to serve its intended purpose under prescribed environmental conditions.

**ENVIRONMENTAL TEST** — A test of equipment, supplies, and techniques under a specific set of environmental conditions in which each is intended to be used. Such a test will normally be an integral part of other tests, i.e., engineer design, engineering, and service tests. (AR 705-15)\*

**EPHEMERAL LAKE** — See **PLAYA**.

**EQUATORIAL AIR** — According to some authors, the air of the doldrums or the equatorial trough, to be distinguished somewhat vaguely from the **TROPICAL AIR** of the trade-wind zones. Tropical air "becomes" equatorial air when the former enters the equatorial zone and stagnates. There is no significant distinction between the physical properties of these two types of air in the lower troposphere. (AMS)

**EQUILIBRIUM VAPOR PRESSURE** — The vapor pressure of a system in which two or more phases of a substance coexist in equilibrium. In meteorology the reference is to water substance unless otherwise specified. If the system consists of moist air in equilibrium with a plane surface of pure water or ice, the more specialized *saturation vapor pressure* is usually employed, in which case the vapor pressure is a function of temperature only. (AMS)\*

**EQUILIBRIUM WATER** — That water content of a solid which will remain unchanged by further exposure to air of a given humidity, temperature, and pressure.

**ERG**, n. — 1. *Physics*. The work performed by a force of one dyne acting through a distance of one centimeter. The erg is the unit of energy or work in the centimeter-gram-second system. (ND) 2. *Geol.* An extensive area in a desert where the surface is loose or almost unconsolidated sand, usually forming high dunes. Sometimes called a *sand sea*.

**ERODE**, v. — To wear away or remove the

land surface by wind, water, or other agents. (SSS)

**EROSION**, n. — 1. *Geol.* The wearing away of the land surface by detachment and transport of soil and rock materials through the action of moving water, wind, or other geological agents. (YA) 2. *Metalurgy*. Destruction of metal or other material by the abrasive action of liquid or gas. Usually accelerated by the presence of solid particles of matter in suspension and sometimes by **CORROSION**. (ECS)

**EROSION, ACCELERATED** — Erosion much more rapid than normal, natural, geological erosion, primarily as a result of the influence of the activities of man or, in some cases, of animals. (SSS)

**ERRATIC**, n. — A rock fragment, usually of large size, that has been transported from a distant source, especially by the action of glacial ice. (S&V)

**ESCARPMENT**, n. — A long **CLIFF** or steep slope facing in one general direction and continuing for a considerable distance. Escarpments may be produced by faulting or by erosion. The abbreviated form "scarp" is usually limited to cliffs formed by faulting. (S&V)

**ESKER**, n. — Relatively long, narrow, winding ridges of mixed sand and gravel. In longitudinal profile their crests are seen to be sinuous. They are considered to have been deposited by streams of meltwater flowing through crevasses and tunnels in stagnant ice sheets. (S&V)

**ESTUARY**, n. — The widened channel at the mouth of a river, in which the influence of the tides is felt. The water in an estuary is normally brackish.

**EVAPORATION**, n. — The process by which a substance is changed from the liquid into the vapor state. In hydrology, evaporation is vaporization that takes place at a temperature below the boiling point. (MH)

**EVAPORATION PAN** — A type of **AT-**

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- MOMETER**; it is a pan used in the measurement of the evaporation of water into the atmosphere. The U. S. Weather Bureau evaporation pan (class-A pan) is a cylindrical container fabricated of galvanized iron or monel metal with a depth of ten inches and a diameter of forty-eight inches. (AMS)\*
- EVAPORATION, TOTAL** — The sum of water lost from a given land area during any specific time by transpiration from vegetation and building of plant tissue; by evaporation from water surfaces, moist soil, and snow; and by interception. It has been variously termed *evaporation, evaporation from land areas, evapotranspiration, total loss, water losses, and fly off*. (AMS)
- EVAPORATIVITY, n.** — Same as **EVAPORATIVE POWER**.
- EVAPORATIVE POWER** — A measure of the degree to which the weather or climate of a region is favorable to the process of evaporation. It is usually considered to be the rate of evaporation, under existing atmospheric conditions, from a surface of water which is chemically pure and has the temperature of the lowest layer of the atmosphere ((AMS)\*)
- EVAPORIMETER, n.** — An instrument for measuring the rate of evaporation of water into the atmosphere. (ND)
- EVAPOTRANSPIRATION, n.** — The combined processes by which water is transferred from the earth's surface to the atmosphere; evaporation of liquid or solid water plus transpiration from plants. (AMS)\*
- EVERGREEN, n.** — Any of the various needled and broad-leaved trees, shrubs, and herbs which retain their green foliage throughout the year, and which do not shed this foliage until the new leaves have developed. (ADT)\*
- EXAGGERATION FACTOR** — The factor by which a real-time environmental stress level must be multiplied in order to simulate a real-time service life by laboratory test of short duration. (SVH)
- EXCITATION**—An external force (or other input) applied to a system that causes the system to respond in some way. (SVH)
- EXFOLIATION, n.** — 1. Scaling off of a surface in flakes or layers. (ECS) 2. *Geol.* The breaking or **SPALLING** off of thin concentric shells, scales, or lamellae from rock surfaces. The action is due to changes in temperature, the action of frost, and, in the opinion of some observers, to obscure chemical effects. See **SPALL** (S&V)
- EXPOSURE, n.** — 1. State of being open to the effects of a certain natural or simulated element or condition. *Natural exposure* refers to the subjection of a material to normal service conditions; *accelerated exposure* refers to subjection to more stringent conditions. 2. In meteorology, the physical location of an instrument. (AMS)\* 3. The general surroundings of a site, with special reference to its openness to winds and sunshine. (AMS)
- EXTERNAL EXPOSURE** — Exposure to ionizing radiations coming from a source outside the body.
- EXTINCTION, n.** — The **ATTENUATION** of light; that is, the reduction in **ILLUMINANCE** of a parallel beam of light as the light passes through a medium wherein **ABSORPTION** and **SCATTERING** occur. (AMS)
- EXTRA-TERRESTRIAL RADIATION**—1. Radiation (electromagnetic and charged particles) originating in space beyond the earth's atmosphere, e.g. solar radiation and primary cosmic rays. 2. *Meteorol.* The solar electromagnetic radiation received at the outer limits of the atmosphere. (AMS)\*
- EXTREME, n.** — In climatology, the highest and, in some cases, the lowest value of a climatic element observed during a given period or during a given month or season of that period. If this is the whole period

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for which observations are available, it is the *absolute extreme*. (AMS)

**EYE OF THE STORM (or EYE)**—*Meteorol.*

The roughly circular area of comparatively light winds and fair weather found at the center of a severe tropical cyclone. The winds are generally ten knots or less; no rain occurs; sometimes blue sky may be seen. Eye diameters vary from four to more than forty miles; common magnitudes seem to be twelve to twenty-five miles. (AMS)\*

**F**

**F** — Abbreviation for FAHRENHEIT TEMPERATURE SCALE.

**FADING**, n. — The resultant change or loss in the original color of protective coatings or materials due to exposure to solar radiant energy, heat, chemicals, chemical fumes, or combinations of these.

**FAILURE**—Any operational or performance degradation, or any irreversible material or structural change, when examined in accordance with specific failure criteria.

**FALLBACK**, n. — That part of the material carried into the air by a surface or subsurface atomic explosion that ultimately drops back to the earth or water at the site of the explosion. (AFD) See FALLOUT.

**FALLING TIDE**—The portion of the tide cycle between high water and the following low water. (AMS)

**FALLOUT**, n. — The process of precipitation to earth of radioactive particulate matter from a nuclear cloud; also applied to the particulate matter itself. (JD)

**FALLOUT CONTOURS** — Lines joining points which have the same radiation intensity that define a fallout pattern, represented in terms of roentgens per hour. (JD)

**FALLOUT PATTERN**—The distribution of fallout as portrayed by fallout contours. (JD)

**FALSE HORIZON** — A line resembling the visible horizon but above or below it. (AF)

**FAN**, n. — See ALLUVIAL FAN.

**FAST ICE** — Any type of sea, river, or lake ice attached to the shore (*ice foot, ice shelf*), beached (*short ice*), stranded in shallow water, or frozen to the bottom of shallow waters (ANCHOR ICE). (AMS)

**FATIGUE**, n. — A reaction which takes place in material under repeated cyclic stressing, resulting in a tendency for that material to fail below its static ultimate strength.

**FATIGUE LIFE**—The number cycles of stress or stress reversals that can be sustained prior to failure for a stated test condition.

**FATIGUE LIMIT**—The maximum stress below which a material can presumably endure an infinite number of stress cycles. If the stress is not completely reversed, the value of the mean stress, the minimum stress, or the stress ratio should be stated. The fatigue limit of a material is frequently referred to as its *endurance limit*.

**FAULT**, n. — A fracture in the earth's crust, accompanied by a displacement of one side with respect to the other in a direction parallel to the fracture. (GS)

**FAULTING**, n. — Movement along a fault. Faulting is the most usual cause of earthquakes.

**FAULT-LINE SCARP** — A scarp that is not the exact original face created by faulting but has been modified by erosion from the original scarp. It may have the same relief as the original scarp but is usually behind it and much more irregular in outline. (S&V)

**FAULT-SCARP** — A scarp which owes its relief directly to the movement along a fault, even though erosion may have greatly scarred the initial topography. (S&V)

**FAUNA**, n. — 1. The animals of a region,

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- zone, or environment. (ADT) 2. A list, catalogue, or systematic report with keys or descriptions pertaining to the animals of a specific region, hence *arctic fauna*, *alpine fauna*. (ADT)
- FETCH**, n. — 1. The area in which ocean waves are generated by the wind. It is generally delineated by coast lines, fronts, or areas of wind curvature or divergence. (AMS) 2. The length of the fetch area, measured in the direction of the wind. (AMS)
- FIELD MOISTURE CAPACITY** — The percentage of water remaining in a soil 2 or 3 days after having been saturated and after free drainage has practically ceased. The percentage may be expressed on the basis of weight or volume. (SSS)
- FIELD MOISTURE DEFICIENCY** — The quantity of water, which would be required to restore the soil moisture to field moisture capacity. (MH)
- FINE-GRAINED SOIL** — A soil of which more than 50% of the grains, by weight, will pass a No. 200 sieve (smaller than 0.074 mm in diameter). (TM 3-240)
- FINISH**, n. — 1. The quality of a surface as determined by color, brightness, texture, and general surface appearance. 2. Any surface treatment accomplished for the purposes of protecting equipment against environmental depreciation, enhancing appearances, for camouflage purposes, or for identification.
- FIORD (or FJORD)**, n. — A deep, narrow, and steep-walled inlet of the sea formed in most instances by intense glacial erosion of a valley. Some fiords may have been invaded by ocean water after glaciation and owing to general subsidence of the land, but most are the direct result of erosion by tongues of ice that actually entered the ocean and moved along the bottom. (S&V)
- FIREBALL**, n. — The luminous sphere of hot gases which forms a few millionths of a second after detonation of a nuclear weapon and immediately starts expanding and cooling. (JD)
- FIRN**, n. — 1. In the International Snow Classification, old snow which has lasted through at least one summer; the flakes have changed to grains of spherical shape which may or may not be bonded together. Firn may later become glacial ice. (ADT) 2. An accumulation area. (ADT) Also called *NÉVÉ* in both senses. See **FIRN LINE**.
- FIRN LINE** — The highest level to which the fresh snow on a glacier's surface retreats during the melting season. The line separating the accumulation area from the ablation area. (See **FIRN**) (MH)
- FIRST BOTTOM** — The normal flood plain of a stream, subject to frequent or occasional flooding. (YA)
- FIRST LIGHT** — The beginning of morning nautical twilight, i.e., when the center of the morning sun is 12° below the horizon. (JD)
- FIRST-ORDER CLIMATOLOGICAL STATION** — As defined by the World Meteorological Organization (1956), a meteorological station at which autographic records or hourly readings of atmospheric pressure, temperature, humidity, wind, sunshine, and precipitation are made, together with observations at fixed hours of the amount and form of clouds and notes on the weather. (AMS)
- FISHTAIL WIND** — Wind that is constantly changing direction back and forth. (AD)
- FIXED ECHO** — A radar echo that is caused by reflection from a fixed object such as a terrain form or building visible to the radar set. (AD)
- FLAKING**, n. — A protective coating failure associated with paints, varnishes, lacquers, and allied formulations. It is characterized by actual detachment of pieces of the coating either from its substratum or from paint previously applied. Flaking is sometimes referred to as *scaling* and is generally

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- preceded by checking or cracking. Flaking is attributed to loss of adhesion of the coating.
- FLASH FLOOD** — A flood that rises and falls quite rapidly with little or no advance warning, usually as the result of intense rainfall over a relatively small area. Other possible causes are ice jams, dam failure, etc. (AMS)
- FLOATING ICE (or DRIFT ICE)** — Any sea ice that has drifted from its place of origin. The term is used in a wide sense to include any area of sea ice, other than fast ice, no matter what form it takes or how disposed. (NOO)
- FLOCCULATE, v.** — To aggregate or clump together individual tiny soil particles, especially fine clay, into small groups or granules. The opposite of *deflocculate*, or *disperse*. (YA)
- FLOE, n.** — A single piece of sea ice, other than fast ice, large or small, described if possible as "light" or "heavy" according to thickness. A vast floe is over 10 kilometers (5.4 nautical miles) across; a big floe is 1 to 10 kilometers (3,281 feet to 5.4 nautical miles) across; a medium floe is 200 to 1,000 meters (656 to 3,281 feet) across; a small floe is 10 to 200 meters (32.8 to 656 feet) across. (NOO)\*
- FLOOD, n.** — 1. An overflow or inundation that comes from a river or other body of water and causes or threatens damage. (MH) 2. Any relatively high streamflow overtopping the natural or artificial banks in any reach of a stream. (MH) 3. A relatively high flow as measured by either gage height or discharge quantity. (MH)
- FLOOD-FREQUENCY CURVE** — 1. A graph showing the number of times per year on the average, plotted as abscissa, that floods of magnitude, indicated by the ordinate, are equaled or exceeded. (MH) 2. A similar graph but with recurrence intervals of floods plotted as abscissa. (MH)
- FLOOD PLAIN** — 1. A strip of relatively smooth land bordering a stream, built of sediment carried by the stream and dropped in the slack water beyond the influence of the swiftest current. It is called a *living flood plain* if it is overflowed in times of highwater; but a *fossil flood plain* if it is beyond the reach of the highest flood. (MH) 2. The lowland that borders a river, usually dry but subject to flooding. (MH) 3. That land outside of a stream channel described by the perimeter of the maximum probable flood. (MH)
- FLOOD PLAIN, FIRST BOTTOM** — See **FIRST BOTTOM**.
- FLOOD STAGE** — 1. The gage height of the lowest bank of the reach in which the gage is situated. The term "lowest bank" is, however, not to be taken to mean an unusually low place or break in the natural bank through which the water inundates an unimportant and small area. (MH) 2. The stage at which overflow of the natural banks of a stream begins to cause damage in the reach in which the elevation is measured. (MH)
- FLOOD WAVE** — A distinct rise in stage culminating in a crest and followed by recession to lower stages. (MH)
- FLOOD ZONE** — The land bordering a stream which is subject to floods of about equal frequency; for example, a strip of the flood plain subject to flooding more often than once but not as frequently as twice in a century. (MH)
- FLORA, n.** — 1. The vegetation of a region, zone, or environment. (ADT) 2. A list, catalogue, or systematic report with keys or descriptions pertaining to the plants of a specific region, hence *alpine flora*, *bog flora*. (ADT)
- FLOTATION, n.** — 1. The capacity of a vehicle, gun, or trailer to negotiate water obstacles without being in contact with the bottom. (JD) 2. The capacity of a vehicle to negotiate soft, unfavorable terrain such as mud, sand, or snow. (JD)

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- FLOW-DURATION CURVE**—A cumulative frequency curve that shows the percentage of time that specified discharges are equaled or exceeded. (MH)
- FLURRY, n.**—A brief shower of snow accompanied by a gust of wind, or a sudden, brief wind squall. (ND)
- FLYING LEVELS**—A line of levels in surveying, to determine approximate elevations to hundredths or tenths of a foot. (AD)
- FOCUS, n.**—In seismology, the source of a given set of elastic waves. The true center of an **EARTHQUAKE**, within which the strain energy is first converted to elastic wave energy.
- FOEHN (or FOHN), n.**—A warm, dry wind on the lee side of a mountain range, the warmth and dryness of the air being due to adiabatic compression upon descending the mountain slopes. The foehn is characteristic of nearly all mountain areas. It is associated with cyclonic-scale motions, being produced only when the circulation is sufficiently strong and deep to force air completely across a major mountain range in a short period of time. In different mountain regions the foehn has a variety of names, as the **CHINOOK** of the Rocky Mountains. (AMS)\*
- FOG, n.**—A hydrometeor consisting of a visible aggregate of minute water droplets suspended in the atmosphere near the earth's surface. According to international definition, fog reduces visibility below one kilometer (0.62 mile). Fog differs from cloud only in that the base of fog is at the earth's surface while clouds are above the surface. When composed of ice crystals, it is termed *ice fog*. (AMS)\* See also **ADVECTION FOG**, **GROUND FOG**, **RADIATION FOG**.
- FOGGING, n.**—The application of chemical compound in the form of vapor, to interior surfaces or relatively inaccessible surfaces. (AD)
- FOOTHILL**—One of the lower subsidiary hills at the foot of a mountain or of higher hills. Commonly used in the plural. (GS)
- FORB, n.**—A nongrasslike herbaceous plant. (SAF)\*
- FORCE FACTOR**—In an electromechanical **TRANSDUCER**, (a) the complex quotient of the force required to block the mechanical system divided by the corresponding current in the electrical system; (b) the complex quotient of the resulting open circuit voltage in the electrical system divided by the velocity in the mechanical system. As an alternative, current may be replaced by charge in (a) and velocity by displacement in (b). (SVH)
- FORCED OSCILLATION (FORCED VIBRATION)**—The steady-state oscillation of a system caused by a periodic excitation. (Transient oscillations are not considered.) (ISO)\*
- FORD, n.**—1. A place where a stream or other water is commonly passed by man or beast by wading. (GS) 2. A place where a road or trail crosses a body of water without a bridge or ferry. (GS)
- FORDABILITY**—See **DEEP FORDING**, **SHALLOW FORDING**.
- FOREST, MIXED**—A forest composed of trees of two or more species. In practice, usually a forest in which at least 20 per cent are trees of other than the principal species. (SAF)
- FOREST, PARK**—A forest in which the trees stand apart from one another or in detached groups; a very open forest in which usually the characteristic forest floor is replaced by grasses. (SAF)
- FOREST, PURE**—A forest composed principally of trees of one species, usually to the extent of 80 percent or more by number but in special cases a percent of basal area or volume. (SAF)
- FOREST, SECOND-GROWTH**—1. Forest growth which occurs after removal of the

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old stand by cutting, fire, or other cause.  
2. In lumberman's parlance, the smaller trees left after lumbering or the trees available for a second logging.

**FOREST TYPE** — A descriptive term used to group stands of similar character as regards composition and development due to certain ecological factors, by which they may be differentiated from other groups of stands. The term suggests repetition of the same character under similar conditions. A type is *temporary* if its character is due to passing influences such as logging or fire; *permanent* if no appreciable change is expected and the character is due to ecological factors alone; *climax* if it is the ultimate stage of a succession of temporary types. A *cover type* is a forest type now occupying the ground, no implication being conveyed as to whether it is temporary or permanent. (SAF)

**FORMATION, n.** — In botany, one or more plant communities exhibiting a definite structure and physiognomy; a structural or physiognomic unit of vegetation; e.g., a graminoid marsh, a deciduous broadleaf forest.

**FORWARD SCATTER** — The scattering of radiant energy into the hemisphere of space bounded by a plane normal to the direction of the incident radiation and lying on the side toward which the incident radiation was advancing; the opposite of **BACKWARD SCATTER**. (AMS)\*

**FORWARD SLOPE** — Any slope which descends towards the enemy. (JD)

**FRACTION OF CRITICAL DAMPING** — The ratio of the actual damping coefficient of a system with viscous damping to the critical damping coefficient. (SVH)

**FRAGILITY** — The capability of a piece of equipment to withstand shock and vibration, expressed as a maximum permissible acceleration. (SVH)

**FRAZIL** — Discoid and crystalline ice which

forms in supercooled water without coagulating into an ice sheet. It is the product of a critical air temperature and water temperature condition with the latter possibly dominated by radiational heat losses. Formation takes place in the more or less quiescent or tranquil flowing reaches of a stream where the critical supercooling may take place and prevail for sufficient time for the individual particle to form rather than for an ice sheet to grow outward from a shore. When the ice reaches a rapids or other area of excessive turbulence it agglomerates and becomes very noticeable. It also forms in the sea (where it is called **LOLLY ICE**). It may accumulate as **ANCHOR ICE** on rocks or other obstructions on the bottom of a river.

**FREE, adj.** — The condition of the substance within a mixture when it is not chemically combined with the other components of the mixture. For example, iron oxide in soils may be by itself as free iron oxide, or it may be combined with other elements in a mineral. (YA)\*

**FREE AIR** — 1. That portion of the atmosphere undisturbed by objects on the surface of the earth, as by mountains or buildings. (AFD) 2. *Meteorology*. That portion of the earth's atmosphere above the planetary boundary layer, in which the effect of the earth's surface friction on the air motion is negligible, and in which the air is usually treated as an ideal fluid; also called *free atmosphere*. (AMS)\* 3. *Aerodynamics*. Nonturbulent air; air undisturbed by a moving body, as by an airfoil. (AFD) 4. In contexts regarding atomic explosions, air sufficiently remote from surfaces or objects that an explosive effect, as blast, is not modified by reflected shock or scattering objects. (AFD)

**FREE-AIR ANOMALY** — The difference between observed gravity and theoretical gravity which has been computed for latitude and corrected for elevation of the station above or below the geoid, by application of the normal rate of change of gravity

- for change of elevation, as in free-air. (JD)
- FREE AIR OVERPRESSURE** — The pressure created by an explosion which is in excess of atmospheric pressure. (AD)
- FREE FIELD** — A wave or potential field in a homogeneous, isotropic medium free from boundaries. In practice, it is a field in which the effects of the boundaries are negligible over the region of interest. The actual pressure impinging on an object (e.g., electroacoustic transducer) placed in an otherwise free sound field will differ from the pressure which would exist at the point with the object removed, unless the acoustic impedance of the object matches the acoustic impedance of the medium.
- FREE OSCILLATION** (or **FREE VIBRATION**) — Oscillation that occurs after the disturbance or original cause of the oscillation is no longer present.
- FREEZING**, n. — The change from a liquid to a solid state, usually by the abstraction of heat. The opposite is **MELTING**. (ND)
- FREEZING INDEX** — As used by the U.S. Army Corps of Engineers, the number of **DEGREE DAYS** (above and below 32° F.) between the highest and lowest points on the cumulative degree-days time curve for one freezing season. (AMS)
- FREEZING POINT** — The temperature at which a liquid solidifies under any given set of conditions. It may or may not be the same as the **MELTING POINT** or the more rigidly defined true freezing point or (for water) ice point. (AMS)\*
- FREQUENCY** — 1. In general, the number of times a designated phenomenon occurs within a given period. It may be expressed in units of radians per second or of oscillations (cycles) per second (see **HERTZ**). 2. *Climatology*. The number of times a designated phenomenon occurs within a given period. It may be expressed as occurrence frequency (e.g., number of rainy days per month, number of hours of sunshine per week, etc.) or percent frequency (percent of observations). (AMS)\*
- FREQUENCY, FUNDAMENTAL** — 1. The reciprocal of the fundamental period. (ISO)
2. The lowest natural frequency. The normal mode of vibration associated with this frequency is known as the *fundamental mode*. (ISO)
- FREQUENCY, INFARED** — The range of invisible radiation frequencies, which adjoins the visible red spectrum and extends to microwave radio frequencies.
- FREQUENCY, NATURAL** — The rate at which a freely vibrating body oscillates.
- FREQUENCY, RADIO** — Any frequency at which electromagnetic radiation of energy is useful for communication, usually stated in terms of kilocycles or megacycles per second. Radio frequencies are usually classed as very low, below 30 kilocycles per second; low, 30-300 kilocycles per second; medium, 300-3,000 kilocycles per second; high 3-30 megacycles per second; very high, 30-300 megacycles per second; ultra high, 300-3,000 megacycles per second; super high, 3,000-30,000 megacycles per second; and extremely high, 30,000-300,000 megacycles per second. (ND)\*
- FREQUENCY, RESONANT** — The frequency of **EXCITATION** at which a body or system in forced vibration has its maximum response (see **RESONANCE**). (SVH)\*
- FREQUENCY RESPONSE** — The capability of test or measuring equipment to respond to the peak values of an external oscillatory stimulus.
- FRESNEL ZONE** — Used to describe the amount of clearance (or obstruction) encountered by an electromagnetic wave. The *n*th fresnel zone may be defined as a cylindrical surface or revolution having the direct path as its axis, and possessing a contour such that the distance from the transmitting antenna to a point on the surface, plus the distance from this point to the receiving antenna in  $n/2$  wavelengths greater than the direct path between transmitter and receiver.
- FRETTING CORROSION** — Corrosion at the interface between two contacting sur-

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faces accelerated by relative vibration between them of amplitude high enough to produce slip. (ECS)

**FRIABLE**, adj. — A consistency term pertaining to the ease of crumbling of soils. (SSS)

**FRICTION**, n. — The rubbing together of two substances or bodies in contact with each other, of a body in contact with a gas or fluid, etc.; the resistance to relative motion caused by this contact. (AFD)

Some specific types of friction are:

1. *Boundary Friction* — Friction occurring when the rubbing surfaces are separated from each other by a very thin film of lubricant or reduced through use.

2. *Dry Friction* — Friction between solid surfaces without benefit of lubricant.

3. *Fluid Friction* — Friction occurring when two bearing surfaces are covered with a lubricating fluid.

4. *Rolling Friction* — Friction due to the indentation of the surfaces in rolling contact. It is frequently substituted for *sliding friction*, but is less than sliding friction. Example: the use of ballbearings.

5. *Skin Friction* — (1) *Aerodynamics*. The friction of the air against the outside of a moving aircraft, rocket, or the like, especially at high speeds; the drag of resistance caused by this friction. (2) *Hydrodynamics*. Similarly, the friction of water against a ship's hull.

6. *Surface Friction* — The friction of a liquid flowing through pipes, caused by rate of flow, pressure, liquid viscosity, etc.

**FRICTION LAYER** — 1. *Meteorology*. The lower layer of the troposphere, in which the friction of the air against the earth's surface affects the movement of the air. The friction layer is considered to be anywhere from 1,500 to 3,000 feet thick. (AFD) Above this layer lies the *free atmosphere*,

**FRIGORIMETER**, n. — An instrument to measure the physiological cooling power in milli-calories per square centimeter and minute. It consists of a blackened copper

sphere, diameter 7.5 cm, the surface of which is maintained electrically at 36.5° C (97.7° F) against the heat losses due to all meteorological conditions of the ambient air. The temperature 36.5° C corresponds to the constant deep body temperature of man. (An older model was set at 33° C) (AMS) \*

**FRINGING REEF** — A coral reef that is closely attached to the shore. There is no lagoon or open water between the reef and the land upon which it is attached. It is usually built upon a shallow platform extending outward from the shoreline and may be laid bare at time of very low tide. (S&V)

**FRONT**, n. — In meteorology, generally, the interface or transition zone between two AIR MASSES of different density. Since the temperature distribution is the most important regulator of atmospheric density, a front almost invariably separates air masses of different temperature. Along with the basic density criterion and the common temperature criterion, many other features may distinguish a front, such as a pressure trough, a change in wind direction, a moisture discontinuity, and certain characteristic cloud and precipitation forms. (AMS) \*

**FROST**, n. — 1. A feathery deposit of minute ice crystals or grains upon a surface or object, formed directly from vapor in the air. (AFD) 2. The process by which such ice crystals are formed. (AFD) 3. Any temperature at which frost forms. Frost often forms when the close lying air is above 32° F, especially in calm, clear weather when radiation or evaporation reduces a surface temperature to a point of freezing or below. (AFD)

**FROST ACTION** — In general, cycles of freezing and thawing of water contained in natural or man-made materials. This is especially applied to the disruptive effects of this action. In geology, two basic types of frost action are described: (a) CONGELIFRACTION, the shattering or splitting of rock material; and (b) CONGELITURBA-

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- TION, the churning, heaving, and thrusting of soil material. (AMS)
- FROST HEAVE — The upwards or sideways movement of surface soils, rocks, and vegetation through the expansion of freezing subsurface soil and gravel. Also called *frost thrusting* and *frost lifting*. (ADT)\*
- FROST LINE — The maximum depth of frozen ground during the winter. The term may refer to an individual winter, to the average over a number of years, or to the greatest depth recorded since observations began. The frost line varies with the nature of the soil and the protection afforded by vegetal ground cover and snow cover, as well as with the amount of seasonal cooling. (AMS)
- FROST WEATHERING — The mechanical disintegration of earth materials brought about by frost action.
- FROZEN MUSKEG SURFACE — A frozen mixture of decayed vegetable matter and silt-like material which resembles rough, hard ground.
- FUMES, n. — Fine particles (0.2 to 1 micron in diameter) generated by condensation from the gaseous state, generally after volatilization from molten metals, etc., and often accompanied by a chemical reaction such as oxidation. Fumes flocculate and sometimes coalesce.
- FUNGI (pl. of FUNGUS), n. — Simple plant organisms lacking chlorophyll which enables higher plants and algae to manufacture their own food. Because of this inability to synthesize food, fungi are wholly dependent on organic materials for their nutrient supply. This dependence renders fungi capable of degrading almost all materials of an organic origin.
- FUNGICIDE, n. — An agent that destroys fungi.
- FUSION, n. — 1. The phase transition of a substance passing from the solid to the liquid state; melting. Additional heat at the melting point is required to fuse any substance. This quantity of heat is called the *latent heat of fusion*. (AMS)\* 2. In nuclear technology, the transformation of nuclei by combining two light nuclei to form a heavier nucleus.
- G**
- g, n. — The acceleration produced by the force of gravity, which varies with the latitude and elevation of the point of observation. By international agreement, the value  $980.665 \text{ cm/sec}^2 = 386.089 \text{ in/sec}^2 = 32.1740 \text{ ft/sec}^2$  (based on the National Bureau of Standards redefinition of the inch as being exactly equal to 2.54 cm) has been chosen as the standard acceleration due to gravity. (ASA)\*
- GAGE, n. — An instrument for measuring the size or state of anything. (ND)
- GAGE, v.t. — To determine the size or state of anything. (ND)
- GAGE HEIGHT — The water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term *stage* although gage height is more appropriate when used with a reading on a gage. (MH)
- GAGE, STRAIN — A device for measuring "strain" which is the deformation produced in a solid as a result of STRESS. (AF)\*
- GAGING STATION — A particular site on a stream, canal, lake, or reservoir where systematic observations of GAGE HEIGHT or discharge are obtained. (MH)
- GALE, n. — 1. In general, and in popular use, an unusually strong wind. (AMS) 2. In storm-warning terminology: moderate gale, 28 to 33 knots; fresh gale, 34 to 40 knots; strong gale, 41 to 47 knots; and whole gale, 48 to 55 knots. (AMS)\*
- GALLING, n. — The localized mutual seizure of two metal surfaces during sliding friction.

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tion accompanied by the removal of metal particles from one or both surfaces.

**GALVANOMETER**, n. — An instrument for measuring the magnitude of a small electric current or for detecting the presence or direction of such a current by means of motion of an indicator in a magnetic field. (ND)

**GAMMA RAY** — Electromagnetic radiation of extremely short wavelengths, emitted by nuclei. The wavelengths of the highest energy gamma rays are shorter than x-rays, but there is an overlapping wavelength region where the only distinction is the mode of origin; i.e. the gamma rays are produced by nuclear transitions whereas the x-rays are produced by atomic processes. Gamma rays, produced in the atmosphere by interactions of cosmic rays with the nuclei of air molecules, are of some importance to atmospheric electricity because they contribute to the ionization of the atmosphere.

**GAP**, n. — 1. *Geol.* Any deep notch, ravine, or opening between hills or in a ridge or mountain chain. (GS) 2. *Electric gap* is the distance separating two electrodes between which a spark or arc is caused to pass. 3. *Magnetic gap* is the distance across an air gap separating two parts of a magnetic circuit.

**GAS THERMOMETER** — A thermometer which utilizes the thermal properties of gas. There are two forms of this instrument: (a) a type in which the gas is kept at a constant volume, and pressure is the thermometric property; and (b) a type in which the gas is kept at constant pressure, and volume is the thermometric property. The gas thermometer is the most accurate of all thermometers and is used as the standard instrument for measurement of temperature. (AMS)

**GENERATING AREA** — See **FETCH**.

**GENESIS, SOIL** — *Pedology*. The mode of origin of the soil, with special reference

to the processes responsible for the development of the solum, or true soil, from the unconsolidated parent material. (YA)

**GEODESY** — The investigation of any scientific question concerned with the shape and dimensions of the earth. The term is often used to include both the science which must depend upon determinations of the figure and size of the earth from direct measurements made on its surface (triangulation, leveling, astronomic, and gravity determinations), and the art which utilizes the scientific determinations in a practical way. (NOO)

**GEOGRAPHIC COORDINATES** — Latitude and longitude; north south and east west lines whose intersections are used to locate physical points on a map. The origin for latitude is the equator and increases north and south to 90 degrees. Origin for longitude is the meridian or great circle passing through Greenwich, England, called the "Prime Meridian" and increasing east and west to 180 degrees. (AD)

**GEODETTIC CONTROL** — Horizontal position of points on the earth's surface in the computation of which the curvature has been taken into account. (AD)

**GEOMAGNETISM** — 1. The magnetic phenomena, collectively considered, exhibited by the earth and its atmosphere. 2. The study of the magnetic field of the earth. (AMS)

**GEOMAGNETIC ELECTROKINETOGRAPH** — A device for measurement of the lateral component of the speed of an ocean current, by means of two pairs of electrodes towed astern, and suitable registering apparatus. (ND)

**GEOPHYSICS** — Broadly, the physics of the earth, including the fields of METEOROLOGY, HYDROLOGY, OCEANOGRAPHY, SEISMOLOGY, VOLCANOLOGY, GEOMAGNETISM, and GEODOSY. In the more popular and practical sense, the term implies the application of electrical,

- thermal, magnetic, gravimetric, and seismic methods to the exploration for petroleum, metals, and underground supplies of water. (S&V)
- GEPOTENTIAL**, n. — The potential energy of a unit mass relative to sea level, numerically equal to the work that would be done in lifting the unit mass from sea level to the height at which the mass is located; commonly expressed in terms of dynamic height or geopotential height. (AMS)\*
- GEYSER**, n. — A special type of hot spring that throws forth intermittent jets of hot water and steam. The action results from the contact of ground water and rock or vapor hot enough to generate steam under conditions that prevent continuous circulation. (S&V)
- GILGAI**, n. — The microrelief of soils produced by expansion and contraction with changes in moisture. Found in soils that contain large amounts of clay which swells and shrinks considerably with wetting and drying. Usually a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel to the direction of the slope. (SSS)
- GIRDLE**, v.t. — To encircle the stem of a living tree with cuts that completely sever bark and cambium and often are carried well into the outer sapwood, for the purpose of killing the tree by preventing passage of nutrients.
- GLACIAL**, adj. — 1. Pertaining to the presence, size, composition, or activities of extensive masses of land ice. (ADT) 2. Pertaining to alterations or distinctive features of terrain resulting from the actions of glaciers. (ADT)
- GLACIAL DRIFT** — All rock material in transport by glacier ice, all deposits made by glacier ice, and all deposits predominantly of glacial origin made in the sea or in bodies of glacial meltwater, whether rafted in icebergs or transported in the water itself. It includes *till*, *stratified drift*, and scattered rock fragments. (S&V)
- GLACIATION**, n. — 1. The alteration of any part of the earth's surface, either by erosion or deposition, as a result of glacier ice passing over it; the erosive action of glacier ice. (ADT) 2. Any of several periods of geologic time during which glaciers were more extensive than at present. (ADT) 3. The geographic distribution of glaciers. (ADT) 4. The inundation of land by ice. Also called *glacierization*. (ADT) 5. The process by which glaciers accumulate, move, and recede. (ADT)
- GLACIER**, n. — A body of ice (usually with some *névé*) consisting of recrystallized snow, lying wholly or largely on land, and showing evidence of present or former flow under the influence of gravity. (S&V)\*
- GLACIER ICEBERG** — An iceberg derived from a glacier as distinguished from tabular icebergs derived from shelf ice. (NOO) It is usually much smaller than a tabular iceberg and is bluish or greenish in color, with little or no snow covering. It often contains many crevasses. (ND)
- GLACIOFLUVIAL**, adj. — Pertaining to a stream or streams formed by the meltwater of a glacier or glaciers, or to deposits made by such streams.
- GLARE**, n. — Any hindrance to vision caused by scattering or reflection of light into an observer's line of sight. (AMS)\*
- GLAZE**, n. — A coating of ice, generally clear and smooth but usually containing some air pockets, formed on exposed objects by the freezing of a film of supercooled water deposited by rain, drizzle, fog, or possibly condensed from supercooled water vapor. Glaze is denser, harder and more transparent than either RIME or HOARFROST. Its density may be as high as 0.8 or 0.9 gm per cm<sup>3</sup>. Factors which favor glaze formation are large drop size, rapid accretion,

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slight supercooling, and slow dissipation of heat of fusion. (AMS)\*

**GLEIZATION, n.**—*Pedology*. A general term for all the process of soil formation leading to the development, under the influence of excessive moistening, of a glei (gley) horizon in the lower part of the solum. A soil horizon in which the material ordinarily is bluish gray or blue gray, more or less sticky, compact, and often structureless, is called a *glei horizon* and is developed under the influence of excessive moistening. (S&V)

**GLEYSOIL** — *Pedology*. A soil horizon in which waterlogging and lack of oxygen have caused the material to be a neutral gray in color. The term "gleyed" is applied, as in "moderately gleyed soil," to soil horizons with yellow and gray mottling caused by intermittent waterlogging. (YA)

**GORGE, n.** — A canyon; a rugged and deep ravine or gulch. (GS)

**GRABEN, n.** — A block, generally long compared to its width, that has been downthrown along faults relative to the rocks on either side. Compare HORST.

**GRADATION, n.** — *Soil Mechanics*. The distribution and size of grains in a soil. It is determined by gradation analysis of soils, or passing the soil through a series of screens of increasing fineness. The result is usually presented in the form of a cumulative grain-size curve in which particle sizes are plotted to a logarithmic scale with respect to percentage retained (or passing), by weight of the total sample, plotted to a linear scale. (BR)

**GRADE, n.** — 1. *Engineering*. The rate of ascent or descent; deviation from a level surface to an inclined plane; stated: (1) as so many feet per mile, (2) as one foot rise or fall in so many of horizontal distance, (3) as so much in a hundred feet, or (4) as a percentage of horizontal distance; as a grade of twenty feet per mile, or 1 in 264, or a 10 percent grade. (S&V)\*

2. *Geomorph.* The continuous curve of descent of a stream floor which everywhere is just steep enough to serve the need of the current for its flow and the transportation of its sediment load. It is commonly said that a river is *at grade* when its active downcutting ceases. (S&V)\*

**GRADEABILITY** — Capability of a vehicle to negotiate a slope, either ascending or descending, measured in percent (not in degrees). (AD)

**GRADIENT, n.** — 1. Slope expressed as a fraction in which the vertical distance is the numerator and the horizontal distance is the denominator. (AD) 2. Rate of change of temperature or pressure in a given direction; mathematical expression giving the direction and amount of the most rapid rate of decrease of temperature or pressure. (AD) 3. *Meteorol.* The space rate of decrease of a function. The *ascendent* is the negative of the gradient. (AMS)\*

**GRAM-RAD, n.** — A unit of total energy absorbed from ionizing radiation. It is the product of the mass of the object irradiated and the energy absorbed per unit mass. As adopted by the International Commission on Radiological Units (ICRU), 1 gram-rad = 100 ERGS.

**GRANULE, n.** — 1. A little grain; a small particle. (S&V) 2. In the Wentworth system of size classification, a granule is a particle 2 to 4 mm in diameter. (S&V)

**GRAVEL, n.** — Loose or unconsolidated coarse, granular material, larger than sand grains, resulting from reduction of rock by natural or artificial means. Sizes range from 3/16 inch (No. 4 sieve) to 3 inches in diameter. Coarse gravel ranges from 3 inches to 3/4 inch, while fine gravel ranges from 3/4 inch to 3/16 inch. (BR)

**GRAVITY, n.** — 1. The gravitational force, as modified by centrifugal force due to rotation, exerted by the earth on bodies at or near its surface, resulting in their

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having weight. (ND) 2. A unit of acceleration equal to the acceleration resulting from the average force of gravity at the earth's surface. By international agreement this unit is equal to 9.80665 meters per second per second. (Gravity is abbreviated *g.*) (ND)\*

**GRAVITY ANOMALIES** — Deviations between theoretical gravity and actual gravity due to local topographic and geologic conditions, such as the existence of mountains, valleys, oceans, or abnormally high or low density of the materials near the place of measurement. (AF)

**GRAVITY, SPECIFIC** — The ratio of the weight of a substance to that of an equal volume of some other substance at the same or a standard temperature. The usual standard for liquids and solids is chemically pure water at 4° C. (ND)

**GRAVITY WIND** — A wind (or component thereof) directed down the slope of an incline and caused by greater air density near the slope than at the same levels some distance horizontally from the slope. This term usually is applied when the density difference is produced by surface cooling along the incline, as in the case of a mountain wind. (AMS)\*

**GRAY-BROWN PODZOLIC SOIL** — *Pedology*. A zonal great soil group consisting of soils with a thin, moderately dark A1 horizon and with a grayish-brown A2 horizon underlain by a B horizon containing a high percentage of bases and an appreciable quantity of illuviated silicate clay; formed on relatively young land surfaces, mostly glacial deposits, from material relatively rich in calcium, under deciduous forests in humid temperate regions. (SSS)

**GREAT SOIL GROUP** — *Pedology*. Any one of several broad groups of soil with fundamental characteristics in common. Examples are CHERNOZEM, GRAY-BROWN PODZOLIC, and PODZOL. (YA)

**GREENHOUSE EFFECT** — The heating

effect exerted by the atmosphere upon the earth by virtue of the fact that the atmosphere (mainly, its water vapor) absorbs and re-emits infrared radiation. In detail: the shorter wavelengths of insolation are transmitted rather freely through the atmosphere to be absorbed at the earth's surface. The earth then re-emits this as long-wave (infrared) terrestrial radiation, a portion of which is absorbed by the atmosphere and again emitted. (AMS)\*

**GROUND (or EARTH)** — 1. The conducting mass of the earth, or a conductor connected to it through a very small impedance. (ISO) 2. A conductor that is considered to have zero electrical potential. The electrical potential of the earth is usually taken to be zero. (ISO)

**GROUND CLUTTER** — The pattern of radar echoes from fixed ground targets near the radar. This type of clutter tends to hide or confuse the echoes returned from nearby moving or precipitation targets. (AMS)\*

**GROUND COVER** — All herbaceous plants and low growing shrubs on a specific area, and the organic materials in various stages of decay. (ADT)

**GROUND CUSHION** — A cushion of air associated with ground effect. (AFD)

**GROUND EFFECT PHENOMENON** — The generation of an air cushion artificially so that a vehicle is supported on the air cushion close to the ground but nevertheless riding free, hence utilizing this effect to eliminate ground friction. Ground effect machines utilize this phenomenon. (AD)

**GROUND ENVIRONMENT** — 1. The environment that surrounds and affects a system or a piece of equipment that operates on the ground. (AF)

**GROUND FOG** — According to United States weather observing practice, a fog that hides less than 0.6 of the sky, and does not extend to the base of any clouds that may lie above it. (AMS)\*

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**GROUND FROST**—A freezing condition injurious to vegetation, which is considered to have occurred when a thermometer exposed to the sky at a point just above a grass surface records a minimum temperature (grass temperature) of 30.4° F. or below. (AMS)\*

**GROUND MORAINE**—A heterogeneous accumulation of earth, sand, gravel, and boulders, deposited by a glacier, ordinarily thin compared with its areal extent and usually with gently irregular topographic expression. It is usually unstratified. Ground moraine is thought to have accumulated largely by lodgment beneath the glacier ice but partly also being let down from the upper surface as the ice melted or evaporated. (S&V) See MORAINE.

**GROUND WATER** — Water in the ground that is in the zone of saturation, from which wells, springs, and ground-water runoff are supplied. (MH)

**GROUND-WATER LATERITE SOIL**—*Pedology*. A great soil group of the intrazonal order and hydromorphic suborder, consisting of soils characterized by hardpans or concretionary horizons rich in iron and aluminum (and sometimes manganese) that have formed immediately above the water table. (SSS)

**GROUND-WATER OUTFLOW** — That part of the discharge from a drainage basin that occurs through the ground water. The term "underflow" is often used to describe the ground-water outflow that takes place in valley alluvium (instead of the surface channel) and thus is not measured at a GAGING STATION. (MH)

**GROUND-WATER PODZOL SOIL**—*Pedology*. A great soil group of the intrazonal order and hydromorphic suborder, consisting of soils with an organic mat on the surface over a very thin layer of acid humus material underlain by a whitish-gray leached layer, which may be as much as 2 or 3 feet in thickness, and is underlain by a brown, or very dark-brown, cemented

hardpan layer; formed under various types of forest vegetation in cool to tropical, humid climates under conditions of poor drainage. (SSS)

**GROUND-WATER RUNOFF**—That part of the runoff which has passed into the ground, has become ground water, and has been discharged into a stream channel as spring or seepage water. (MH)

**GROUND WAVE** — 1. That portion of a radio wave in proximity to and affected by the ground, being somewhat refracted by the lower atmosphere and diffracted by the surface of the earth. Such a wave travels more or less parallel to the surface of the earth. (ND) 2. A wave formed in the ground by an explosion. It can be of three types: *longitudinal wave* (compression), *transverse wave* (shear), and *surface wave* (similar to a water ripple). It can be induced by direct ground shock (as in a ground or subsurface burst) or by blast transmitted through the air (as in any type of burst). (AF)

**GROUND ZERO** — The point on the surface of land or water at, or vertically below or above, the center of the burst of a nuclear weapon. (JD)

**GRUS**, n. — Deposits resulting from the weathering of the various minerals forming igneous rock. The deposits consist of the accumulation of countless discrete particles on the surface of the rock, sometimes to a depth of over one meter.

**GULLY**, n. — A small ravine or miniature valley, especially one cut by running water, but through which water flows only after a rain. (ND)

**GUST**, n. — A sudden brief increase in the speed of the wind. It is of a more transient character than a SQUALL and is followed by a lull or slackening in the wind speed. Generally, winds are least gusty over large water surfaces and most gusty over rough land and near high buildings. According to United States weather observing prac-

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tice, gusts are reported when the peak wind speed reaches at least 16 knots and the variation in wind speed between the peaks and lulls is at least 9 knots. The duration of a gust is usually less than 20 seconds. (AMS)\*

**GYROSCOPE, DIRECTIONAL** — A gyroscopic instrument for indicating direction, containing a free gyroscope which holds its position in azimuth and thus indicates angular deviation from a pre-set heading. (AF)

## H

**HAIL, n.** — Precipitation in the form of small balls or pieces of ice (hailstones) with a diameter ranging from 5 to 50 mm (0.2 to 2.0 in.) or sometimes more, falling either separately or agglomerated into irregular lumps. Hail falls are generally observed during heavy thunderstorms. (WMO)

**HAILSTONE, n.** — A single unit of hail, ranging in size from that of a pea to that of a grapefruit (i.e., from less than 1/4 inch to more than 5 inches diameter). Hailstones may be spheroidal, conical, or generally irregular in shape. The spheroidal stones, the most common form, typically exhibit a layered interior structure resembling an onion, with alternate layers composed of GLAZE and RIME. (AMS)\*

**HALF-BOG SOIL** — *Pedology.* A great soil group, of the intrazonal order and hydromorphic suborder consisting of soil with dark-brown or black peaty material over grayish and rust mottled mineral soil; formed under conditions of poor drainage under forest, sedge, or grass vegetation in cool to tropical humid climates. (SSS)

**HALF-LINE** — The time required for a system decaying at an exponential rate (such as an element in radioactive disintegration) to be reduced to one-half its initial size, amount, or intensity. (AMS)\*

**HALF THICKNESS** — Thickness of absorb-

ing material necessary to reduce by one half the intensity of radiation which passes through it. (AD)

**HALOMORPHIC SOILS** — *Pedology.* A suborder of the intrazonal soil order, consisting of saline and alkali soils formed under imperfect drainage in arid regions and including the great soil groups SOLONCHAK or Saline soils, SOLONETZ soils, and SOLOTH soils. (SSS)

**HAMMADA, n.** — A desert surface that is either bedrock or else bedrock covered only by a very thin veneer of sand or pebbles. The term was originally applied in the Sahara (where it referred to a desert plateau of stones) but is now used for similar desert surfaces in other parts of the world. (S&V)\*

**HARBOR, n.** — A restricted body of water, an anchorage or other limited coastal water area and its mineable water approaches from which shipping operations are projected or supported. Generally, a harbor is a part of a base, in which case the harbor defense force forms a component element of the base defense force established for the local defense of the base and its included harbor. (JD)

**HARD BEACH** — A portion of a beach especially prepared with a hard surface extending into the water, employed for the purpose of loading or unloading directly into or from landing ships or landing craft. (JD)

**HARD FROST** — See BLACK FROST.

**HARDNESS, n.** — A combination of properties of a substance determined by arbitrary tests, such as the resistance of the substance to indenting or scratching by specific objects. There are many arbitrary scales of hardness, probably no two of which measure the same combination of basic properties. Metals are usually tested by indenting them with a hard geometrical object under specific loads using the Brinell, Rockwell, Diamond Pyramid Hardness, or Knoop tests or by a rebound test

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such as the Scleroscope. The relative hardness of a mineral can be determined by comparing it with a standard series of materials. (S&V)

**HARDPAN**, n. — *Pedology*. A hardened soil layer, in the lower A or in the B horizon, caused by cementation of soil particles with organic matter or with materials such as silica, sesquioxides, or calcium carbonate. The hardness does not change appreciably with changes in moisture content and pieces of the hard layer do not slake in water. (SSS)

**HARD WATER**, n. — Water characterized by the presence of dissolved mineral salts, especially those of magnesium and calcium. (S&V)

**HARDWOOD**, n. — Generally, one of the botanical group of trees that have broad leaves, in contrast to the conifers; also wood produced by such trees regardless of texture (SAF)

**HARMONIC**, n. — 1. A sinusoidal quantity having a frequency that is an integral multiple of the frequency of a periodic quantity to which it is related. (ASA) 2. A wave of vibration having a frequency which is an integral multiple of the fundamental (lowest) or other reference frequency of vibration of a physical system. (AMS)\*

**HAZE**, n. — A suspension in the air of extremely small, dry particles invisible to the naked eye and sufficiently numerous to give the air an opalescent appearance. Haze imparts a yellowish or reddish tinge to distant bright objects or lights seen through it, while dark objects appear bluish. This effect is mainly a result of scattering of light by the haze particles. These particles may have a color of their own which also contributes to the coloration of the landscape. (WMO)

**HEADWIND**, n. — A wind which opposes the intended progress of an exposed, moving object, e.g., rendering an airborne ob-

ject's airspeed greater than its ground-speed; the opposite of a TAILWIND. (AMS)

**HEAT**, n. — A form of energy transferred between systems by virtue of a difference in temperature, and existing only in the process of energy transformation. By the first law of thermodynamics, the heat absorbed by a system may be used by the system to do work or to raise its internal energy. (AMS)

**HEAT BALANCE** — 1. The equilibrium which exists on the average between the radiation received by the earth and atmosphere from the sun and that emitted by the earth and atmosphere. That the equilibrium does exist in the mean is demonstrated by the observed long-term constancy of the earth's surface temperature. (AMS)\* 2. The equilibrium which is known to exist when all sources of heat gain and loss for a given region or body are accounted for. In general this balance includes advective, evaporative (etc.) terms as well as a radiation term. (AMS)

**HEAT BUDGET, ANNUAL** — The amount of heat necessary to raise a body of water, such as a lake, from the minimum temperature of winter to the maximum temperature of summer. (MH)

**HEAT CAPACITY** — The ratio of the heat absorbed (or released) by a system to the corresponding temperature rise (or fall). (AMS)\*

**HEAT EQUATOR** — The line which circumscribes the earth and connects all points of highest mean annual temperature for their respective longitudes. (AMS)\*

**HEAT, LATENT** — The heat released or absorbed per unit mass by a system in a reversible, isobaric-isothermal change of phase. In meteorology, the latent heats of VAPORIZATION (or CONDENSATION), FUSION, and SUBLIMATION of water substance are of importance. At 0°C these are, respectively,

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$$\begin{aligned}L_v &= 597.3 \text{ cal/gm} \\L_l &= 79.7 \text{ cal/gm} \\L_s &= 677.0 \text{ cal/gm} \quad (\text{AMS})\end{aligned}$$

**HEAT RESISTANCE** — The ability of a material to show little or no deterioration on continuous or intermittent exposure to a predetermined elevated temperature.

**HEAT, SPECIFIC** — The heat capability of a system per unit mass, i.e., the ratio of the heat absorbed (or released) by unit mass of the system to the corresponding temperature rise (or fall). (AMS)\*

**HEAT TRANSFER** — The transfer or exchange of heat by **RADIATION**, **CONDUCTION**, or **CONVECTION** in a fluid or between the fluid and its surroundings. These three processes occur simultaneously in the atmosphere, and it is often difficult to assess the contributions of their various effects. (AMS)\*

**HEAT TRANSFER COEFFICIENT** — 1. A non-dimensional number arising in the problem of heat transfer in fluids. (AMS)\*  
2. The rate of heat transfer per unit area per unit temperature difference, a quantity having the dimensions of reciprocal length. (AMS)

**HEAT WAVE**—A period of abnormally and uncomfortably hot and usually humid weather. To be a "heat wave" such a period should last at least one day, but conventionally it lasts from several days to several weeks. (AMS)

**HEDGEROW**, n. — A linear thicket of bushes, commonly with some trees, left between two fields of cleared land, or planted in order to separate fields; especially common in parts of England and France.

**HELIOGRAPH**, n. — An instrument which records the duration of sunshine and gives a qualitative measure of the amount of sunshine by the action of the sun's rays upon blueprint paper; a type of sunshine recorder. (AMS)

**HERB**, n. — Any flowering plant without a persistent or woody stem above the ground. Herbs include all small seed plants, including grasses. (ADT)\*

**HERBICIDE**, n. — Any preparation used to kill or inhibit the growth of plants. (AD)

**HERMETIC**, adj. — Made impervious to air and other fluids by fusion; originally applied to the closing of glass vessels by fusing the ends; and by extension to any mode of air-tight closure.

**HERTZ** (Pl. **HERTZ** or **HERTZES**), n. — A unit of frequency or a periodic process equal to one cycle per second. Abbreviated *Hz*.

**HIGH**, n. — In meteorology, elliptical for "area of high pressure" referring to a maximum of atmospheric pressure in two dimensions (closed isobars) in the synoptic surface chart, or a maximum of height (closed contours) in the constant-pressure chart. Since a high is, on the synoptic chart, always associated with anticyclonic circulation, the term is used interchangeably with **ANTICYCLONE**. Compare **LOW**. (AMS)

**HIGH ALTITUDE** — Conventionally, an altitude above 10,000 meters (33,000 feet). (JD)

**HIGHLAND**, n. — A relative term denoting the higher land of a region; it may include mountains, valleys, and plains. (GS)

**HOARFROST**, n. — A deposit of interlocking ice crystals formed by direct **SUBLIMATION** on objects, usually those of small diameter freely exposed to the air, such as tree branches, plant stems and leaf edges, wires, poles, etc. Also, frost may form on the skin of an aircraft when a cold aircraft flies into the air which is warm and moist or when it passes through air that is supersaturated with water vapor. The deposition of hoarfrost is similar to the process by which **DEW** is formed, except that the temperature of the befrosted object must be below freezing. (AMS)\*

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**HOGBACK, n.** — A long sharp ridge carved by differential erosion from a steeply dipping resistant layer or series of layers of igneous or sedimentary rock. The term is usually restricted to ridges carved from beds dipping at angles greater than 20 degrees; beds dipping at angles of less than 20 degrees give rise to CUESTAS. In a hogback the two slopes are approximately equal in steepness; in a cuesta the escarpment slope is notably steeper than the dip slope. (S&V)

**HORIZON, n.**—One of several lines or planes used as reference for observation and measurement relative to a given location on the surface of the earth, and referred generally to a horizontal direction (i.e., at right angles to the zenith). (AMS)\*

**HORST, n.** — A long narrow block of the earth's crust that has been relatively uplifted between faults along the sides. Although a horst may appear as an elevated ridge the term applies to fundamental structure and not topographic expression. Compare GRABEN. (S&V)

**HUMID TROPICS** — Those areas in which the average temperature of the coldest month is above 64.4 degrees Fahrenheit and the annual rainfall rate exceeds the annual evaporation rate. These lands are characterized by rainforest, jungle, and savanna vegetation. (AD)

**HUMIDIFICATION, n.** — A process for increasing the water content of air or other gases.

**HUMIDITY, n.**—The amount of water vapor in the air. (ND) See ABSOLUTE HUMIDITY, RELATIVE HUMIDITY, and SPECIFIC HUMIDITY.

**HUMIDITY, CRITICAL** — The relative humidity above which the atmospheric corrosion rate of a given metal increases sharply. (ECS)

**HUMMOCK, n.** — A rounded or conical knoll or hillock; a rise of ground of no great extent, above a level surface. (S&V)

**HUMUS, n.** — That more or less stable fraction of the soil organic matter remaining after the major portion of added plant and animal residues have decomposed. Usually it is dark colored. (SSS)\*

**HURRICANE, n.** — See TROPICAL CYCLONE.

**HURRICANE-FORCE WIND**—In the Beaufort wind scale, a wind whose speed is 64 knots (73 mph) or higher. (AMS)\*

**HYDROGEN-ION CONCENTRATION** — The acidity or alkalinity of a solution measured in grams of hydrogen ions per milliliter. It is abbreviated as pH, and is expressed in terms of the negative logarithm of the concentration (i.e., pH 7 =  $10^{-7}$  grams of hydrogen per milliliter). A pH of 7 is neutral; numbers below 7 denote increasing acidity with decreasing pH value; numbers above 7 denote increasing alkalinity with increasing pH values.

**HYDROGRAPH, n.** — A graphical representation of stage or discharge at a point on a stream as a function of time. The most common type, the observed hydrograph, represents river gage readings plotted at time of observation. (AMS)\*

**HYDROGRAPHIC CHART** — A nautical chart showing depths of water, nature of bottom, contours of bottom and coastline, and tides and currents in a given sea or sea and land area. (JD)

**HYDROGRAPHIC DATUM** — The plane of reference of soundings, depth curves, and elevations of foreshore and offshore features. (AD)

**HYDROLOGIC BUDGET** — An accounting of the inflow to, outflow from, and storage in, a hydrologic unit, such as a drainage basin, aquifer, soil zone, lake, reservoir, or irrigation project. (MH)

**HYDROLOGIC CYCLE**—A convenient term to denote the circulation of water from the sea, through the atmosphere, to the land; and thence, with many delays, back to the

sea by overland and subterranean routes, and in part by way of the atmosphere; also the many short circuits of the water that is returned to the atmosphere without reaching the sea. (MH)

**HYDROLOGIC GEOMETRY FEATURE** — A channel, stream, pond, lake, or other depression which exhibits a water depth of 25 cm or greater for a total period of at least one week of the year. (WES)

**HYDROMETEOR, n.** — Any product of condensation or sublimation of atmospheric water vapor, whether formed in the free atmosphere or at the earth's surface; also, any water particles blown by the wind from the earth's surface. (AMS)\*

**HYDROMORPHIC SOILS** — *Pedology.* A suborder of intrazonal soils, consisting of seven great soil groups, all formed under conditions of poor drainage in marshes, seepage areas, or flats. (SSS)

**HYDROPHILIC, adj.** — Having an attraction for water, i.e., readily wet by water, said of films capable of swelling in water.

**HYDROPHOBIC, adj.** — Having little or no affinity for water. Water repellent or not wet by water.

**HYDROPHYTE, n.** — A plant that typically grows in water or in saturated soil. Hydrophytes may be rooted or free floating; submerged, with floating leaves; or with leaves emergent above the water level.

**HYDROSPHERE, n.** — The water portion of the earth as distinguished from the solid part, called the **LITHOSPHERE**, and from the gaseous outer envelope, called the **ATMOSPHERE**. (AMS)

**HYETOGRAPH, n.** — 1. A chart showing rainfall intensity against time. 2. A map showing the areal distribution of rainfall. (AMS)\*

**HYGROMETER, n.** — An instrument for measuring the water vapor content of the air. The most common type is a **PSYCHROMETER**, consisting essentially of

dry-bulb and wet-bulb thermometers. (AMS)\*

**HYGROSCOPE, n.** — An instrument which indicates variation in atmospheric moisture. (ND)

**HYGROSCOPIC, adj.** — 1. Pertaining to a marked ability to accelerate the condensation of water vapor. (AMS)\* 2. Descriptive of a substance, the physical characteristics of which are appreciably altered by effects of water vapor. (AMS)\*

**HYGROTHERMOGRAPH, n.** — A recording instrument combining, on one record, the variation of atmospheric temperature and humidity content as a function of time. The most common hygromograph is a hair hygromograph combined with a thermograph. (AMS)

**HYPERSONIC, adj.** — Of or pertaining to speeds equal to or in excess of five times the speed of sound. (JD)

**HYPSONETER, n.** — 1. An instrument for measuring atmospheric pressure by determining the boiling point of a liquid at the station. (AMS)\* 2. An instrument for determining the height of trees or other objects.

**HYSTERESIS** — An effect, involving energy loss, found to varying degrees in magnetic, electric, and elastic media when they are subjected to variation by a cyclical applied force. In such media the polarization or stress is not a single-valued function of the applied force, or, stated in another way, the condition of the medium depends on its previous history as well as the instantaneous value of the applied force. May be visualized as resulting from some kind of internal friction.

**ICAO STANDARD ATMOSPHERE** — See **ATMOSPHERE, STANDARD**.

**ICE, n.** — The solid form of water, in nature formed either by (a) the freezing of water,

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as in the case of river or sea ice; (b) the conversion of atmospheric water vapor directly into ice crystals; (c) the compaction of snow, with or without the motion of a glacier; or (d) the impregnation of porous snow masses with water which subsequently freezes. (IG)\*

**ICEBERG, n.** — A large mass of detached land ice floating in the sea or stranded in shallow water. Irregular icebergs generally calve from glaciers, whereas tabular icebergs and ice islands are usually formed from shelf ice. Icebergs are the largest form of floating glacier ice, **BERGY BITS** and *growlers* being generally the fragments of broken icebergs. (NOO)\*

**ICE BLINK** — A relatively bright, usually yellowish-white glare on the underside of a cloud layer, produced by the reflection on the clouds of an ice-covered surface as pack ice. (AMS)\*

**ICECAP, n.** — Any ice sheet covering a large portion of a land area; e.g., the Greenland Icecap. (ADT)

**ICE, CLEAR** — Generally, a layer or mass of ice which is relatively transparent because of its homogeneous structure and small number and size of air pockets. (AMS)\*

**ICE CRYSTAL** — Any one of a number of macroscopic crystalline forms in which ice appears, including hexagonal columns, hexagonal platelets, dendritic crystals, ice needles, and combinations of these forms. (AMS)\*

**ICE FIELD** — A large, level area of ice, either of sea ice ("more than five miles across") or an **ICECAP** or highland ice. (AMS)

**ICE FOG** — A type of fog, composed of suspended particles of ice, partly ice crystals 20 to 100 microns in diameter but chiefly, especially with dense, tiny ice particles 12 to 20 microns in diameter. It occurs at very low temperatures, and usually in clear, calm weather in high latitudes. Also called

*frozen fog, pogonip, etc.* (AMS)\*

**ICE FROST** — Specifically, a thickness of ice that gathers on the outside of a rocket vehicle over surfaces supercooled by liquid oxygen inside the vehicle. This ice frost is quickly shaken loose and falls to the ground once the vehicle begins its ascent. (AF)

**ICE ISLAND** — One of the many, large tabular icebergs found in the Arctic Ocean. The area of the largest one known is about 300 square miles. They are about 150 feet thick over all, and drift with ocean currents rather than with the wind. (AMS)\*

**ICE LENS** — 1. A discontinuous layer of ground ice tapering at its extremities. Ice lenses in soils occur roughly parallel to each other, generally coincident with the direction of heat loss, and commonly in repeated layers. 2. A discontinuous horizontal ice band in **FIRN** or **SNOW** which tapers at its extremities. (ADT)

**ICE NEEDLE** — A long, thin ice crystal whose cross-section perpendicular to its long dimension is typically hexagonal. (AMS)\*

**ICE PELLETS** — Precipitation of transparent or translucent pellets of ice, which are spherical or irregular, rarely conical, and which have a diameter of 5 mm (0.2 in.) or less. Ice pellets include **SLEET** (U. S. definition) and **SMALL HAIL**. (WMO)\*

**ICE PRISMS** — A fall of unbranched **ICE CRYSTALS**, in the form of needles, columns, or plates often so tiny that they seem to be suspended in the air. These crystals may fall from a cloud or from a cloudless sky. (WMO)\*

**ICE SHEET** — Any large area of continuous ice overlying a land surface. (NOO) It is *continental ice* or **ICECAP** if it is an ice sheet of vast extent, covering and flooding irregularities of a large land mass; or *highland ice* if it is a comparatively thin ice cover conforming generally to the irregularities of the land. (ND)\*

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**ICE SHELF** — 1. A thick ice formation with a fairly level surface, formed along a polar coast and in shallow bays and inlets, where it is fastened to the shore and often reaches bottom. It may grow hundreds of miles out to sea. It is usually an extension of land ice, and the seaward edge floats freely in deep water. 2. More specifically, a level ice formation over 2 meters (6.6 feet) above the sea surface which originates from annual accumulations of FIRN snow layers on bay ice or on the seaward extension of a glacier. (NOO)\*

**ICE WEDGE** — A vertical sheet of ground ice which tapers downward. Also called ground ice wedge. (ADT)

**ICING, n.** — 1. In general, any deposit or coating of ice on an object, caused by the impingement and freezing of liquid (usually supercooled) hydrometeors. (AMS)\* 2. A mass or sheet of ice formed on the ground surface during the winter by successive freezing of sheets of water that may seep from the ground, from a river, or from a spring. (AMS)\*

**IGNEOUS ROCKS**—Rocks formed by solidification of hot mobile rock material (magma) including those formed and cooled at great depths (*plutonic* rocks), which are crystalline throughout, and those which have poured out on the earth's surface in the liquid state or have been blown as fragments into the air (*volcanic* rocks). (S&V)\*

**ILLUVIATION, n.** — An accumulation of material in a soil horizon through the deposition either mechanically or chemically of suspended mineral and organic matter originating from horizons above. Since at least part of the fine clay in the B horizons (or subsoils) of many soils has moved into them from the A horizons above, these are called *illuvial horizons*. (YA)

**IMBIBITION, n.** — 1. The absorption by a gel of a liquid for which it has an affinity. Imbibition is accompanied by an expansion or swelling of the gel. 2. The process

by which plants absorb water from the soil. (AMS)

**IMMATURE SOIL** — *Pedology*. A soil lacking clear individual horizons because of the relatively short time for soil-building forces to act upon the parent material since its deposition or exposure. (YA)

**IMMERSION PROOF** — Unless otherwise specified, immersion proof means that an item of equipment when ready for field transport can be submerged for 2 hours in salt or fresh water to a covering depth of 3 feet, and be capable of operating at normal effectiveness immediately after being removed from the water. (AD)

**IMPACT, n.** — A single collision of one mass in motion with a second mass which may be either in motion or at rest. (ASA)

**IMPACT ACCELERATION** — A sudden acceleration caused by impact, as occurs, e.g., in a crash landing. (NASA)

**IMPEDANCE, n.** — The ratio of two complex quantities both of whose arguments increase linearly with time at the same rate. The numerator of the ratio represents an excitation and the denominator represents the response. Impedance is expressed as a function of frequency. (ISO)\*

**IMPEDANCE, ANGULAR MECHANICAL** — The ratio of torque to angular velocity. (SVH)

**IMPEDANCE, DRIVING POINT** — In a mechanical structure, the ratio of force to velocity when both the force and velocity are measured at the same point and in the same direction. (SVH)

**IMPEDANCE, MECHANICAL** — The ratio of a force-like quantity to a velocity-like quantity when the arguments of the real (or imaginary) parts of the quantities increase linearly with time. (SVH)

**IMPEDANCE, TRANSFER** — 1. Between two points in a mechanical structure, the ratio of force to velocity when force is measured at one point and velocity at the other point. 2. At the same point in a me-

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- chanical structure, the ratio of force to velocity when force and velocity are measured in different directions. (SVH)
- IMPULSE**, n. — The product of a force and the time during which the force is applied. (ISO)\*
- INCANDESCENCE**, n. — Emission of light due to high temperature. Any other emission of light is called **LUMINESCENCE**. (ND)
- INCENDIARY**, n. — Any chemical agent designed to cause combustion, used especially as a filling for certain bombs, shells, bullets, or the like. (AFD)
- INDICATOR**, n. — 1. That part of electronic equipment in which the data is obtained by observation. This is usually in the form of a scope or dial. (ND)\* 2. That part of an instrument from which the reading is made. This may be at the instrument or at a remote location, or both. (ND)
- INDUCED ENVIRONMENT** — Any man-made or equipment-made environment which directly or indirectly affects the performance of man or materiel. (JD)
- INDUCED RADIATION** — Radiation produced as a result of exposure to radioactive materials, particularly the capture of neutrons. (JD)
- INDUCTANCE**, n. — *Electricity*. The property of an electric circuit that induces an electromotive force into the circuit itself or into a nearby circuit, which force opposes any introduction, charge, or discontinuance of the current. Inductance corresponds to inertia in matter. It is the property that causes a lag in time for a current just turned on to rise to its full value. (AFD)
- INERT**, adj. — Destitute of power to move itself or actively to resist motion impressed; not having active properties; powerless for a desired effect.
- INERTIA**, n. — The property of matter by which it resists any change in its state of rest of uniform motion in a straight line. (ND)
- INFILTRATION**, n. — 1. The flow of a fluid into a substance through pores or small openings. It connotes flow into a substance in contradistinction to the word *percolation*, which connotes flow through a porous substance. (MD) 2. The downward entry of water into the soil. (SSS)
- INFILTRATION CAPACITY** — The maximum rate at which the soil, when in a given condition, can absorb falling rain or melting snow. (MH)
- INFILTRATION INDEX** — An average rate of infiltration, in inches per hour, equal to the average rate of rainfall such that the volume of rainfall at greater rates equals the total direct runoff. (MH)
- INFRARED RADIATION** — Electromagnetic radiation in the wavelength region between visible radiation and microwave radiation; usually considered to begin at 7600 Å (0.76 micron) and extend to 1,000 microns (1 mm).
- INFRASONIC FREQUENCY** — Frequency lying below the audio frequency range. (ASA)
- INHERITED SOIL CHARACTERISTIC** — Any characteristic of a soil that is due directly to the nature of the material from which it formed, as contrasted to the characteristics that are wholly or partly the result of soil-forming processes acting on parent material. For example, some soils are red because the parent material was red; although the color of most red soils is due to soil-forming processes. (YA)
- INHIBITOR**, n. — 1. An agent that slows or interferes with a chemical action. 2. A substance which effectively decreases the **CORROSION** rate of a metal when added in small amounts to the corrosive environment. (ECS)\* 3. A substance added to certain propellants to reduce hygroscopicity or the tendency to absorb moisture. (AFD)

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- INITIAL RADIATION** — The nuclear radiation accompanying a nuclear explosion and emitted from the resultant fireball; immediate radiation. (JD)
- INLET**, n. — A small, narrow bay or creek; a small body of water leading into a larger; a narrow strip of water running into the land or between islands. (GS)
- IN PLACE** — 1. Formed or accumulated on the spot. A rock may decay and break down into small particles where it is first exposed in the land surface. It is then said to have weathered in place or *in situ*. (YA) 2. As a mass appears in the soil before any disturbance. For example, the deeper part of a profile may be massive and show no signs of structure in place but break down into lumps of regular size and shape when removed. (YA)
- INSELBERG**, n. — A small mountain or hill standing above a desert pediment or peneplain. It is surrounded by more or less level rock surfaces or by debris derived from and overlapping its slopes. (S&V)
- INSOLATION**, n.—1. In general, solar radiation received at the earth's surface. (AMS) 2. The rate at which direct solar radiation is incident upon a unit horizontal surface at any point on or above the surface of the earth. (AMS)
- INSTRUMENT SHELTER** — A box-like structure designed to protect certain meteorological instruments from exposure to direct sunshine, precipitation, and condensation, while at the same time providing adequate ventilation. Instrument shelters are painted white, have louvred sides, usually a double roof, and are mounted on a stand several feet above the ground with the door side facing poleward. (AMS)\*
- INSULATE**, v.t. — To separate or isolate a conducting body from its surroundings, by means of a nonconductor, as to prevent transfer of electricity, heat, or sound. (ND)
- INSULATION**, n. — A material having relatively high resistance to heat flow, electricity, or sound.
- INSULATION RESISTANCE** — The measured resistance of the insulation of a device or product. This measurement is taken along the path over which the insulation is intended to be effective.
- INTENSITY LEVEL (or SOUND-ENERGY FLUX DENSITY LEVEL)** — See **SOUND INTENSITY LEVEL**.
- INTERFACE**, n.—A surface separating two media across which there is a discontinuity of some property, such as density, velocity, etc., or of some derivative of one of these properties in a direction normal to the interface. (NOO)
- INTERFERENCE**, n. — 1. Extraneous signals, noises, etc. that hinder proper reception, transmission, or recording of the desired signal in electronic equipment. (ND) 2. The mutual effect of two or more meeting waves or vibrations of any kind. Sometimes called *wave interference*. (ND) 3. The aerodynamic influence of two or more bodies on each other. (ND)
- INTERFERENCE, ACOUSTIC** — The combined action of two waves moving simultaneously through the same region. Two waves of the same frequency, in phase with each other, and moving in the same direction, produce reinforcement. Two waves of the same frequency, in phase opposition, and moving in the same direction, produce destructive interference; if further they have equal amplitudes, the result is a complete annulment.
- INTERFERENCE, OPTICAL** — The combined action of two light rays. Unless the two paths are of identical optical length, the two beams may not be in phase, and can destructively interfere at some points (dark) and constructively interfere at other points (bright). The principle of the conservation of energy applies; and, therefore, the energy missing in the dark points will be found in the bright points.

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**INTERFEROMETER**, n. — An apparatus used to produce and show interference between two or more wave trains coming from the same luminous area, and also to compare wave lengths with observable displacements or reflectors, or other parts, by means of interference fringes. An interferometer is frequently used to obtain quantitative information on flow around bodies in wind tunnels.

**INTERFLOW**, n. — The water, derived from precipitation, that infiltrates the soil surface and then moves laterally through the upper layers of soil above the water table until it reaches a stream channel or returns to the surface at some point downslope from its point of infiltration. (AMS)

**INTERFLUVE**, n. — 1. The area between two rivers; especially, a more or less undissected upland between two adjacent streams flowing in more or less parallel courses. (S&V) 2. The surface area of ALLUVIAL FANS between DRY WASHES.

**INTERMEDIATE SCALE MAP** — A map, normally of a scale from 1:200,000 to 1:500,000, intended for planning strategic operations, including the movement, concentration, and supply of troops. (JD) See also MEDIUM-SCALE MAP.

**INTERMITTENT STREAM** — A stream that flows only part of the time. It may be either an ephemeral stream, which flows for a few hours or days after rain, or a seasonal stream, which flows for several months of the year, as during the rainy season or during the season of snow melt.

**INTERTROPICAL CONVERGENCE ZONE** — The axis, or a portion thereof, of the broad trade-wind current of the tropics. This axis is the dividing line between the southeast trades and the northeast trades (of the Southern and Northern Hemisphere, respectively). (AMS)\*

**INTRAPERMAFROST WATER** — Ground water within the PERMAFROST. (AD)

**INTRAZONAL SOIL** — *Pedology*. Any one of the great groups of soils having more or less well-developed soil characteristics that reflect a dominating influence of some local factor of relief or of parent material over the normal influences of the climate and the vegetation on the soil-forming processes. Such groups of soils may be geographically associated with two or more of the zonal groups of soils having characteristics dominated by the influence of climate and vegetation. (YA)

**INTRENCHED MEANDER** — A meander inclosed by valley walls. (S&V)\*

**INTRUSION**, n. — The process of forcible emplacement of one body of mobile rock material into or between other rocks. The term generally refers to the invasion of older rocks at depth by molten rock or magma; but it is also used to describe the plastic injection of salt domes into overlying rocks. (S&V)

**INTRUSIVE ROCK**, n. — Igneous rock that has ascended in a hot mobile state from the depths of the earth, but that has been arrested and cooled before reaching the surface. The forms usually assumed by intrusive rocks are tabular or sheet-like *dikes* and *sills*, cylindrical *necks*, and larger masses with steep walls and no apparent floor, such as *stocks* and *batholiths*. (S&V)

**INVERSION**, n. — In meteorology, a departure from the usual decrease or increase with altitude of the value of an atmospheric property; also, the layer through which this departure occurs (the "inversion layer"), or the lowest altitude at which the departure is found (the "base of the inversion"). This term almost always means a temperature inversion; however, a moisture inversion and precipitation inversion are also defined. (AMS)

**IONIZATION**, n. — The process by which neutral atoms or groups of atoms become electrically charged, either positively or negatively, by the loss or gain of electrons; or the state of a substance whose atoms or

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groups of atoms have become thus charged.  
(ND)

**IONIZATION CHAMBER** — An instrument consisting essentially of a closed chamber or tube of air or gas with two electrodes, used for detecting and measuring nuclear radiation. Radiation passing through an ionization chamber ionizes the air or gas in the chamber, permitting detection and measurement of the radiation by electrical means. (AFD)

**IRRIGATION** — The controlled application of water to arable lands to supply water requirements not satisfied by rainfall. (MH)

**ISALLOBAR**, n. — A line of equal change in atmospheric pressure during a specified time interval; an isopleth of pressure tendency. (AMS)\*

**ISOBAR**, n. — A line of equal or constant pressure; an isopleth of pressure. In meteorology, it most often refers to a line drawn through all points of equal atmospheric pressure along a given reference surface, such as a constant-height surface (notably mean-sea-level on surface charts). (AMS)\*

**ISOHYET**, n. — A line drawn through geographical points recording equal amounts of precipitation during a given time period or for a particular storm. (AMS)

**ISOLATION**, n. — A reduction in the capacity of a system to respond to an excitation attained by the use of a resilient support. In steady-state forced vibration, isolation is expressed quantitatively as the complement of TRANSMISSIBILITY. (ASA)

**ISOLATION EFFICIENCY** — See TRANSMISSIBILITY.

**ISOLATOR** — In shock and vibration mechanics, a device or system which reduces the magnitude of motion transmitted from a vibrating foundation to the equipment, or reduces the magnitude of force trans-

mitted from the equipment to its foundation. (SVH)

**ISOPLETH**, n. — 1. A line of equal or constant value of a given quantity, with respect to either space or time. (AMS)\* 2. A line drawn through points on a graph at which a given quantity has the same numerical value (or occurs with the same frequency) as a function of the two coordinate variables. (AMS) 3. A straight line along which lie corresponding values of a dependent and independent variable. (AMS)

**ISOPYCNIC**, adj. — Of equal or constant density, with respect to either space or time (AMS)\*

**ISOTHERM**, n. — A line of equal or constant temperature. (AMS)\*

**ISTHMUS**, n. — A narrow strip of land connecting two considerable bodies of land. (GS)

## J

**JAMMING**, n. — Intentional transmission or re-radiation of radio signals in such a way as to interfere with reception of desired signals by the intended receiver. (ND)

**JERK**, n. — A vector that specifies the time rate of change of acceleration with respect to an inertial reference frame. Jerk is the first derivative of the acceleration with respect to time. (ISO)

**JETTY**, n. — A structure, such as a wharf or pier, so located as to influence current or protect the entrance to a harbor or river. A jetty extending into the sea to protect the coast from erosion is called a *groin*. A jetty which breaks the force of the sea at any place is called a *breakwater*. A jetty, wall, or bank, often submerged, built to direct or confine the flow of a river or tidal current is called a *training wall*. A wall or em-

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bankment along a waterfront, to resist encroachment of the sea, is called a *sea wall*. (NOO)

**JOLT TEST**—The application of repeated shocks to equipment.

**JUMBLE TEST**—The application of repeated tumbling to equipment in a box being rotated around its diagonal axis.

**JUNGLE**, n. — A dense, tangled second-growth vegetation of grasses, shrubs, small trees, and vines; generally associated with equatorial areas. The term is often used improperly as a synonym for **TROPICAL RAINFOREST**, which is relatively clear of undergrowth.

## K

**K** — Abbreviation for **KELVIN TEMPERATURE SCALE**.

**K FACTOR** (Also called **MULTIPLICATION FACTOR**) — The ratio of the number of neutrons produced by nuclear fission to the number of neutrons originally present in a fission reactor — in other words, the number of neutrons produced in a chain reactor for every neutron absorbed or otherwise lost. In order to obtain a useful controlled reaction, the multiplication factor must be kept at a value of *k* equal to or slightly greater than one.

**KAME**, n. — A fluvio-glacial deposit occurring as a mound, knob, or hillock in which one or more sides were in contact with the glacier ice. Kames are diverse in size, shape, and composition and generally, but not universally, consist of poorly sorted, poorly stratified material. (S&V)

**KAME TERRACE**, n. — Stratified drift deposited by meltwater between glacier ice and adjacent higher ground and left as a constructional terrace after disappearance of the ice. (S&V)

**KARST TOPOGRAPHY** — Type of land-

form developed in a region of easily soluble limestone bedrock. It is characterized by vast numbers of depressions of all sizes, sometimes by great outcrops of fluted limestone ledges, sinks and other solution passages, almost total lack of surface streams, and large springs in the deeper valleys. The type locality is the Karst, a limestone plateau on the eastern coast of the Adriatic Sea. (S&V)

**KATABATIC WIND** — 1. Any wind blowing down an incline; the opposite of anabatic wind. If the wind is warm, it is called a **FOEHN**; if cold, it may be a *fall wind* (such as the bora), or a *gravity or drainage wind* (such as a mountain wind). (AMS)\*

**KELVIN TEMPERATURE SCALE** (abbreviated **K**) — Same as **ABSOLUTE TEMPERATURE SCALE** (see **ABSOLUTE ZERO**). In the Kelvin scale, the freezing point of water is 273.15°K (zero degree Celsius) and the boiling point of water is 373.15°K (100°C).

**KETTLE HOLE**—A depression found in glacial drift believed to have originated when a block of ice, left isolated by general melting away of a glacier, is partly buried by sediments and later melts entirely away. Kettle holes are usually undrained and the larger ones may contain lakes and ponds. (S&V)

**KNOT**, n. — The unit of speed in the nautical system; one nautical mile per hour. It is equal to 1.1508 statute miles per hour or 0.5144 meters per second. (AMS)

**KONIMETER**, n. — An instrument for determining the dust content of a sample of air. One form of the instrument consists of a tapered metal tube through which a sample of air is drawn and allowed to impinge upon a glass slide covered with a viscous substance. The particles caught are counted and measured with the aid of a microscope. (AMS) Also spelled **CONIMETER**.

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L

**LACUSTRINE DEPOSIT** — Material deposited in lake water and later exposed either by lowering of the water level or by the elevation of the land. (SSS)

**LACUSTRINE TERRACES** — Benches or flats which mark the shore lines of ancient lakes or earlier high-water stages of existing lakes. Nearly horizontal surfaces with relatively steep slopes facing the central portion of the lake characterize this landform.

**LAG**, n. — 1. That part of the difference between the output of an instrument and its input which is due to the failure of the instrument to respond instantaneously to variations of the input signal. It is a function of the instrument's time constant. (AMS) 2. The difference in phase between the voltage and the current it produces in an inductive circuit. (AMS)\* 3. Variously defined as time from beginning (or center of mass) of rainfall to peak (or center of mass) of runoff. (MH)

**LAGOON**, n. — A shallow sound, channel, pond, or lake, especially one near, or communicating with, the sea. (S&V)

**LAKE**, n. — 1. Any standing body of inland water, generally of considerable size. (GS)  
2. A pool of a viscous material, such as oil or asphalt. (GS)

**LAND**, n. — The total natural and cultural environment within which production takes place. Land is a broader term than SOIL. In addition to soil, its attributes include other physical conditions such as mineral deposits and water supply; location in relation to centers of commerce, populations, and other land; the size of the individual tracts or holdings; and existing plant cover, works of improvement, and the like. (YA)\*

**LANDFORM**, n. — The physical expression of the land surface. (FM)

**LAND LOCOMOTION MECHANICS** — An engineering discipline which integrates parameters of soil mechanics, vibration response and vehicle geometry into analytical systems for the design of off-road automotive vehicles possessing optimum performance, ride, and handling characteristics.

**LANDSCAPE**, n. — The sum total of the characteristics that distinguish a certain kind of area on the earth's surface and give it a distinguishing pattern in contrast to other kinds of areas. Any one kind of soil is said to have a characteristic *natural landscape*, and under different uses it has one or more characteristic *cultural landscapes*. (YA)

**LANDSCAPE TYPE** — A region throughout which a specific assemblage of environmental factor classes occurs and throughout which factor classes are related to each other in a similar way. (WES)

**LANDSLIDE**, n. — The perceptible downward and outward movement of slope-forming materials composed of natural rock, soils, artificial fills, or combinations thereof. Landslides move along surfaces of separation by falling, sliding, or flowing, and are differentiated from surficial creep by this more definite and deeper-seated surface of rupture and by a faster rate of motion. (S&V)

**LANE**, n. — A clear route through an obstacle. A single lane is normally 8 meters wide and suitably marked; a double lane is 16 meters wide. (AD)\*

**LANGLEY**, n. — A unit of energy equal to one gram-calorie per square centimeter.

**LAPSE RATE** — The decrease of an atmospheric variable with height, the variable being temperature, unless otherwise specified. (AMS)\*

**LARGE-SCALE MAP** — A map having a scale of 1:75,000 or larger. (JD)

**LATENT HEAT** — The heat released or ab-

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- sorbed per unit mass by a system in a reversible, isobaric-isothermal change of phase. In meteorology, the latent heats of vaporization (or condensation), fusion, and sublimation of water substance are of importance. (AMS)\*
- LATERAL OBSTACLE** — An insurmountable terrain feature or combination of such features that forces a vehicle to deviate laterally from a desired path. (WES)
- LATERITIC SOIL** — A suborder of zonal soils formed in warm, temperate, and tropical regions and including the following great soil groups: Yellow Podzolic, Red Podzolic, Yellowish-Brown Lateritic, and Lateritic. (SSS)
- LATERIZATION, n.** — A complex chemical weathering process involving increase in alumina or iron oxides, or both, and removal of silica. (S&V)\*
- LAVA, n.** — Fluid rock, such as that which issues from a volcano or a fissure in the earth's surface; also the same material solidified by cooling. (GS)\*
- LAVA FLOW** — A stream of molten lava which has flowed over a part of the earth's surface. If it spreads out over a large area it is called a *lava bed* or a *lava field*. Lava flows or lava beds may be nearly smooth and level or they may be extremely rough. (NAS)
- LAYER PRINCIPLE** — A technique of clothing design which utilizes the principle that two or more thicknesses of clothing, with intervening air space, provide greater insulation than the same thickness of clothing of the same material in a single layer. (ADT)\*
- LEACHING** — The removal of materials in solution from the soil. (SSS)
- LEAD, n.** — A long narrow passage through pack ice, navigable by a surface vessel and usually large enough to allow a submarine to surface in or through it. (IG)\*
- LENGTH OF RECORD** — The period during which observations have been maintained at a meteorological station, and which serves as the frame of reference for climatic data at that station. The standard length of record for the purpose of a normal has been fixed by the World Meteorological Organization as thirty years, which is a fair practical average for the length of a homogeneous record desirable for most of the meteorological elements. (AMS)\*
- LEVEE, n.** — An embankment along the shore of a river or arm of the sea to prevent overflow. A *natural levee* is one built by a river in times of flood by deposition of material upon the banks. Natural levees are relatively low and wide. (S&V)
- LIANA, n.** — A woody climbing plant with ground roots.
- LICHEN, n.** — Any plant of the class Lichenes varying in size, form, and color but always having a compound structure consisting of an alga and fungus. A lichen is an air plant which lacks roots, stems, branches, leaves, and flowers; it reproduces by spores or through fragmentation. It is usually found attached to rocks, soil, wood, or bark. (ADT)
- LIGHTFASTNESS, n.** — Ability of a color or colored material to withstand exposure to radiant energy without change from the original condition.
- LIGHTNING** — A luminous manifestation accompanying a sudden electrical discharge which takes place from or inside a cloud or, less often, from high structures on the ground or from mountains. (WMO)
- LIME PAN** — A **PLAYA**, the surface layer of which is cemented by calcium carbonate precipitated as the water evaporates. (SSS)
- LIMESTONE, n.** — A bedded sedimentary deposit consisting chiefly of calcium carbonate which yields lime when burned. (In a broader sense the term has been used for combinations or mixtures with magnesium carbonate in which the proportion of cal-

- cium carbonate is less than half.) (S&V)\*
- LIQUID-IN-GLASS THERMOMETER** — A thermometer in which the thermally sensitive element is a liquid contained in a graduated glass envelope. The indication of such a thermometer depends upon the difference between the coefficients of thermal expansion of the liquid and the glass. Mercury and alcohol are liquids commonly used in meteorological thermometers. (AMS)
- LIQUID LIMIT** — *Soil Mechanics*. One of the measures of soil consistency (see **ATTERBERG LIMITS**). The water content, expressed as a percentage of the weight of the oven-dried soil, at the boundary between the liquid and plastic states. The water content at this boundary is arbitrarily defined as the water content at which two halves of a soil cake will flow together for a distance of 0.5 inches along the bottom of the groove separating the two halves, when the cup is dropped 25 times for a distance of 1 cm (0.3937 inches) at the rate of two drops per second. (S&V)
- LITHOMETEOR**, n. — A meteor consisting of an ensemble of particles most of which are solid and non-aqueous. The particles are more or less suspended in the air, or lifted by the wind from the ground. The lithometeors which have more or less the character of suspensions in the atmosphere are haze, dust haze, and smoke; they consist of very small dust particles, of sea-salt particles or of combustion products (e.g. from forest fires). (WMO)
- LITHOSOLS** — A great soil group of azonal soils characterized by an incomplete solum or no clearly expressed soil morphology and consisting of freshly and imperfectly weathered rock or rock fragments. (SSS)
- LITHOSPHERE**, n. — The outer, solid portion of the earth; the crust of the earth; usually used in contexts wherein the lithosphere is said to make contact with the **ATMOSPHERE** and the **HYDROSPHERE**. (AMS)
- LITTORAL**, adj. & n. — *Oceanography*. The benthic zone between high and low water marks. According to some authorities the benthonic zone between the shore and water depths of approximately 100 fathoms (200 meters). It is also called the *littoral benthal* which is subdivided into the *eulittoral* and the *sublittoral*. The usage and interpretation of this term varies widely in the literature. (NOO)
- LIVE ROOM** — A room characterized by an unusually small amount of sound absorption, or stated conversely, a room that has an appreciable reverberation time.
- LOAD FACTOR** — The factor by which the weight of a piece of equipment is multiplied to determine the steady-state acceleration level to be applied through the equipment center-of-gravity, the value and direction of the factor being specified for the vehicle structure location at which the item of equipment is to be installed.
- LOAD RANGE** — For a shock and vibration **ISOLATOR**, or an insulating **INTERFACE** material, the range of static load or unit load which the isolator or material is designed to support.
- LOADED HEIGHT** — For a shock or vibration **ISOLATOR** or mounting base, the specified or measured distance from its vehicle installation **INTERFACE** to a specified point on the equipment side of the resilient medium, when a specified percent of the rated load is applied.
- LOAM**, n. — The U.S. Department of Agriculture textural class name for soil having a moderate amount of sand, silt, and clay. Loam soils contain 7 to 27 percent of clay, 28 to 50 percent of silt, and less than 52 percent of sand. (YA)\*
- LOAMY SAND**, n. — The U.S. Department of Agriculture textural class name for soil containing more than 70 percent sand and less than 15 percent clay, and less than 85 percent sand at 0 percent clay and more than 10 percent clay at 0 percent silt.

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**LOCAL RELIEF** — The difference in elevation between the highest and lowest points in a limited area. In terrain studies, it is usually one square mile. (FM)\*

**LOCAL WINDS** — Winds which, over a small area, differ from those which would be appropriate to the general pressure distribution, or which possess some other peculiarity. (AMS)\*

**LOCAL SPEED OF SOUND** — The velocity of propagation of acoustic waves over a small region as determined by the conditions there. It is principally a function of temperature.

**LOESS, n.** — Geological deposit of relatively uniform, fine material, mostly silt, presumably transported by wind. Many unlike kinds of soil in the United States have developed from loess blown out of alluvial valleys and from other deposits during periods of aridity. (YA)

**LOGARITHMIC DECREMENT** — In shock and vibration terminology, the natural logarithm of the ratio of any two successive amplitudes of like sign in the decay of a single-frequency oscillation. (SVH)\*

**LOLLY ICE** — See FRAZIL.

**LONGITUDINAL DUNES** — Long, narrow ridges of sand, parallel to the direction of the prevailing winds. They are wider and steeper on the windward side and taper to a point on the leeward side. Characteristically, they form behind topographic obstacles in areas where wind is strong and varies little in direction, and where sand is plentiful. (S&V)

**LONGITUDINAL OBSTACLE** — A surmountable terrain feature (e.g., tall, thick grass) that inhibits the movement of a surface vehicle by forcing it to slow down as the feature is negotiated. (WES)

**LONGSHORE CURRENT** — The resultant current produced by waves being deflected at an angle by the shore. In this case the current runs roughly parallel to the shoreline. The longshore current is capable of

carrying a certain amount of material depending upon its velocity and the particle size of the material; however, any obstruction, such as a submarine rock ridge or a land point cutting across the path of the current will cause loss of velocity and consequent loss of carrying power. (NOO)

**LOUDNESS, n.** — The intensive attribute of an auditory sensation, in terms of which sounds may be ordered on a scale extending from soft to loud. Loudness depends primarily upon the sound pressure of the stimulus, but it also depends upon the frequency and wave form of the stimulus. (ASA)

**LOUDNESS CONTOUR** — A curve that shows the related values of sound pressure level and frequency required to produce a given loudness sensation for the typical listener. (ASA)

**LOW, n.** — In meteorology, elliptical for "area of low pressure," referring to a minimum of atmospheric pressure in two dimensions (closed isobars) on a constant-height chart or a minimum of height (closed contours) on a constant-pressure chart. Since a low is, on a synoptic chart, always associated with cyclonic circulation, the term is used interchangeably with CYCLONE. (AMS)

**LUMINESCENCE, n.** — Emission of light other than incandescence. Emission as a result of and only during absorption of radiation from some other source is called *fluorescence*. (ND)\*

**LUMINOUS EFFICIENCY** — For a given wavelength of visible radiation, the ratio of the flux that is effectively sensed by the human eye to the flux that is intrinsic in the radiation. Also called *luminosity*. (AMS)\*

**LUNAR TIDE** — That portion of a tide which is due to the tide-producing force of the moon. (AMS)

**LYSIMETER** — 1. A device for measuring percolation and leaching losses from a col-

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umn of soil under controlled conditions. (SSS) 2. A device for measuring gains (precipitation and condensation) and losses (evapotranspiration) by a column of soil. (SSS)

## M

- MACKEREL SKY** — An area of sky with a formation of rounded and isolated cirrocumulus or altocumulus clouds resembling the pattern of scales on the back of a mackerel. (ND)
- MAGMA, n.** — Hot mobile rock material generated within the earth, from which igneous rock results by cooling and crystallization. It is usually conceived of as a pasty or liquid material, or a mush of crystals together with a noteworthy amount of liquid phase having the composition of silicate melt. (S&V)
- MAGNETIC FIELD** — Any space or region in which magnetic forces are present, as in the earth's magnetic field, or in or about a magnet, or in or about an electric current. (AF)
- MAGNETIC VARIATION** — The angular difference between magnetic north and true north, as in the "magnetic variation of X is 5° east." Also sometimes called *magnetic declination*. Magnetic variation is preferred over magnetic declination to avoid confusion with *declination* as used in astronomy. (AFD)\*
- MANGROVE, n.** — One of a group of halophytic evergreen broadleaf trees and shrubs of tropical and subtropical coasts, typically growing in muddy areas, such as lagoons and estuaries, that are submerged perennially or at high tide by brackish or salty water. Many species of mangrove have prop roots or root knees above the ground.
- MANOMETER, n.** — An instrument for measuring differences of pressure. The weight of a column of liquid enclosed in a tube is balanced by the pressure applied at its opposite ends, and the pressure difference is computed from the hydrostatic equation. A **MERCURY BAROMETER** is a type of manometer.
- MANTLE ROCK** — The unconsolidated material lying upon and in most cases derived from the bedrock; **REGOLITH**. (S&V)
- MAP CHART** — A representation of a land-sea area, using the characteristics of a map to represent the land area and the characteristics of a chart to represent the sea area, with such special characteristics as to make the map chart most useful in military operations, particularly amphibious operations. (JD)
- MARGINAL SEA ICE ZONE** — The band of sea ice from the ice edge to 75 miles inside pack ice under which any submarine can operate with a minimum of special sonar equipment. (Upward-beamed echo sounders are sufficient to allow surfacing in lakes.) (IG)
- MARINE BORER** — A marine organism which attacks submerged or floating wood structures in salt or brackish waters. The two general groups recognized are the crustaceans and molluscan borers. (SAF)
- MARITIME AIR** — A type of air whose characteristics are developed over an extensive water surface and which, therefore, has the basic maritime quality of high moisture content in at least its lower levels. (AMS)
- MARL, n.** — Soft and unconsolidated calcium carbonate, usually mixed with varying amounts of clay or other impurities. (SSS)
- MARSH, n.** — 1. In general, any area of continuously saturated or spongy ground having poor drainage, hence synonymous with **SWAMP**. (ADT) 2. In botany, an open, treeless, meadowlike or tussocky, salt or fresh-water tract of wet or spongy land, usually with occasional open, shallow pools of water, and with a vegetation of more or

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- less dense, erect, aquatic or amphibious plants including cattails, grasses, sedges, reeds, rushes, or other succulent herbs. (ADT)
- MASS**, n. — In shock and vibration terminology, a rigid body whose acceleration, according to Newton's second law, is proportional to the resultant of all forces acting upon it.
- MASSIF**, n. — 1. A principal mountain mass. (S&V) 2. A block of the earth's crust bounded by faults or flexures and displaced as a unit without internal change; a large fault block of mountainous topography. An intrusive body of moderate size; a diameter of between 10 and 20 miles may be regarded as typical. The term does not imply any opinion on the mode of formation or emplacement of that mass. (S&V) \*
- MASS MOVEMENT** — A general term for a variety of processes by which large masses of earth material are moved by gravity either slowly or quickly from one place to another. The rapid translocation of material in avalanches, landslides, and related events is one phase of mass movement but the slower, less noticeable actions of earth flowage, soil-creep, and solifluction probably accomplish greater effects. (S&V) \*
- MATURE SOIL** — *Pedology*. Any soil with well-developed soil horizons having characteristics produced by the natural processes of soil formation and in near equilibrium with its present environment. (SSS)
- MAXIMUM THERMOMETER** — A thermometer in which the mercury, or the indicator used for registering temperature, remains at the highest point reached since its last setting. (AD)
- MAXIMUM WATER-HOLDING CAPACITY** — The average moisture content of a disturbed sample of soil, one centimeter high, which is at equilibrium with a water table at its lower surface. (SSS)
- MEANDER**, n. — One of a series of somewhat regular winding or looping bends in a stream. (GS) \*
- MEAN ANNUAL RANGE OF TEMPERATURE** — The difference between the absolute maximum and minimum temperatures for a year, averaged over a given number of years.
- MEAN DAILY MAXIMUM (MINIMUM) TEMPERATURE** — Average of the maximum (minimum) temperatures for each day within a given period, usually a month, over a period of years.
- MEAN HOURLY TEMPERATURE** — Average of the daily temperatures at a given hour for an indicated period, generally a month, averaged over a period of years.
- MEAN MONTHLY CLOUDINESS** — Average of the mean cloud cover of each day within a month, averaged over a period of years.
- MEAN MONTHLY DEWPOINT** — Average of the mean dewpoints of each day (generally computed from observations taken at equal time periods of 6 hours or less apart) within a month, averaged over a period of years.
- MEAN MONTHLY MAXIMUM (MINIMUM) TEMPERATURE** — The highest (lowest) temperature for a month, averaged over a period of years.
- MEAN MONTHLY RELATIVE HUMIDITY** — Average of the mean relative humidities for each day of the month, averaged over a period of years.
- MEAN MONTHLY TEMPERATURE** — Average of the mean temperatures of each day within a month, averaged over a period of years. Some weather services require that a prescribed length of record be available before "mean" is used.
- MEAN RADIANT TEMPERATURE** — The temperature at which an object gives out as much radiation as it receives from its surroundings. In a room it is approximate-

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- ly the mean temperature of the walls, floor, and ceiling. (AMS)
- MEAN SEA LEVEL** — The average height of the surface of the sea for all stages of the tide, used as a reference for elevations. (JD)
- MEAN SOLAR DAY** — The duration of one rotation of the earth on its axis, with respect to the mean sun. The length of the mean solar day is 24 hours of mean solar time or 24 hours 03 minutes 56.555 seconds of mean sidereal time. A mean solar day beginning at midnight is called a *civil day*; and one beginning at noon, 12 hours later, is called an *astronomical day*. (ND)
- MECHANICAL-ACOUSTICAL COUPLING** — The interconnection of mechanical and acoustical elements. An example would be the production of noise by mechanical vibration of a gear casing.
- MECHANICAL ANALYSIS** — See PARTICLE-SIZE ANALYSIS.
- MECHANICAL SHOCK** — Sudden changes of excitation that develop significant internal forces in a system. Mechanical shock exists when an applied force is suddenly changed so as to excite mechanical transients in a system. (ISO)
- MEDIUM-SCALE MAP** — A map having a scale larger than 1:600,000 and smaller than 1:75,000. (JD)
- MELTING POINT** — The temperature at which a solid substance undergoes FUSION, i.e., melts, changes from solid to liquid form. The melting point of a substance should be considered a property of its crystalline form only. (AMS)\*
- MERCURY BAROMETER (or MERCURIAL BAROMETER)** — A glass instrument, employing mercury in its vertical column, which is used to measure atmospheric pressure. (AMS)\*
- MESA, n.** — A flat-topped mountain bounded on at least one side by a steep cliff; a plateau terminating on one or more sides in a steep cliff; a tableland. (GS)
- MESOCIMATE, n.** — The climate of small areas of the earth's surface which may not be representative of the general climate of the district. (AMS)\*
- MESOClimATOLOGY, n.** — The study of MESOCIMATES: the climatology of relatively small areas which may not be climatically representative of the general region. The data used in mesoclimatology are mostly standard observations. The size of the area involved is rather indefinite and may include topographic or landscape features from a few acres to a few square miles, such as a small valley, a forest clearing, a beach, a village site. (AMS)
- METAL FATIGUE** — A weakening in the strength of a metal caused by repeated or fluctuating stresses. (AFD)
- METAMORPHIC ROCKS** — One of the three great groups of rocks. Metamorphic rocks are formed from original igneous or sedimentary rocks through alterations produced by pressure, heat, or the infiltration of other materials at depths below the surface zones of weathering and cementation. (S&V)\*
- METEOR, n.** — 1. Commonly, the streak of light observed when a *meteoroid* (a body from space) enters the earth's atmosphere. 2. *Meteorol.* A phenomenon observed in the atmosphere or on the surface of the earth, which consists of a precipitation, a suspension or a deposit of aqueous or non-aqueous liquid or solid particles, or a phenomenon of the nature of an optical or electrical manifestation. See HYDROMETEOR. (WMO)\*
- Note:* The WMO definition arbitrarily excludes clouds, here considered as a type of meteor.
- METEORITE, n.** — That portion of a relatively large body from space (a *meteoroid*) which survives its passage through the atmosphere and reaches the earth's surface. (AMS)\*

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**METEOROLOGICAL CHECK POINT—**

Arbitrarily selected point for which meteorological corrections are determined as a timesaving expedient. These corrections are applied to any target located within transfer limits of the meteorological check point. (AD)

**METEOROLOGICAL DATA—** Meteorological facts pertaining to the atmosphere, such as wind, temperature, air density and other phenomena which affect military operations. (JD)

**METEOROLOGY, n.—** The study dealing with the phenomena of the atmosphere. This includes not only the physics, chemistry, and dynamics of the atmosphere, but is extended to include many of the direct effects of the atmosphere upon the earth's surface, the oceans, and life in general. The goals often ascribed to meteorology are the complete understanding, accurate prediction, and artificial control of atmospheric phenomena. (AMS)\*

**MICROBAR (or DYNE PER SQUARE CENTIMETER)—** A unit of pressure commonly used in ACOUSTICS. One microbar is equal to one dyne per square centimeter. See BAR and MILLIBAR. (ASA)

*Note:* The term "bar" denotes a pressure of 10<sup>6</sup> dynes per square centimeter. Unfortunately, the bar was once used in acoustics to mean one dyne per square centimeter. It is recommended, therefore, in respect to sound pressure that the less ambiguous terms "microbar" or "dyne per square centimeter" be used. (ASA)

**MICROBIOLOGICAL DETERIORATION—**

Physical destruction or functional disturbance of materials or equipment caused by the biochemical action of microbiological agents such as fungi and bacteria.

**MICROCLIMATE, n.—** The fine climatic structure of the air space which extends from the very surface of the earth to a height where the effects of the immediate character of the underlying surface no

longer can be distinguished from the general local climate (mesoclimate or macroclimate). (AMS)\*

**MICROCLIMATOLOGY, n.—** The study of MICROCLIMATE. It includes the study of profiles of temperature, moisture and wind in the lowest stratum of air, the effect of the vegetation and of shelterbelts, and the effect of towns and buildings in modifying the macroclimate. (AMS)\*

**MICROMETEOROLOGY—** That portion of the science of METEOROLOGY that deals with the observation and explanation of the smallest-scale physical and dynamic occurrences within the atmosphere. So far, studies in this field are confined to the surface boundary layer of the atmosphere; that is, from the earth's surface to an altitude where the effects of the immediate underlying surface upon air motion and composition become negligible. (AMS)\*

**MICRORELIEF, n.—** Small-scaled differences in relief, such as small mounts, swales, or pits that are a few feet across and have differences in elevation of a few inches to around three feet that are significant to soil-forming processes, to growth of plants, or to preparing the soil for cultivation. (YA)

**MICROWAVE, n.—** A very short radio wave, usually shorter than one meter. A wave shorter than 10 meters long is called an *ultrashort* wave. (ND)

**MILDEW, n.—** Any fungus growth which may be unsightly but which is not usually accompanied by severe degradation of the substrate (material) upon which it is growing.

**MILITARY GEOGRAPHIC DOCUMENTATION—** Military geographic information which has been evaluated, processed, summarized and published. (JD)

**MILITARY GEOGRAPHIC INFORMATION—** Comprises the information concerning physical aspects, resources, and artificial features which is necessary for

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- planning and operations. (JD)
- MILITARY GEOGRAPHY** — The specialized field of geography dealing with natural and man-made physical features that may affect the planning and conduct of military operations. (JD)
- MILLIBAR, n.** — A unit of pressure equal to 1,000 dynes per square centimeter, or 1/1,000 of a BAR. The millibar is used as a unit of measure of atmospheric pressure, a standard pressure, a standard atmosphere being equal to 1,013.25 millibars or 22.92 inches of mercury. (ND)
- MINERAL, n.** — A substance occurring in inorganic nature, though not necessarily of inorganic origin, which has (1) a definite chemical composition or, more commonly, a characteristic range of chemical composition, and (2) distinctive physical properties or molecular structure. (S&V)\*
- MINERALIZATION, n.** — 1. *Geology.* The process or the result of an induced change in a body of rock that results in (a) a mass of economic value, (b) a mass of potential economic value, or (c) masses of rock that are related to (a) and (b) in origin. (S&V) 2. *Pedology.* The conversion of an element from an organic form to an inorganic state as a result of microbial decomposition. (SSS)
- MINIMUM THERMOMETER** — A thermometer which automatically registers the lowest temperature occurring since its last setting. (ND)
- MIRAGE, n.** — A refraction phenomenon wherein an image of some object is made to appear displaced from its true position. Simple mirages may be any one of three types, the *inferior* mirage, the *superior* mirage, or the *lateral* mirage, depending, respectively, on whether the spurious image appears below, above, or to one side of the true position of the object. (AMS)\*
- MIRE, n.** — 1. A small muddy marsh or bog. (GS) 2. Wet spongy earth. (GS) 3. Soft deep mud. (GS)
- MIST, n.** — 1. According to international definition: a **HYDROMETEOR** consisting of an aggregate of microscopic and more-or-less **HYGROSCOPIC** water droplets suspended in the atmosphere. It produces, generally, a thin grayish veil over the landscape. It reduces visibility to a lesser extent than **FOG**. **RELATIVE HUMIDITY** with mist is often less than 95 percent. Mist is intermediate in all respects between **HAZE** and fog. 2. In popular usage in the United States, same as **DRIZZLE**. (AMS)\*
- MIXING RATIO** — In a system of moist air, the dimensionless ratio of the mass of water vapor to the mass of dry air. For many purposes, the mixing ratio may be approximated by the **SPECIFIC HUMIDITY**. (AMS)\*
- MOBILITY, n.** — A quality or capability of military forces which permits them to move from place to place while retaining the ability to fulfill their primary mission. (JD)
- MOBILITY, MECHANICAL** — The ratio of a velocity-like quantity to a force-like quantity when the arguments of the real (or imaginary) parts of the quantities increase linearly with time. The reciprocal of **IMPEDANCE, MECHANICAL**. (SVH)
- MOCK FOG** — A simulation of true fog by atmospheric refraction. (ND)
- MOCKUP** — A mass used to simulate a piece of equipment, having the same weight, center-of-gravity location, radii of gyration, and mounting means as a real or possible piece of equipment.
- MODEL ATMOSPHERE** — Any theoretical representation of the atmosphere, particularly of vertical temperature distribution. (AMS)
- MODES, COUPLED** — **MODES OF VIBRATION** that are not independent but which influence one another because of energy transfer from one mode to the other. (SVH)
- MODE OF VIBRATION** — A characteristic pattern assumed by a system undergoing vibration in which the motion of every

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particle is simple harmonic with the same frequency. (SVH)

**MODE OF VIBRATION, NORMAL** — A **MODE OF VIBRATION** that is uncoupled from (i.e., can exist independently of) other modes of vibration of a system. (SVH)

**MODE, RESONANT** — A **MODE OF VIBRATION** in which a condition of **RESONANCE** exists. (SVH)

**MODE, UNCOUPLED** — See **MODE OF VIBRATION, NORMAL**.

**MODULATION, n.** — 1. The process by which the amplitude, frequency, or phase of a carrier wave is modified in accordance with the character of a signal. 2. The variation in the value of some parameter which characterizes a periodic oscillation. (SVH)

**MODULATION, AMPLITUDE** — A type of modulation in which the amplitude of a continuous carrier wave is varied in accordance with properties of a second, or modulating, wave. (AMS)

**MODULATION, FREQUENCY** — A type of modulation in which the frequency of a continuous carrier wave is varied in accordance with the properties of a second (modulating) wave. (AMS)\*

**MODULATION, PHASE** — A type of **MODULATION** in which the phase of the carrier wave is varied in accordance with the properties of a second, or modulating, wave.

**MODULUS OF ELASTICITY** — The ratio of stress to corresponding strain below the proportional limit. (S&V)

**MOISTURE CONTENT** — *Soil Mechanics.* The water content of a soil expressed as a percentage of the dry weight of the soil. The weight of the water is determined by differential weighings before and after oven-drying a sample (BR)

**MOISTURE EQUIVALENT** — The weight percentage of water retained by a previ-

ously saturated sample of soil one centimeter in thickness after it has been subjected to a centrifugal force of one thousand times gravity for 30 minutes. (SSS)

**MOISTUREPROOF, adj.** — Able to resist transmission of water vapor.

**MONITORING, n.** — 1. The act of detecting the presence of radiation and the measurement thereof with radiation measuring instruments. (JD) 2. The act of observing and recording laboratory and field environment test conditions, test specimen responses, and performance parameters.

**MONSOON, n.** — A name for seasonal winds (derived from Arabic *mausim*, a season). It was first applied to the winds over the Arabian Sea, which blow for six months from northeast and for six months from southwest, but it has been extended to similar winds in other parts of the world. The primary cause is the much greater annual variation of temperature over large land areas compared with neighboring ocean surfaces, causing an excess of pressure over the continents in winter and a deficit in summer, but other factors such as the relief features of the land have a considerable effect. In India the term is popularly applied chiefly to the southwest monsoon and, by extension, to the rains which it brings. (AMS)\*

**MONSOON FOREST** — Partially or wholly deciduous forest in a tropical region where rainy seasons alternate with long dry seasons, the trees being more or less leafless during the dry season. Monsoon forests are rich in woody vinelike plants, but the trees are not as large as in rainforests.

**MORAINE, n.** — Any accumulation of loose material deposited by a glacier. (GS)

**MORASS, n.** — A swamp, marsh, or bog having rank vegetation and muddy or offensive appearance. (GS)

**MOTTLED, adj.** — *Pedology.* Soil horizons irregularly marked with spots of color. A common cause of mottling is imperfect or

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impeded drainage although there are other causes, such as soil development from an unevenly weathered rock. Different kinds of minerals may cause mottling. (YA)

**MOUNTAIN AND VALLEY WINDS** — A system of diurnal winds along the axis of a valley, blowing uphill and upvalley by day, and downhill and downvalley by night; they prevail mostly in calm, clear weather. The upvalley component or *valley wind* is due to the temperature difference between the air heated over the slopes and that at the same height in the free air. The downvalley component or *mountain wind* at night is due to nocturnal cooling and is somewhat weaker, up to 9 mph. (AMS)\*

**MOUNTING BASE** — A mounting system for the support of a piece of equipment and for its protection against shock and vibration. It consists of hardware and fastening devices for attachment to the piece of equipment and to the vehicle structure, and resilient members and media, if used.

**MOUTH, n.** — The place of discharge of a stream into the ocean or entrance to a bay from the ocean. (NOO)

**MUCK, n.** — Highly decomposed organic soil material developed from PEAT. Generally, muck has a higher mineral or ash content than peat and is decomposed to the point that the original plant parts cannot be identified. (YA)

**MUD, n.** — A slimy, sticky mixture of water and finely divided particles of a solid such as dirt, having little or no plasticity. (ND)

**MUDFLOW, n.** — A well-mixed mass of water and alluvium which, because of its high viscosity and low fluidity as compared with water, moves at a much slower rate, usually piling up and spreading over the fan like a sheet of wet mortar or concrete. (MH)

**MULL, n.** — *Pedology*. A humus-rich layer of forested soils consisting of mixed organic and mineral matter. A mull blends into the upper mineral-layers without an abrupt

change in soil characteristics. (YA)

**MULTIPLE DEGREE-OF-FREEDOM SYSTEM** — In shock and vibration terminology, a system for which two or more coordinates are required to define completely the configuration of the system at any instant. (SVH)

**MUNSON TEST COURSE** — An extensive network of automotive test courses laid out at Aberdeen Proving Ground, Maryland. Each of the test courses has been engineered based on a specific requirement for test operation. The course covers the following: amphibious lands, rolling hills, mud, slopes (30° left and right), washboard, straightaway, imbedded rock, fording, wave course, soil dynamometer, cobblestone, bowl, staggered bump, corduroy, loose rock, shell hole, bridging device, vertical wall, gravel road, turning circles, slope grade of 5, 10, 15, 20, 30, 40, 50 and 60 percent, and Belgian block.

**MUSKEG, n.** — That terrain which is made up of a living organic mat of mosses, sedges or grasses (with or without tree growth) underlain by an extremely compressible mixture of partly disintegrated and decomposed organic material. (NRCC)

## N

**NADIR, n.** — That point on the celestial sphere directly beneath the observer and directly opposite the zenith. (AF)

**NARROW(S), n.** — (Usually used in the plural.) 1. The contracted part of a stream, lake, or sea. (GS) 2. A strait connecting two bodies of water. (GS)

**NATURAL ENVIRONMENT** — That part of the total environment which comprises the complex of conditions found in nature. The term is loosely used for an environment dominated by natural ENVIRONMENTAL FACTORS.

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**NAUTICAL MILE** — A measure of distance equal to one minute of arc on the earth's surface. The United States has adopted the International Nautical Mile equal to 1,852 meters or 6,076.11549 feet. (JD) It is equivalent to 1.1508 statute miles.

**NAUTICAL TWILIGHT (MORNING AND EVENING)** — That period during which the sun travels from a position 12 degrees below the horizon to its position at sunrise; that period during which the sun travels from its position at sunset to a position 12 degrees below the horizon. This is a period when general outlines may be visible, although the horizon probably cannot be distinguished. (AD)

**NECK, n.** — 1. A narrow strip of land connecting two larger areas or a narrow body or channel of water between two larger bodies of water. (S&V) 2. The narrow band of water flowing swiftly seaward through the surf. (NOO)

**NETTLE, n.** — 1. Any of a genus of plants (*Urtica*), chiefly coarse herbs, armed with stinging hairs. 2. Loosely, any prickly or stinging plants.

**NEUTRAL SOIL** — *Pedology*. A soil that is neither significantly acid nor alkaline. Strictly, a neutral soil has pH of 7.0; in practice, a neutral soil has a pH between 6.6 and 7.3. (YA)

**NEUTRALIZE, v.t.** — To make harmless anything contaminated with a chemical agent. (AD)

**NEUTRON INDUCED ACTIVITY** — Radioactivity induced in the ground or an object as a result of direct irradiation by neutrons. (JD)

**NEWTON (Abbreviated N), n.** — A unit of force in the International System of Units (SI); a force which, when applied to a body having a mass of one kilogram, gives the body an acceleration of one meter per second per second. One newton is equivalent to  $10^5$  dynes.

**NIVATION, n.** — Erosion behind and peripheral to a snowbank, caused by frost action, mass movement, transport by melt water, or other related processes. Nivation is most noticeable behind summer snowbanks when nightly freezing alternates with daytime melting. (ADT)

**NOISE, n.** — 1. Any undesired sound. By extension, noise is any unwanted disturbance within a useful frequency band, such as undesired electric waves in a transmission channel or device. (ASA) 2. An erratic, intermittent, or statistically random oscillation (ASA)

**NOISE, AMBIENT** — The all-encompassing noise associated with a given environment, being usually a composite of sounds from many sources near and far. (ASA)

**NOISE, AUDIBLE** — See **AUDIBLE SOUND**.

**NOISE, BACKGROUND** — The total of all sources of interference in a system used for the production, detection, measurement, or recording of a signal.

*Note 1:* Ambient noise detected, measured, or recorded with the signal becomes part of the background noise.

*Note 2:* Included in this definition is the interference resulting from primary power supplies, that separately is commonly described as *hum*. (ASA)

**NOISE LEVEL** — 1. The level of noise, the type of which must be indicated by further modifier or context.

*Note:* The physical quantity measured (e.g., voltage), the reference quantity, the instrument used, and the band-width or other weighting characteristic must be indicated. (ASA)

2. For air-borne sound, unless specified to the contrary, noise level is the weighted sound pressure level called *sound level*; the weighting must be indicated. (ASA)

**NOISE, RANDOM** — An oscillation whose instantaneous magnitude is not specified

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for any given instant of time. The instantaneous magnitudes of a random noise are specified only by probability distribution functions given the fraction of the total time that the magnitude, or some sequence of magnitudes, lies within a specified range. (ASA)\*

**NOISE, THERMAL** — 1. Random noise in a circuit associated with the thermodynamic interchange of energy necessary to maintain thermal equilibrium between the circuit and its surroundings. 2. The noise produced by thermal agitation of charges in a conductor. Also called *Johnson Noise*.

**NOISE, WHITE** — A noise whose spectrum density (or spectrum level) is substantially independent of frequency over a specified range. White noise need not be random. (ASA)\*

**NORMAL**, n. *Climatol.* — An average based on a standardized period of record, e.g. a 30-year normal.

**NORMAL IMPACT** — Striking of a projectile against a surface that is perpendicular to the line of flight of the projectile. (AD)

**NORMAL SOIL** — *Pedology.* A soil having a profile in near equilibrium with its environment; developed under good but not excessive drainage from parent material of mixed mineral, physical, and chemical composition. In its characteristics it expresses the full effects of the forces of climate and living matter. (YA)

**NORTHERN OPERATIONS** — Northern operations include both Arctic and Subarctic. The terms cold weather operations, operations in the northern latitudes, and northern operations are all synonymous and for purposes of definition are combined under the all-inclusive term northern operations. (AD) See also AREA OF NORTHERN OPERATIONS.

**NUCLEAR AIRBURST** — The explosion of a nuclear weapon in the air, at a height greater than the maximum radius of the

fireball. (JD)

**NUCLEAR CLOUD** — An all inclusive term for the volume of hot gases, smoke, dust and other particulate matter from the nuclear bomb itself and from its environment, which is carried aloft in conjunction with the rise of the fireball produced by the detonation of the nuclear weapon. (JD)

**NUCLEAR SURFACE BURST** — An explosion of a nuclear weapon at the surface of land or water; or above the surface, at a height less than the maximum radius of the fireball. (JD)

**NUCLEAR UNDERGROUND BURST** — The explosion of a nuclear weapon in which the center of the detonation lies at a point beneath the surface of the ground. (JD)

**NUCLEAR UNDERWATER BURST** — The explosion of a nuclear weapon in which the center of the detonation lies at a point beneath the surface of the water. (JD)

**NUCLEAR YIELDS** — The energy released in the detonation of a nuclear weapon, measured in terms of the kilotons or megatons of trinitrotoluene (TNT) required to produce the same energy release. Yields are categorized as:

Very low .....	less than 1 kiloton
Low .....	1 kiloton to 10 kilotons
Medium .....	over 10 kilotons to 50 kilotons
High .....	over 50 kilotons to 500 kilotons
Very high .....	over 500 kilotons

**NUCLEATION**, n. — Any process by which the phase change of a substance to a more condensed state (CONDENSATION, SUBLIMATION, FREEZING) is initiated at certain loci (see NUCLEUS) within the less condensed state. (AMS)

**NUCLEUS**, n. — 1. An agent of NUCLEATION. 2. In physical meteorology, a particle of any nature upon which, or the locus

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- locus at which, molecules of water or ice accumulate as a result of a phase change to a more condensed state. (AMS) 3. In nuclear technology, the positively charged core of an atom, with practically the whole mass of the atom but occupying only a minute part of its volume.
- NUNATAK, n. — In glacial geology, an isolated hill or peak which projects through the surface of a glacier, or which was formerly surrounded but not covered by glacial ice. (ADT)
- OASIS, n. — An isolated area within a DESERT, with GROUND WATER at or near the surface, resulting in a fertile or green spot, varying in size from a small grove of palms to an area of over a hundred square miles. (GS)\*
- OBSTACLE — A definable environmental feature that inhibits the movement of a vehicle. (WES)
- OCCLUDED FRONT — A composite of two FRONTS, formed as a cold front overtakes a warm front or quasi-stationary front. This is a common process in the late stages of wave-cyclone development, but is not limited to occurrence within a wave cyclone. (AMS)\*
- OCCLUSION, n. — 1. Same as OCCLUDED FRONT. (AMS) 2. In meteorology, the process of formation of an occluded front. (AMS)\*
- OCEAN CURRENT — A movement of ocean water characterized by regularity, either of a cyclic nature, or more commonly as a continuous stream flowing along a definable path. (AMS)\*
- OCEANOLOGY, n. — See OCEANOGRAPHY
- OCEANOGRAPHY, n. — 1. The study of the sea, embracing and integrating all knowledge pertaining to the sea's physical boundaries, the chemistry and physics of sea water, and marine biology. 2. In strict usage oceanography is the description of the marine environment, whereas *oceanology* is the study of the oceans and related sciences. (NOO)
- OCTAVE, n. — 1. The interval between two oscillations having a basic frequency ratio of two. (ASA)
- OFF-ROAD, adj. — Away from terrain specifically improved for vehicle use. (WES)
- OFFSHORE BAR, n. — The narrow ridge of sand deposited parallel to the shore in shallow water. Its accumulation is due to the deposition of sand in the breaker zone. (S&V)\*
- OIL RESISTANCE — The ability of a material to withstand degradation by a specified oil. Such degradation is usually characterized by swelling, softening, and lowering of mechanical properties.
- OPEN IMPROVED STORAGE SPACE — Open area which has been graded and hard surfaced or prepared with topping of some suitable material so as to permit effective material handling operations. (JD)
- OPEN UNIMPROVED WET SPACE — That water area specifically allotted to and usable for storage of floating equipment. (JD)
- OPERATIONAL ENVIRONMENT — 1. As pertains to the military, it is a composite of the conditions, circumstances, and influences which affect the employment of military forces and which bear on the decisions of the commander. (JD) 2. Any environment associated with the operation of a structure or equipment.
- ORDER, n. — 1. *Pedology*. The highest category in soil classification. The three orders are *zonal* soils, *intrazonal* soils, and *azonal* soils. (YA) 2. A category in the classification of plants and animals, ranking below the *class* and above the *family*.
- ORGANIC SOIL — *Pedology*. A general

term applied to a soil or to a soil horizon that consists primarily of organic matter, such as peat soils, muck soils, and peaty soil layers. (YA)\*

**OROGRAPHIC PRECIPITATION** — Precipitation which results from the lifting of moist air over an orographic barrier such as a mountain range. Strictly, the amount so designated should not include that part of the precipitation, which would be expected from the dynamics of the associated weather disturbance, were the disturbance over flat terrain. (AMS)\*

**OSCILLATION, STABLE** — An oscillation that is either damped (i.e., continually decreasing in amplitude) or neutral (i.e., maintains constant amplitude). (AMS)\*

**OSCILLATION, UNSTABLE** — Any oscillation which is not stable, i.e., an erratic, intermittent, non-self-sustaining oscillation, or one which grows in magnitude until it breaks down. (Definition not accepted by Air Force.)

**OSCILLATOR, n.** — The general term for an electrical device which generates alternating currents or voltages. The oscillator is classified according to the frequency of the generated signal. (AMS)

**OSCILLOGRAPH, n.** — A device for graphically recording or indicating oscillations or changes in an electric current. (ND)

**OSCILLOSCOPE, n.** — An instrument for producing a visual representation of oscillations or changes in an electric current. The face of the cathode ray tube used for this representation is called a scope or screen. (ND)

**OUTCROP, n.** — A part of a body of rock that appears, bare and exposed, at the surface of the ground. In a more general sense the term applies also to areas where the rock formation occurs next beneath the soil, even though it is not exposed. (S&V)

**OUTLET, n.** — 1. The lower end of a lake or pond. (GS) 2. The point at which a lake

or pond discharges into the stream which drains it. (GS)

**OUTWASH, n.** — 1. Stratified accumulation of water-deposited glacial drift (see DRIFT, GLACIAL). The material is laid down by the meltwater streams issuing from the face of the glacier ice. Usually laid out in nearly level plains. 2. Sometimes used to mean any water-deposited material carried and laid down by streams. (NAS)

**OUTWASH PLAIN** — A broad deposit of detrital material sloping gently away from a glacial terminus or terminal moraine. An outwash plain may merge downstream with the valley train. Also called *outwash apron* or *outwash fan*. (ADT)

**OVERLAND FLOW** — The flow of rainwater or snowmelt over the land surface toward stream channels. After it enters a stream, it becomes runoff. (MH)

**OVERPACKAGING, n.** — The use of more (quantitative or qualitative) preservation, packaging or packing materials than is necessary to protect an item adequately. This term should not be confused with OVERPACKING. (AD)

**OVERPACKING, n.** — Repacking of containers or items into more substantial and suitable container to withstand handling and transportation hazards, or the addition of packing materials such as steel strapping, waterproof caseliners, fiberboard sleeves onto fiberboard boxes, etc., to render the existing container less susceptible to damage or pilferage during handling, transportation and storage. (AD)

**OVERPRESSURE, n.** — The pressure resulting from the blast wave of an explosion. It is referred to as "positive" when it exceeds atmospheric pressure and "negative" during the passage of the wave when resulting pressures are less than atmospheric pressure. (JD)

**OXBOW, n.** — 1. A river bend shaped like an oxbow with only a neck of land left

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between two parts of the stream. (GS) 2. The crescent-shaped lake remaining in the abandoned channel after a river has formed a cut-off and the ends of the original bend have been filled. (GS) Also called *oxbow lake*.

OXIDATION, n. — 1. The change in a compound caused by an increase in the proportion of the electronegative part or the change of an element or an ion from a lower to a higher positive valence. 2. Loss of electrons by a constituent of a chemical reaction. (ECS)

OXIDATION, INTERNAL — The precipitation of one or more oxides of alloying elements beneath the external surface of an alloy as a result of oxygen diffusing into the alloy from an external source.

OZONE, n. — A form of molecular oxygen, each molecule consisting of three atoms. Ozone has a characteristically pungent odor. It is formed by electrical discharge in air, but in the upper atmosphere is believed to be produced by the effect of ultraviolet radiation from the sun on oxygen. (ND)

## P

PACKAGING, n. — Application or use of appropriate wrappings, cushioning, interior containers and complete identification marking, up to but not including the exterior shipping container. (AD)

PACK ICE — Any area of sea ice other than fast ice composed of a heterogeneous mixture of size and age types. Pack ice is usually in motion and is often referred to as *drift ice*. The concentration of pack ice can be of any degree. (IG)

PACKING, n. — Application or use of exterior shipping containers and assembling of items or packages therein, together with necessary blocking, bracing, or cushioning, weatherproofing exterior, strapping and marking of shipping containers. (AD)

PAHOEHOE, n. — Solidified lava that is characterized by a smooth, billowy, or ropy surface having a skin of glass a fraction of an inch to several inches thick. Pahoehoe is distinguished from the AA type by its smooth surface. (S&V)\*

PALLOGRAPH, n. — A low frequency VIBROGRAPH. (SVH)

PANCAKE ICE — Pieces of newly formed ice, usually approximately circular, with raised rims and from 1 to 6 feet in diameter. (IG)

PARTIAL NODE — The point, line, or surface in a STANDING-WAVE RESONANT SYSTEM where some characteristic of the wave field has a minimum amplitude differing from zero. The appropriate modifier should be used with the words "partial node" to signify the type that is intended; e.g., displacement, velocity, partial pressure, etc. (SVH)

PARTICLE-SIZE ANALYSIS — *Soil Mechanics*. Determination of the various amounts of the different separates in a soil sample, usually by sedimentation, sieving, micrometry, or combinations of these methods. Formerly termed *mechanical analysis*. (SSS)\*

PARTING, n. — 1. *Metallurgy*. The selective corrosion of one or more components of a solid solution alloy. (ECS) 2. *Geology*. A thin depositional layer separating thick deposits, as shale in a coal seam; also a joint or fissure. (S&V)

PARTING LIMIT — The maximum concentration of a more noble component in an alloy, above which PARTING does not occur within a specific environment. (ECS)

PASS, n. — 1. A break in a mountain range, permitting easier passage from one side of the range to the other. Also called a *col*. (ND) 2. A narrow connecting channel between two bodies of water; also the inlet through a barrier reef atoll or sand bar or a navigable channel at a river's mouth. (NOO)

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**PASSIVE**, adj. — A metal or alloy is passive if it substantially resists corrosion in an environment where thermodynamically there is a large free energy decrease associated with its passage from the metallic state to appropriate corrosion products. (ECS)

**PATINA**, n. — 1. A green coating consisting principally of basic sulfate and occasionally containing small amounts of carbonate or chloride, which forms on the surface of copper or copper alloys exposed to the atmosphere a long time. (ECS) 2. Same as **DESERT VARNISH**.

**PATTERNED GROUND**—A collective term for ground surface patterns resulting from frost action; the surface expression of soil structures. It is common but not exclusive to **PERMAFROST** regions; it includes a large group of soil forms which have distinct linear or polygonal elements in ground plan, such as *stone rings*, *stone nets*, and *stone garlands*.

**PEAK LEVEL** — The maximum instantaneous level that occurs during a specified time interval. In acoustics, peak sound pressure level is to be understood, unless some other kind of level is specified. (ASA)

**PEAT**, n. — An acid, dark-colored, soft, usually coarsely fibrous, unconsolidated soil with a 96 to 99 percent content of partly decomposed, somewhat carbonated plant material accumulated under conditions of excessive moisture. (ADT)\*

**PEAT BOG**—An area of soft, wet, spongy ground, consisting chiefly of decayed or decaying moss and other vegetable matter, where **PEAT** is formed. See **QUAKING BOG AND SWAMP**.

**PEAT SOIL** — An organic soil containing more than 50 percent organic matter. Used in the United States to refer to the stage of decomposition of the organic matter, *peat* referring to the slightly decomposed or undecomposed deposits and *muck* to the highly decomposed materials. (SSS)

**PEBBLE**, n. — A small stone worn smooth by the action of water, ice, sand, etc., or any stone between 4 and 64 millimeters (about 0.16 to 2.5 inches) in diameter. (ND)

**PEDALFER**, n. — *Pedology*. A soil in which there has been a shifting of alumina and iron oxide downward in the soil profile but with no horizon of carbonate accumulation. (S&V) (The term is considered obsolete by SSS.)

**PEDOCAL**, n. — *Pedology*. A soil with a well-developed horizon of accumulated calcium carbonate or, more rarely, some other carbonate. (S&V) (The term is considered obsolete by SSS.)

**PEDESTAL ROCK** — A residual or erosion-al rock supported by a relatively slender column or pedestal. (S&V)

**PEDIMENT**, n. — A gently inclined erosion surface of low relief typically developed in arid or semiarid regions at the foot of a receding mountain slope. The pediment may be bare or mantled by a thin layer of **ALLUVIUM** which is in transit to the adjoining basin. Some pediments resemble **ALLUVIAL FANS** in outward form. (S&V)\*

**PERCOLATION**, n. — The movement, under hydrostatic pressure, of water through the interstices of a rock or soil, except the movement through large openings such as caves. (MH)

**PERELETOK**, n. — An isolated layer of frozen ground between the thawed part of the active layer and a talik, usually lasting only a season or two and formed whenever, owing to excessive winter cold or to sub-normal summer temperatures, the summer thaw does not completely melt the active layer. (AD)

**PERIOD**, n. — 1. The time interval needed to complete a cycle. (ND) 2. The smallest increment of the independent variable for which the function repeats itself. (ISO)

**PERMAFROST**, n. 1. Permanently frozen ground. (JD) 2. A thickness of soil, super-

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- facial deposit, or bedrock of variable depth beneath the surface of the earth in which below-freezing temperature has existed continuously for a long time. Also called *perennially frozen ground, pergelisol*. (ADT)\*
- PERMAFROST ISLAND** — An area of perennially frozen ground surrounded by unfrozen ground. (ADT)
- PERMAFROST, PASSIVE** — Ground perennially frozen under climatic conditions colder than those now present, which will not refreeze as permanently frozen ground when once disturbed. (ADT)\*
- PERMAFROST TABLE** — The surface that represents the upper boundary of perennially frozen ground. Sometimes called *frost line*. (ADT)
- PERMAFROST ZONE** — The aggregate of regions in which permafrost occurs. (ADT)
- PERMEABILITY, n.** — The property or state of being permeable, of allowing fluids and gases to pass through. The standard coefficient of permeability used in the hydrologic work of the U. S. Geological Survey is defined as the rate of flow of water at 60°F, in gallons a day, through a cross section of one square foot, under a hydraulic gradient of 100 percent (S&V)
- pH** — A numerical designation of relatively weak acidity and alkalinity as in soils and other biological systems. Technically, pH is the common logarithm of the reciprocal of the hydrogen-ion concentration of a solution. A pH of 7.0 indicates precise neutrality, higher values indicate increasing alkalinity, and lower values indicate increasing acidity. See **HYDROGEN ION CONCENTRATION**. (YA)
- PHASE, n.** — 1. A measure of the stage of progress in the cycle of any periodic motion, usually expressed as a *phase angle*, one complete cycle representing a phase angle of 360 degrees; e.g., a phase angle of 90 degrees indicates that the cycle is one-quarter completed. 2. In a propagating sine wave (simple harmonic wave) points of equal phase are separated by a distance of one wavelength.
- PHON, n.** — The unit of loudness level of a sound, defined as numerically equal to the median sound pressure level, in decibels, relative to 0.0002 microbar, of a free progressive wave of frequency 1000 cycles per second presented to listeners facing the source, which in a number of trials is judged by the listeners to be equally loud. (ASA)\*
- PHOSPHORESCENCE, n.** — Emission of light without sensible heat, particularly as a result of but continuing after absorption of radiation from some other source. (ND)\*
- PHOTOGRAMMETRY, n.** — 1. The art, science, or process of making maps and scale drawings from photographs, especially of making maps from aerial photographs. (AFD) 2. The process of making precise measurements by the use of photography. (AFD)
- PHYSICAL METEOROLOGY** — That branch of meteorology which deals with optical, electrical, acoustical, and the thermodynamic phenomena of the atmosphere, its chemical composition, the laws of radiation, and the explanation of clouds and precipitation. (AMS)\*
- PICKLE, n.** — A solution or process used to loosen or remove corrosion products such as scale and tarnish from a metal. (ECS)
- PICKLE, v. tr.** — To loosen or remove corrosion products such as scale and tarnish from a metal.
- PICKUP, n.** — See **TRANSDUCER**.
- PINGO, n.** — A form of frost mound; specifically, a large mound of ice covered with soil. Pingos are not uncommonly 100 feet or more in height, and are persistent, prominent landscape features. The crest may be broken which allows mud to ooze out during a thaw. (ADT)\*

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- PIN-HOLING** — A film defect characterized by the presence of tiny holes. The term is rather generally applied to holes caused by solvent bubbling, moisture, other volatile products, or the presence of extraneous particles in the applied film.
- PITCH**, n. — 1. That attribute of auditory sensation in terms of which sounds may be ordered on a scale extending from low to high. Pitch depends primarily upon the frequency of the sound stimulus, but it also depends upon the sound pressure and waveform of the stimulus. (ASA) 2. Oscillation of a missile, airplane, or ship about a lateral axis, e.g., the alternate rising and falling of the bow and stern of a ship. (AF)
- PITOT TUBE** — An instrument for measuring the relative speed of a fluid. It consists of a concentric pipe arrangement in which the inner pipe is open at one end and the outer pipe is perforated and closed at both ends; each pipe is connected to a manometer. The unit is operated with the open end pointing upstream, so that the inner pipe measures the total pressure and the outer pipe measures the static pressure. The difference in these pressures, the *dynamic pressure*, is proportional to the square of the fluid speed. (AMS)
- PITOT-TUBE ANEMOMETER** — A pressure-tube anemometer, consisting of a Pitot tube mounted on the windward end of a wind vane and a suitable manometer to measure the developed pressure and calibrated in units of wind speed. (AMS)
- PITTING FACTOR** — The depth of the deepest pit resulting from corrosion divided by the average penetration as calculated from weight loss. (ECS)
- PLAIN**, n. — A comparatively flat, smooth, and level tract without noticeable hills, mountains, or valleys. To some geologists the notion of underlying horizontal structure is essential to the definition, but most writers consider only the surface configuration. (S&V)
- PLANIMETRIC MAP** — A map representing only the horizontal position of features. Sometimes called a *line map*. (JD)
- PLANE-WAVE TUBE** — A type of acoustical testing facility in which impingement of acoustic energy upon a test specimen is inherently unidirectional.
- PLANKTON**, n. — The passively floating or weakly swimming animal and plant life of a body of water.
- PLANOSOL**, n. — *Pedology*. An intrazonal group of soils with eluviated surface horizons underlain by claypans or fragipans, developed on nearly flat or gently sloping uplands in humid or subhumid climates. (YA)
- PLANT GROWTH REGULATOR** — A chemical antiplant agent which regulates or inhibits plant growth. (AD)
- PLANT NUTRIENT** — Any element taken in by a plant, essential to its growth, and used by it in elaboration of its food and tissue. (YA)
- PLASTIC LIMIT** — *Soil Mechanics*. One of the measures of soil consistency (see **ATTERBERG LIMITS**). The lowest moisture content, expressed as a percentage of the weight of the oven-dried soil, at which the soil can be rolled into threads one-eighth inch in diameter without the thread breaking into pieces. (S&V)\*
- PLASTICITY**, n. — The property of a material that enables it to undergo permanent deformation without elastic rebound, and without rupture. (S&V)\*
- PLASTICITY INDEX** — The difference in the water content of a soil at its **LIQUID LIMIT** and at its **PLASTIC LIMIT**. Clayey soils, for example, have higher plasticity indexes than non-clay soils, because they remain plastic over a wider range of water content.
- PLATEAU**, n. — 1. A level on which little or no change takes place; a representation of this on a graph. Used especially of trends,

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materiel requirements, learning process, etc. (AFD) 2. A tableland or flat-topped area of considerable extent elevated above surrounding country on at least one side. A plateau is larger and more extensive than a MESA but the two cannot be strictly separated. The surface may be fairly smooth but not necessarily so, large mountain masses may rise above it, and deep canyons may be cut into it. (S&V)\*

PLATY SOIL STRUCTURE — Soil aggregates with thin vertical axes and long horizontal axes. Flat, tabular; a three-dimensional object that has one dimension much smaller than the other two. (YA)

PLAYA, n. — The flat or nearly flat, low part of an enclosed basin or temporary lake without outlet; also known as a *dry lake*. Includes dry, moist, crystal body, compound, LIME PAN, and artificial playas.

PLAYA LAKE — A lake occupying a playa. Such lakes are usually very shallow and temporary in nature. (S&V)

PLUCKING, n. — The process by which rock fragments are detached from bedrock by the movement of glacial ice. Also called *quarrying*. (ADT)

PLUTONIC ROCKS — See IGNEOUS ROCKS.

PODZOL, n. — *Pedology*. A zonal group of soils having surface organic mats and thin, organic-mineral horizons above gray leached horizons that rest upon illuvial dark-brown horizons developed under coniferous or mixed forests or under heath vegetation in a cool-temperate, moist climate. (YA)

PODZOLIZATION, n. — *Pedology*. The process by which soils are depleted of bases, become more acid, and develop leached surface layers from which clay has been removed. (YA)

POLAR AIR — In the Bergeron system of air mass classification, air typical of the subpolar high pressure areas. Abbreviated as *P*.

*Note:* Polar air in this usage actually means subpolar air, thus a polar air mass usually originates farther south than an arctic air mass. (ADT)

POLAR ICE — Extremely heavy sea ice up to ten feet or more thick and of more than one winter's growth. Heavily hummocked, it may ultimately be reduced by weathering to a more or less even surface. (IG)

POLARIZATION, n. — The state of an electromagnetic wave in which the electric (and magnetic) field vector vibrates in a straight line in the plane perpendicular to the direction of wave propagation (*plane polarization*) or rotates periodically, sweeping out an ellipse or circle in the perpendicular plane (*elliptical or circular polarization*).

POLAR REGIONS — Those parts of the earth's surface which have an average temperature of the warmest month of less than 32 degrees Fahrenheit. (AD)

POLDER, n. — Land reclaimed from the sea or other body of water by the construction of an embankment to restrain the water. (ND)

POLYGONAL SOIL — More or less regular sided ground surface patterns created by frost action, by thawing or ground ice wedges, or both. A widespread phenomenon over the permafrost area indicating poor drainage. (AD)

POLYNYA, n. — Any enclosed sea water area in pack ice, other than a lead, not large enough to be called *open water*. In summer it may be referred to as a *lake*; in winter with a covering of relatively thin ice it may be called an *ice skylite*. (IG)

POND, n. — A relatively small body of water, usually surrounded on all sides by land. A larger body of water is called a *lake*. (ND)

PONDAGE, n. — Small-scale storage at a waterpower plant to equalize daily or weekly fluctuations in riverflow or to permit irregular hourly use of the water for power generation to accord with fluctuations in load. (MH)

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**POOL**, n. — 1. Any enclosed relatively small sea area in pack ice or drift ice other than a lead or a land. (NOO)\* 2. A small body of water, usually smaller than a pond, especially one that is quite deep. One left by an ebb tide is called a *tide pool*. (ND) 3. A small and comparatively still, deep part of a larger body of water such as a river or harbor. (ND)

**POROSITY**, n. — The property of a rock of containing interstices without regard to size, interconnection, or arrangement of openings. It is expressed as percentage of total volume occupied by interstices. (S&V)

**POROSITY, SOIL** — The degree to which the soil mass is permeated with pores or cavities. Porosity can be generally expressed as a percentage of the whole volume of a soil horizon that is unoccupied by solid particles. (YA)\*

**POTENTIAL EVAPOTRANSPIRATION** — Water loss that will occur if at no time there is a deficiency of water in the soil for use of vegetation. (MH)

**POTENTIAL NATURAL WATER LOSS** — The water loss during years when the annual precipitation greatly exceeds the average water loss. It represents the approximate upper limit to water loss under the type and density of vegetation native to a basin, actual conditions of moisture supply, and other basin characteristics whereas potential evapotranspiration represents the hypothetical condition of no deficiency of water in the soil at any time for use of the type and density of vegetation that would develop. (MH)

**POTENTIOMETER**, n. — An instrument for measuring differences in electric potential. Essentially, this instrument balances the unknown voltage against a variable known voltage. Potentiometers are frequently used in conjunction with thermocouples for measuring temperature. (AMS)\*

**POT HOLE**, n. — A more or less circular hole formed in the rocky beds of rivers by the grinding action of stones or gravel whirled

around by the water in a particular spot. (S&V)

**POWER SPECTRAL DENSITY** — The limiting mean-square value (e.g., of acceleration, velocity, displacement, stress, or other random variable) per unit bandwidth; i.e., the limit of the mean-square value in a given rectangular bandwidth divided by the bandwidth, as the bandwidth approaches zero. (SVH)

**POWER SPECTRAL DENSITY LEVEL** — At a particular frequency, the level in DECIBELS of that part of a specified signal contained with a band one cycle per second wide, centered at the particular frequency. Ordinarily, this has a significance only for a signal having a continuous distribution of components within the frequency range under consideration. (SVH)

**PRAIRIE SOILS** — *Pedology*. A zonal great soil group consisting of soils formed under temperate to cool-temperate, humid regions under tall grass vegetation. (SSS)

**PRECIPITABLE WATER** — The total atmospheric WATER VAPOR contained in a vertical column of unit cross-sectional area extending between any two specified levels, commonly expressed in terms of the height to which that water substance would stand if completely condensed and collected in a vessel of the same unit cross-section. (AMS)\*

**PRECIPITATION**, n. (see **HYDROMETEOR**) — 1. Any or all of the forms of water particles, whether liquid or solid, that fall from the atmosphere and reach the ground. Precipitation includes DRIZZLE, RAIN, SNOW, SNOW PELLETS, SNOW GRAINS, ICE CRYSTALS, ICE PELLETS, and HAIL. (AMS)\* 2. The amount, usually expressed in inches of liquid water depth, of the water substance that has fallen at a given point over a specified period of time. (AMS)\*

**PRECIPITATION EFFECTIVENESS** — In general, the actual efficacy of precipitation in plant growth. The dependence of the

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- effect of precipitation on TEMPERATURE or EVAPORATION has been expressed in many ways, such as Köppen's formulas for defining desert climate and Thornthwaite's precipitation effectiveness index. (AMS)\*
- PRECIPITATION STATIC**—Radio interference (static) to aircraft communication caused by CORONA DISCHARGE from radio antennas or other protuberances on aircraft flying through clouds containing ice particles. (AMS)\*
- PRESERVATION, CYCLIC**—The representation, repackaging, or repacking of material in store on which previously applied protective measures have subsequently matured or deteriorated to a state where renewal of protection is necessary.
- PRESSURE, n.** — 1. A type of stress characterized by uniformity in all directions. In dynamics, it is that part of the stress tensor that is independent of VISCOSITY and depends only upon the molecular motion appropriate to the local temperature and density. It is a scalar quantity expressed in units of force per unit area. (AMS)\* 2. In meteorology, commonly used for ATMOSPHERIC PRESSURE. (AMS)
- PRESSURE, ABSOLUTE**—The pressure referred to that of a perfect vacuum. It is the sum of the GAGE PRESSURE and ATMOSPHERIC PRESSURE.
- PRESSURE ALTITUDE**—1. The altitude, in the STANDARD ATMOSPHERE at which a given pressure will be observed. It is the indicated altitude of a pressure altimeter at an altimeter setting of 29.92 inches of mercury (1013.2 mb); therefore, it is the indicated altitude above the 1013.2 mb constant-pressure surface. (AMS) 2. The simulated altitude condition created in an altitude chamber by changing (usually by lowering) the pressure in the chamber. (NASA)
- PRESSURE, DYNAMIC**—The difference between static and Pitot pressure due to relative motion of a fluid when compressibility of the fluid is not considered. *Pitot pressure* is the pressure at the open end of a PITOT TUBE. (ND)\*
- PRESSURE FRONT**—See SHOCK FRONT.
- PRESSURE, GAGE**—The pressure above atmospheric (barometric) pressure.
- PRESSURE, HYDROSTATIC (or GRAVITATIONAL PRESSURE)**—The pressure in a fluid in hydrostatic equilibrium, i.e., the pressure at a point due solely to the weight of fluid above. (AMS)\*
- PRESSURE, IMPACT**—The pressure exerted when one object strikes another, consisting of pressure derived from both STATIC and DYNAMIC PRESSURE. (AFD)\*
- PRESSURE, PARTIAL**—The pressure exerted by one constituent of a mixed gas. The sum of the partial pressures of each constituent of the mixture equals the total gas pressure.
- PRESSURE, RECOVERED**—The pressure actually obtained when the static pressure is increased by the conversion of a portion of the kinetic energy in the stream of gas to pressure energy. The maximum recovered pressure would be STAGNATION PRESSURE were it not for losses in the conversion process.
- PRESSURE, REFLECTED**—The pressure from an explosion, which is reflected back from a solid object or surface, rather than dissipated in the air. Said especially of an airburst bomb. (AFD)
- PRESSURE, SATURATION**—The pressure at a given temperature where vapor and liquid, or vapor and solid, can exist in stable equilibrium.
- PRESSURE SPECTRUM LEVEL**—The effective sound pressure level for the sound energy contained within a band one cycle per second wide, centered at the specified frequency. Ordinarily this has significance only for sound having a continuous distribution of energy within the frequency

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range under consideration. The reference pressure should be explicitly stated.

**PRESSURE, STAGNATION** — The static pressure that could be realized if the flow could isentropically be brought to rest. It depends upon the **STATIC PRESSURE**, the **MACH NUMBER**, and the kind of gas. At low Mach numbers, it approaches the sum of the static pressure and the incompressible velocity head, but is increasingly greater than this sum at higher Mach numbers.

**PRESSURE, STATIC** — 1. The pressure exerted upon an object by air or other fluid by virtue solely of its own molecular activity resulting from its density and temperature, no gain being due to outside work. (AFD)\* 2. *Acoustics*. The pressure that would exist at a point in the absence of sound waves. (ASA)\*

**PRESSURE TENDENCY (or BAROMETRIC TENDENCY)** — The character and amount of atmospheric pressure change for a three-hour or other specified period ending at the time of observation. (AMS)\*

**PRESSURE, TOTAL** — The resultant of all components of pressure acting at a point. In relation to a **PITOT TUBE**, the expression may be used at the equivalent of *Pitot pressure*. (ND)

**PRESSURE, VELOCITY** — 1. The pressure capable of causing an equivalent velocity in a moving fluid if applied to move the same fluid through an orifice so that all pressure energy expended is converted into kinetic energy. 2. See **PRESSURE, DYNAMIC**. 3. See **WIND PRESSURE**.

**PREVAILING WIND DIRECTION** — The wind direction most frequently observed during a given period. The periods most frequently used are the observational day, month, season, and year. (AMS)\*

**PROBABILITY FORECAST** — A forecast of the probability of occurrence of one or more of a mutually exclusive set of weather contingencies, as distinguished from a

series of categorical statements. (AMS)

**PROFILE, n.** — A geometric representation of a terrain surface as an elevation-distance curve. (WES)

**PROGRAM CAM** — In a process-control system wherein a controlled parameter (e.g., dry-bulb or wet-bulb temperature) must be varied in a periodic manner at specified rates between specified limits, a cam rotated at a constant speed and shaped such that the cam follower causes the controlled parameter to vary in accordance with the specified program.

**PROPAGATION, n.** — The traveling of a radio wave, pressure wave, electric current, or the like through or along a medium, the act of sending such waves or forces through or along a medium. (AFD)

**PSYCHROMETER, n.** — An instrument for measuring the water vapor content of air. It is a type of **HYGROMETER** with two thermometers, one a wet-bulb and the other a dry-bulb. (AMS)\*

**PSYCHROMETRIC CHART** — A nomograph for graphically obtaining **RELATIVE HUMIDITY**, **ABSOLUTE HUMIDITY**, and **DEW POINT** from wet- and dry-bulb thermometer readings. (AMS)

**PULSE, n.** — A variation of a quantity whose value is normally constant (often zero), the variation being characterized by a rise and a decay. A common example is a very short burst of electromagnetic energy. (ND)

**PULSE LENGTH** — 1. The interval of time from the beginning to the end of a pulse of transmitted radiation, the *pulse duration*. (AFD) 2. The linear distance occupied by a pulse of electromagnetic radiation on a radar screen, the *pulse width*. (AFD)\* 3. The pulse duration multiplied by the speed of light. (AMS)\*

**PUMICE, n.** — A general name for highly siliceous igneous glasses that are so extremely light and frothy that they will float

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on water. The open spaces are minute vesicles formed originally by the expulsion of water vapor or other gas from highly heated lava. (S&V)\*

**PUTTY GAGE** — A type of **STEP GAGE** which provides an indication of peak acceleration. It consists of a number of spring-loaded masses whose motion results in the indentation of a putty-like material. (SVH)\*

**P WAVE** (Also called **COMPRESSION WAVE**, **LONGITUDINAL WAVE**, **PRESSURE WAVE**) — A seismic body wave, advancing by alternating compressions and rarefactions in an elastic medium. It is the type of wave which carries sound.

**PYRHELIOMETER**, n. — General term for the class of instruments which measure the intensity of direct solar radiation. The instrument consists of a radiation sensing element enclosed in a casing which is closed, except for a small aperture, through which the direct solar rays enter, and a recorder unit. (AMS)\*

**Q (QUALITY FACTOR)** — A measure of the sharpness of resonance, or frequency selectivity, of a resonant vibratory system having a single degree of freedom either mechanical or electrical. (ISO)\*

**QUADRANGLE**, n. — A unit area that is standardized as to form and orientation for the purpose of systematic mapping. It is bounded on the east and west by lines of longitude (meridians) and on the north and south by lines of latitude (parallels). (S&V)\*

**QUAGMIRE**, n. — A saturated area with a surface of soft mud, or, at best, a surface providing a shaky and precarious footing. (ADT)

**QUAKING BOG** — 1. A peat deposit so wet and unconsolidated that the surface oscil-

lates with the impact of a person walking on it. (ADT) 2. A late vegetational stage in the filling of a lake or pond by encroaching, floating mats of plants and plant debris. (ADT)

**QUAQUAVERSAL**, adj. — Dipping from a center toward all points of the compass, as in a dome. (S&V)

**QUARTZ**, n. — Crystalline silica. In its most common form it is colorless and transparent, but it takes a large variety of forms of varying degrees of opaqueness and color. It is the most common solid mineral. (ND)\*

**QUICKSAND**, n. — Submerged, saturated sand into which a heavy object easily sinks. The sand is held in a very loose, unstable packing such that a shock moves the grains to a smaller bulk volume. The lack of bearing power may be due to seepage pressure of water percolating through the sand in an upward direction or it may be due to inherent instability of the structure of the sand, unaided by seepage pressure. (S&V)

**Q WAVE** (Also called **LOVE WAVE**) — 1. A transverse wave propagated along the boundary of two elastic media, both of which have rigidity; that is, both media must be capable of propagating transverse waves. 2. *Seismology*. A surface seismic wave in which the particles of an elastic medium vibrate transverse to the direction of the wave's travel with no vertical component. (NOO)\*

## R

**RABAL**, n. — *Meteorol.* 1. A method of determining wind speeds and directions at various heights, in which the height data are obtained from **RADIOSONDE** observations and the speed from visual tracking of the balloon. (AMS)\* 2. Determination of varying atmospheric conditions by use of a **RADIOSONDE** balloon. Rabals are reports obtained in this manner. (AD)

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- RAD**, n. — Unit of absorbed dose of radiation. It represents the absorption of 100 ergs of nuclear (or ionizing) radiation per gram of the absorbing material or tissue. (JD)
- RADAR**, n. — Radio detection and ranging equipment that determines the distance and usually the direction of objects by transmission and return of electromagnetic energy. (JD)
- RADAR, PULSED** — A type of radar, designed to facilitate range measurement, in which the transmitted energy is emitted in periodic short pulses. The distance to any target causing a detectable echo can be determined by measuring one half the time interval between transmitted pulse and received echo and multiplying this number by the speed of light. This is by far the most common type of radar. (AMS)
- RADARSONDE**, n. — A system in which RADAR techniques are used to determine the range, elevation, and azimuth of a radar target carried aloft by a RADIOSONDE. (AMS)\*
- RADIAC**, adj. — A term devised to designate various types of radiological measuring instruments or equipment. (This term is derived from the words "radioactivity detection, indication, and computation", and is normally used as an adjective.) (JD)
- RADIAC DOSIMETER** — An instrument used to measure the ionizing radiation absorbed by that instrument. (JD)
- RADIANT-ENERGY THERMOMETER** — An instrument which determines the BLACKBODY temperature of a substance by measuring its THERMAL RADIATION. (AMS)\*
- RADIANT INTENSITY** — The radiant power (flux) per unit solid angle emitted by a source of electromagnetic energy.
- RADIATION**, n. — See ELECTROMAGNETIC RADIATION.
- RADIATIONAL COOLING** — In meteorology, the cooling of the earth's surface and adjacent air, accomplished (mainly at night) whenever the earth's surface suffers a net loss of heat due to TERRESTRIAL RADIATION. (AMS)
- RADIATION DOSE** — The total amount of ionizing radiation absorbed by material or tissue. (JD)
- RADIATION DOSE RATE** — The radiation dose (dosage) absorbed per unit of time. (JD)
- RADIATION FOG** — A major type of FOG, produced over a land area when RADIATIONAL COOLING reduces the air temperature to or below its DEW POINT. Thus, a strict radiation fog is a nighttime occurrence, although it may begin to form by evening twilight and often does not dissipate until after sunrise. (AMS)\*
- RADIATION INTENSITY** — 1. The radiation dose rate at a given time and place. It may be used coupled with a figure to denote the radiation intensity used at a given number of hours after a nuclear burst, e.g., RI3 is the radiation intensity 3 hours after the time of burst. (JD) 2. Commonly, but inaccurately, used as a synonym for the *flux density* (power per unit area) of a beam of radiation or particles.
- RADIATION SCATTERING** — The diversion of radiation (thermal, electromagnetic, or nuclear) from its original path as a result of interactions or collisions with atoms, molecules, or larger particles in the atmosphere or other media between the source of radiation (e.g., a nuclear explosion) and a point at some distance away. As a result of scattering, radiation (especially gamma rays and neutrons) will be received at such a point from many directions instead of only from the direction of the source. (JD)
- RADIOACTIVE FALLOUT** — The eventual descent to the earth's surface of radioac-

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- tive matter placed in the atmosphere by an atomic or thermonuclear explosion. (AMS)\*
- RADIOACTIVE FALLOUT PLOT** — Areas plotted on a map that outline when and where radioactive fallout is likely to be observed. (AMS)
- RADIOACTIVITY**, n. — Spontaneous emission of nuclear radiation (charged particles, neutrons, and gamma rays) as a result of disintegration of a nucleus. Some natural elements are radioactive, e.g., radium and uranium. *Induced radioactivity* can be produced in other elements by various processes (popularly called nuclear bombardment) which create artificial isotopes of the natural element.
- RADIOLOGICAL SURVEY** — The directed effort to determine the distribution and dose rates of radiation in an area. (JD)
- RADIOMETER**, n. — Any of a variety of instruments used to measure thermal radiant energy or the energy of electromagnetic radiation at wavelengths longer than visible radiation, i.e., infrared, microwave, and radio wave regions. See **ACTINOMETER**.
- RADIOSONDE**, n. — An instrument carried aloft by a free, unmanned balloon and equipped with elements for determining temperature, pressure, and relative humidity and automatically transmitting the measurements by radio. (ND)\*
- RAIN**, n. — **PRECIPITATION** of liquid water particles, either in the form of drops of more than 0.5 mm. (0.02 in.) diameter or of smaller widely scattered drops. See **HYDROMETEOR**. (WMO)
- RAINBOW**, n. — A group of concentric arcs with colors ranging from violet to red, produced on a "screen" of water drops (raindrops, droplets of **DRIZZLE** or **FOG**) in the atmosphere by light from the sun or moon. This phenomenon is mainly due to refraction and reflection of light. (WMO)
- RAINDROP**, n. — A drop of water of diameter greater than 0.5 mm falling through the atmosphere. In careful usage, falling drops with diameters lying in the interval 0.2 to 0.5 mm are called *drizzle drops* rather than raindrops. (AMS)\*
- RAINFALL EXCESS** — The volume of rainfall available for direct runoff. It is equal to the total rainfall minus interception, depression storage, and absorption. (MH)
- RAINFALL FREQUENCY** — The number of times, during a specified period of years, that precipitation of a certain magnitude or greater occurs or will occur at a station. (AMS)\*
- RAINFOREST**, n. — Generally, a forest which grows in a region of heavy annual precipitation. (AMS)\*
- RAIN, FREEZING** — Rain that falls in liquid form but freezes upon impact to form a coating of **GLAZE** upon the ground and on exposed objects. When encountered by an aircraft in flight, freezing rain can cause a dangerous accretion of **CLEAR ICING**. (AMS)\*
- RAIN GAGE** — An instrument designed to measure the amount of rain that has fallen. Rain gages are classified according to their operation in the following manner: (a) recording rain gage, (b) nonrecording rain gage, and (c) rain-intensity gage. (AMS)
- RAINOUT**, n. — Radioactive material in the atmosphere brought down by precipitation. (JD)
- RAIN SHADOW** — The region, on the lee side of a mountain or mountain range, where the precipitation is noticeably less than on the windward side. (AMS)\*
- RANDOM MOTION** — The motion of molecules, atoms, or ions (or other extremely small particles) resulting from incessant random collisions within a fluid.
- RANKINE TEMPERATURE SCALE** — A temperature scale with the degree of the **FAHRENHEIT TEMPERATURE**

- SCALE** and the zero point of the **KELVIN TEMPERATURE SCALE**. The ice point is thus 491.67 degrees Rankine and the boiling point of water is 671.67 degrees Rankine. (AMS)\*
- RAOB**, n. — An observation of temperature, pressure, and relative humidity, obtained by means of a **RADIOSONDE**. The name raob is derived from the words radiosonde observation. (ND)
- RAPID**, n. — A portion of a stream in swift, disturbed motion, but without cascade or waterfall. Usually used in the plural. (ND)
- RAVINE**, n. — A depression worn out by running water, larger than a **GULLY** and smaller than a **VALLEY**; a small gorge or canyon, the sides of which have comparatively uniform steep slopes. (GS)\*
- RAWIN**, n. — Winds aloft observation made by ballon and electronic methods without optical aid. (AD)
- RAWINSONDE**, n.—Observation of temperature, pressure, humidity and winds aloft, made by electronic means. (AD)
- RAYLEIGH WAVE** — 1. A two dimensional barotropic disturbance in a fluid having one or more discontinuities in the vorticity profile. 2. A wave propagated along the surface of a semi-infinite elastic solid, and bearing certain analogies to a surface gravity wave in a fluid. (AMS)
- REACH**, n. — 1. An arm of the sea extending into the land. 2. A straight section of restricted waterway of considerable extent; may be similar to a **NARROWS**, except much longer in extent. (NOO)
- REAUMUR TEMPERATURE SCALE** (Abbreviated R) — A scale with the ice point at zero degrees and the boiling point at 80 degrees, with pressure of one atmosphere. (AMS)
- RECIPROCITY**, n. — A method of calibration wherein two measuring devices, such as accelerometers, are compared while being used in opposing positions. The devices are then reversed in these positions and the comparison is repeated.
- RED EARTH** — Highly leached, red clayey soils of the humid tropics, usually with very deep profiles that are low in silica and high in sesquioxides. (SSS)
- REED GAGE (FRAHM'S REEDS)**—An instrument which measures the frequency at which an object is vibrating.
- REEF**, n. — A rocky or coral elevation at or near enough to the surface of the sea to be a danger to surface vessels. A **BARRIER REEF** roughly parallels land but is some distance offshore with deeper water intervening; a **FRINGING REEF** is closely attached to a shore. (ND)
- REFLECTION**, n. — The return or change in the direction of travel of particles, radiant energy, sound waves, or other longitudinal waves which impinge on a surface but do not enter the substance providing the reflecting surface. (ND)\*
- REFLECTION, DIFFUSE** — Any reflection process in which the reflected radiation is sent out in many directions usually bearing no simple relationship to the angle of incidence. (AMS)\*
- REFLECTION INTERVAL, RADAR**—The time interval between the transmission of a radar pulse or wave and the reception of the reflected wave at the point of transmission. (AFD)
- REFRACTION**, n. — The process in which the direction of energy propagation is changed as the result of a change in density within the propagating medium, or as the energy passes through the interface representing a density discontinuity between two media. (NOO)
- REFRACTION OF WATER WAVES** — 1. The process by which the direction of a wave moving in shallow water at an angle to the contours is changed. That part of the wave advancing in shallower water moves more slowly than the other part still

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advancing in deeper water, causing the wave crest to bend toward alignment with the underwater contours. 2. The bending of wave crests by currents. (NOO)

**REFRACTION, ACOUSTIC**—The process by which the direction of sound propagation is changed due to spatial variation in the speed of sound in the medium. (ASA)

**REG, n.**—An extensive, nearly level area in a desert with a smooth floor consisting of a layer of stones too large to be moved by the wind. The "desert pavement" of stones is commonly only one stone thick and may overlie loose unconsolidated material.

**REGELATION, n.**—A twofold process in which a localized region on the surface of a piece of ice melts when pressure is applied to that region and then refreezes when the pressure is reduced. (AMS)\*

**REGIMEN OF A STREAM**—The system or order characteristic of a stream; in other words, its habits with respect to velocity and volume, form of and changes in channel, capacity to transport sediment, and amount of material supplied for transportation. (MH)\*

**REGIONAL BOUNDARIES**—Lines which delineate geographical areas of the world for broad planning purposes. (JD)

**REGOLITH, n.**—The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth materials above solid rock. Only the upper part of this, modified by organisms and other soil-building forces, is regarded by soil scientists as SOIL. (YA)

**REGOSOL, n.**—*Pedology.* Any one of an azonal group of soils which have undergone little or no pedological development, lack clear-cut soil morphology, and consist mainly of unconsolidated material such as sand or silt. (ADT)

**RELATIVE HUMIDITY**—1. The ratio, expressed in percent, of the amount of water vapor in a given volume of air to the

amount the volume of air would contain if saturated. (MIL-STD 210A) 2. The ratio, expressed in percent, of the actual partial pressure of the water vapor in a given mixture of air and water vapor to the saturation pressure of pure water at the same temperature. (NASA)

**RELAXATION TIME**—In general, the time interval required for a system exposed to some discontinuous change of environment to undergo the fraction  $(1-e^{-1})$ , or about 63 percent, of the total change of state which it would exhibit after a period of indefinite length. Occasionally, the fraction  $9/10$ th is used in place of  $(1-e^{-1})$ , so contexts must always be checked, to be certain of the definition employed in a given case. The relaxation time of an instrument is commonly called its *time constant* or *lag coefficient*.

**RELIEF, n.**—The irregularities of the land surface. (FM)

**RENDZINA, n.**—A great soil group of the intrazonal order and calcimorphic suborder consisting of soils with brown or black friable surface horizons underlain by light gray to pale yellow calcareous material; developed from soft, highly calcareous parent material under grass vegetation or mixed grasses and forest in humid and semiarid climates. (SSS)

**RESEARCH, n.**—All effort directed toward increased knowledge of natural phenomena and environment and toward the solution of problems in all fields of science. This includes basic and applied research. (JD)

**RESIDUAL MATERIAL**—Unconsolidated and partly weathered parent material from soils presumed to have developed from the same kind of rock as that on which it lies. The term *residual* is sometimes incorrectly applied to soils, but it can be applied correctly only to the material from which soils are formed. (SSS)

**RESIDUAL MOISTURE**—Moisture held in materials or surfaces, such as building,

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framework, packaging materials, cordage, and painted surfaces, after the materials are in equilibrium with the relative humidity maintained in the storehouse.

**RESIDUAL RADIATION** — Nuclear radiation caused by fallout, radioactive material dispersed artificially, or irradiation as a result of a nuclear explosion. (JD)

**RESISTANCE THERMOMETER** — A type of electrical thermometer in which the thermal element is a substance whose electrical resistance varies with the temperature. (AMS)\*

**RESONANCE**, n. — 1. In general, a term applied to a variety of phenomena, all of which involve an abnormally large response of a system to a relatively small stimulus which has the same, or very nearly the same, frequency (or vibration period) as the natural frequency (or free vibration period) of the system. 2. The phenomenon of amplification of a free wave or oscillation of a system by a forced wave or oscillation of exactly equal period. The forced wave may arise from an impressed force upon the system or from a boundary condition. The growth of the resonant amplitude is characteristically linear in time. (AMS) 3. *Mechanics*. The condition that exists in a body or system undergoing forced vibration if any change, however small, in the frequency of excitation causes a decrease in the response of the body or system.

*Note*: Velocity resonance, for example, may occur at a frequency different from that of displacement resonance.

**RESONANT DWELL** — A condition of sustained VIBRATION at an applied frequency equal to a resonant frequency of a test specimen.

**RESPONSE**, n. — The motion (or other output) resulting from an excitation (stimulus) under specified conditions.

*Note 1*: Modifying phrases must be prefixed to the term response to indicate what kinds of input and output are being utilized.

*Note 2*: The response characteristic, often presented graphically, gives the response as a function of some independent variable such as frequency or direction. For such purposes it is customary to assume that other characteristics of the input (for example, voltage) are held constant. (ASA)

**RESPONSE, HARMONIC** — The periodic response of a vibrating system exhibiting the characteristics of RESONANCE at a frequency that is a multiple of the excitation frequency. (SVH)

**RESPONSE, MOTION** — The ratio of the displacement amplitude of an isolated system to the quotient obtained by dividing the excitation force amplitude by the static stiffness of the isolator. (SVH)

**RESPONSE, SUBHARMONIC** — The periodic response of a mechanical system exhibiting the characteristic of resonance at a frequency that is a submultiple of the periodic excitation. (ASA)

**RESULTANT WIND** — In climatology, the vectorial average of all wind directions and speeds for a given level at a given place for a certain period, as a month. (AMS)\*

**REVERBERATION**, n. — 1. The persistence of SOUND in an enclosed space, as a result of multiple reflections after the sound source has stopped. (ASA) 2. The sound that persists in an enclosed space, as a result of repeated reflection or scattering, after the source of the sound has stopped. (ASA)

**REVERBERATION TIME** — The time that would be required for the mean-square sound pressure level, originally in a steady state, to decrease 60 db after the source is stopped. (ASA)

**REVERSE SLOPE** — 1. Any slope which descends away from a given point of reference. 2. In military usage a slope which descends away from the enemy. (AD)\*

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- REVERSING CURRENT** -- A tidal current which flows alternately in approximately opposite directions, with periods of slack water at each reversal. (AMS)\*
- RIA, n.** -- A long narrow arm of the ocean penetrating the coastline more or less at a right angle and narrowing gradually inland. (S&V)
- RIA SHORELINE** -- A shoreline characterized by numerous RIAs; such shorelines may form by the submergence of a land dissected by normal river valleys. (S&V)
- RIDGE, n.** -- 1. A long, narrow, and usually sharp crested land form that may be more or less independent or a part of a large mountain or hill. (S&V)\* 2. In meteorology, an elongated area of relatively high **ATMOSPHERIC PRESSURE**, almost always associated with and most clearly identified as an area of maximum anticyclonic curvature of wind flow. (AMS)\*
- RIFFLE, n.** -- A rapid in a stream. (MH)
- RIFT VALLEY** -- An elongate narrow trough or valley formed by the sinking of a strip of the earth's crust between two more or less parallel normal **FAULTS**. See **GRABEN**. (S&V)
- RIME, n.** -- A white or milky and opaque granular deposit of ice formed by the rapid freezing of supercooled water drops as they impinge upon an exposed object. (AMS)\*
- RIME, HARD** -- Opaque, granular masses of **RIME** deposited chiefly on vertical surfaces by a dense supercooled fog. Hard rime is more compact and amorphous than **SOFT RIME**, and may build out into the wind as glazed cones or feathers. (AMS)\*
- RIME, SOFT** -- A white, opaque coating of fine **RIME** deposited chiefly on vertical surfaces, especially on points and edges of objects, generally in supercooled fog. (AMS)\*
- RIP-RAP** -- Protective work on the sloping bank of a river or canal, generally consisting of stones, either arranged or just dumped.
- RIPARIAN, adj.** -- Pertaining to the banks of a stream. (MH)
- RISE TIME, PULSE** -- The interval of time required for the leading edge of a pulse to rise from some specified small fraction to some specified larger fraction of the maximum value. (ASA)
- RIVER BASIN** -- The total area drained by a river and its tributaries. (AMS)
- RIVER LINE** -- 1. Water's edge on the defender's side of a stream. (AD) 2. Any tactical line marked by a stream. (AD)
- RIVER WASH** -- Barren alluvial land, usually coarse-textured, exposed along streams at low water and subject to shifting during normal high water. (SSS)
- ROCK** -- *Civil Engineering*. Firm and coherent or consolidated earth material that cannot normally be excavated by manual methods alone.
- ROENTGEN, n.** -- The unit of measure of the total quantity of x or gamma radiation absorbed in air. This is technically defined as the amount of x or gamma radiation, which as a result of ionization, will produce in one cubic centimeter of dry air at standard conditions of temperature and pressure, ions carrying one electrostatic unit of electricity of either sign. (AD)
- ROLLING GROUND or LAND** -- Any undulating land surface; a succession of low hills giving a wave effect to the surface. A land surface much varied by small hills and valleys. (GS)
- ROOM CONSTANT** -- A value equal to the product of the average absorption coefficient of the room and the total internal area of the room divided by the quantity one minus the average absorption coefficient. (ASA)\*
- ROT, n.** -- The decomposition of organic substances by microorganisms, commonly fungi and bacteria.
- ROTTEN ICE** -- Floating ice or fast ice in an advanced stage of disintegration, characterized by honeycomb structure, weak bonding between crystals or the presence

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of meltwater or sea water between grains. Also called *spring sludge*. (ADT)

**ROUGH BROKEN LAND** — Land with very steep topography and numerous intermittent drainage channels but usually covered with vegetation. (SSS)

**RUBBLE, n.** — An unconsolidated accumulation of angular, rough rock fragments coarser than sand, broken from larger masses either by natural forces or artificially by quarrying or blasting. (S&V)\*

**RUBBLE LAND** — Land areas with 90% or more of the surface covered with stones and boulders. (SSS)\*

**RUNOFF CYCLE** — The part of the **HYDROLOGIC CYCLE** undergone by water between the time it reaches the land as **PRECIPITATION** and its subsequent **EVAPOTRANSPIRATION** or discharge through stream channels. (AMS)

**RUSTING, n.** — **CORROSION** of iron resulting in the formation of products on the surface consisting largely of hydrous ferric oxide. (ECS)

**RUST INHIBITOR** — See **INHIBITOR**.

## S

**SABIN, n.** — A unit used in measuring or expressing the capability of a surface to absorb sound, equivalent to one square foot of a perfectly absorptive surface. (AFD)

**SADDLE, n.** — A low point on a ridge or crestline, often at the upper ends of valleys, extending from it in opposite directions; a ridge connecting two higher elevations. (GS)

**SAFE BURST HEIGHT** — The height of burst at or above which the level of fallout, or damage to ground installations is at a predetermined level acceptable to the military commander. (JD)

**SAG AND SWELL TOPOGRAPHY** — The undulating topography characteristic of

sheets of **TILL**. The till usually is thick enough to completely obliterate all traces of former topography, and the postglacial drainage is then controlled by the surface configuration of the till. (S&V)

**ST. ELMO'S FIRE** — A luminous discharge of electricity from pointed objects such as the masts and yardarms of ships, lightning rods, steeples, etc., occurring when there is a considerable atmospheric difference in potential. (ND)

**SALINE SOIL** — A nonalkali soil containing sufficient soluble salts to impair its productivity. This name was formerly applied to any soil containing sufficient soluble salts to interfere with plant growth. (SSS)

**SALINITY, n.** — A measure of the quantity of dissolved salts in sea water. It is formally defined as the total amount of dissolved solids in sea water in parts per thousand by weight when all the carbonate has been converted to oxide, the bromide and iodide to chloride, and all organic matter is completely oxidized. These qualifications result from the chemical difficulty in drying the salts in sea water. In practice, salinity is not determined directly but is computed from chlorinity, electrical conductivity, refractive index, or some other property whose relationship to salinity is well established. (NOO)

**SALINOMETER, n.** — An instrument for determining the salinity of a liquid. In its most common form it consists of a hydrometer graduated to indicate the percentage of salt in the solution. (ND)

**SALT FOG** — An atomized saline solution of specified concentration, recirculated within an enclosure containing a test specimen and used to determine the corrosion resistance of the specimen.

**SALT HAZE** — A haze created by the presence of finely divided particles of sea salt in the air, usually derived from the evaporation of sea spray. (ND)

**SALT MARSH** — Flat, poorly drained coastal

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swamps which are flooded by most high tides. (NOO)

**SALT PAN** — 1. A pool used for obtaining salt by the natural evaporation of sea water. (ND) 2. Any undrained natural depression as an extinct crater, tectonic basin, or the like, in which water gathers and leaves a deposit of salt on evaporation. (S&V)

**SALTATION**, n. — The movement of soil and mineral particles by intermittent leaps from the ground when the particles are being moved by wind or water. (YA)

**SAND**, n. — 1. *Soil mechanics*. In the Unified Soil Classification System, defined as a soil that contains more than 50 percent particles greater than 0.074 mm and more than 50 percent of that fraction less than 4.76 mm. Types are identified as SW (well-graded sand), SP (poorly graded sand), SM (silty sand), and SC (clayey sand). 2. Individual rock or mineral fragments in soils having diameters ranging from 0.5 mm to 2.0 mm. Usually sand grains consist chiefly of quartz, but they may be of any mineral composition. (YA) 3. *Pedology*. The U. S. Department of Agriculture textural class name of any soil that contains 85 percent or more of sand and not more than 10 percent of clay. (YA)

**SAND BAR** — A ridge of sand built up to the surface or near the surface of a river or along a beach. (S&V)

**SAND DUNE** — A mound, ridge, or hill of sand piled up by the wind on the shore or in a desert. (ND) See DUNE.

**SANDS, DRY** — Sandy deposits, with low water-holding capacity, in which there has been no clear development of soil characteristics since deposition. (YA)

**SAND SNOW** — Snow that has fallen at very cold temperatures (of the order of  $-25^{\circ}\text{C}$ ). A surface cover of this snow has the consistency of dust or light dry sand. (AMS)

**SANDSTONE**, n. — A consolidated rock composed of sand grains cemented together.

The size range and composition of the constituents are the same as for sand and the particles may be rounded or angular. (S&V)\*

**SANDSTORM**, n. — A strong wind carrying sand through the air, the diameter of most of the particles ranging from 0.08 to 1 mm. In contrast to a DUSTSTORM, the sand particles are mostly confined to the lowest ten feet, and rarely rise more than fifty feet above the ground. (AMS)\*

**SANDY CLAY** — Soil of the U.S. Department of Agriculture textural class containing 35 percent or more of clay and 45 percent or more of sand. (YA)\*

**SANDY CLAY LOAM** — Soil of the U.S. Department of Agriculture textural class containing 20 to 35 percent clay, less than 28 percent silt, and 45 percent or more of sand. (YA)\*

**SANDY LOAM** — Soil of the U.S. Department of Agriculture textural class that contains either 20 percent clay or less, and the percentage of silt plus twice the percentage of clay exceeds 30, and 52 percent or more sand; or less than 7 percent clay, less than 50 percent silt, and between 43 percent and 52 percent sand. (SSS)\*

**SAPLING**, n. — A young tree, three feet or over in height and less than four inches in diameter.

**SASTRUGI**, n., pl. (SASTRUGA, Sing.) — Wavelike ridges of hard snow formed on a level surface, often having a steep wall with an overhanging crest on the windward and a long, even slope on the lee side. Their axes are perpendicular to the direction of the wind causing them.

**SATURATED AIR** — MOIST AIR in a state of equilibrium with a plane surface of pure water or ice at the same temperature and pressure; i.e., air whose VAPOR PRESSURE is the SATURATION VAPOR PRESSURE: its RELATIVE HUMIDITY is 100 percent. (AMS)

**SATURATION**, n.—1. The condition or state

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- of something holding something else to its fullest capacity. (AFD)\* 2. *Meteorol.* The condition in which the partial pressure of any atmospheric constituent (usually water vapor) is equal to the maximum possible under the existing environmental conditions. See SUPERSATURATION. (AMS)\* 3. *Chemistry.* Impregnation of one substance with another until no more can be received; combination of two substances until they neutralize each other. 4. The degree of purity of a color, as measured by the absence of an admixture of white light.
- SATURATION DEFICIT**—1. The difference between the actual VAPOR PRESSURE and the SATURATION VAPOR PRESSURE at the existing temperature. (AMS) 2. The additional amount of water vapor needed to produce saturation at the current temperature and pressure, expressed in grams per cubic meter, (AMS)\*
- SATURATION OF DESICCANT**—The condition of a desiccant which exists when it has absorbed sufficient moisture to be in equilibrium with saturated (100% relative humidity) air. This condition is never attained in proper dehumidification machine operation.
- SATURATION, PERCENTAGE OF**—The ratio of the actual weight of water present in a given weight of dry air to the weight of water which would be present in the same weight of dry air at saturation (100 percent relative humidity) expressed as a percentage.
- SATURATION VAPOR PRESSURE**—The VAPOR PRESSURE of a system, at a given temperature, wherein the vapor of a substance is in equilibrium with a plane surface of that substance's pure liquid or solid phase; that is, the vapor pressure of a system that has attained SATURATION but not SUPERSATURATION. (AMS)\*
- SAWTOOTH WAVE**—A periodic wave the amplitude of which varies linearly with time between a minimum and maximum value but the time interval to increase from minimum to maximum is not equal to the time interval to decrease from maximum to minimum.
- SCALE, n.**—The ratio between the distance on a map or chart and the corresponding distance on the earth's surface. (AD)\*
- SCALE FACTOR**—Value by which an actual ground distance is multiplied in order to compensate for map distortion when determining the ground distance as represented on a map. (AD)
- SCALING, n.**—The formation at high temperatures of partially adherent layers of corrosion products on a metal surface. (ECS)
- SCARP, n.**—An escarpment, cliff, or steep slope of some extent along the margin of a PLATEAU, MESA, TERRACE, or BENCH. (GS)
- SCATTERED ICE**—Ice that covers from one-tenth to five-tenths of the observed sea surface. (IG)\*
- SCATTERING, n.**—*Meteorol.* The process by which air molecules and particles suspended in the atmosphere diffuse radiation by reflecting it in different directions; the diffusive effects of changes in the refractive index of air layers are sometimes included in the term scattering. Energy is not absorbed, but the direction, and hence the spatial distribution, of the radiation is changed by scattering. (AMS)\*
- SCHIST, n.**—A crystalline METAMORPHIC ROCK that has closely spaced foliation and tends to split readily into thin flakes or slabs. There is complete gradation between slates and schists on the one hand and schists and gneisses on the other. (S&V)\*
- SCINTILLATION COUNT**—A count of the total number of light flashes produced in a phosphor by a given ionizing event.
- SCORIA, n.**—Rough, cinderlike, more or less vesicular LAVA thrown out by an ex-

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- plosive eruption or appearing on a lava stream. The expansion and escape of enclosed gases produce the typical structure. The term is usually restricted to basaltic or closely allied lavas. (S&V)\*
- SCORIA LAND — Areas of slaglike clinkers, burned shale, and fine-grained sandstone; characteristic of burned-out coal beds. Such areas commonly support a sparse cover of grasses, but are of low agricultural value. (SSS)
- SCREE, n. — Same as TALUS. (GS)\*
- SCRUB FOREST — In general, any area partially or completely covered with crowded bushes or stunted trees. More specifically, (a) the marginal forest on wind-exposed locations and on high elevations, composed of short, wind-trained trees or low shrubs forming a transitional zone along the upper timberline (ADT); and (b) the tropical or subtropical (Mediterranean climate) forests associated with subhumid or semiarid climatic conditions.
- SEA BREEZE — A coastal local wind that blows from sea to land, caused by the temperature difference when the sea surface is colder than the adjacent land. Therefore, it usually blows on relatively calm, sunny days, and alternates with the oppositely directed, a nighttime *land breeze*. (AMS)\*
- SEA FOG — A type of ADVECTION FOG formed when air that has been lying over a warm water surface is transported over a colder water surface, resulting in cooling of the lower layer of air below its dew point. (AMS)
- SEA ICE — Any form of ice at sea which has originated from the freezing of sea water. (IG)
- SEA-LEVEL PRESSURE — The ATMOSPHERIC PRESSURE at MEAN SEA LEVEL, either directly measured or, most commonly, empirically determined from the observed station pressure. (AMS)\*
- SEASON CRACKING — Cracking resulting from combined CORROSION and internal stress. A term usually applied to stress corrosion cracking of brass. (ECS)
- SECONDARY FRONT — A FRONT which may form within a baroclinic cold air mass which itself is separated from a warm air mass by a primary frontal system. The most common type is the *secondary cold front*. (AMS)
- SEDIMENT, n. — Material carried in suspension by water; or deposits of waterborne materials. (AMS)
- SEDIMENTARY ROCK — Those rocks composed of sediment: mechanical, chemical, or organic. They are formed through the agency of water, wind, glacial ice, or organisms and are deposited at the surface of the earth at ordinary temperatures. (S&V)\*
- SEDIMENT DISCHARGE — 1. The rate at which dry weight of sediment passes a section of a stream. (MH)\* 2. The quantity of sediment, as measured by dry weight, or by volume, that is discharged in a given time. (MH)
- SEEP, n. — A more or less poorly defined area where water or oil oozes from the earth in small quantities. (S&V)
- SEEP, v. — To appear or disappear, as water or other liquid, from a poorly defined area of the earth's surface. (S&V)\*
- SEEPAGE, n. — Water or other liquid that has oozed or seeped through porous material. Also, the amount of such material expressed in terms of volume.
- SEISMOGRAPH — An instrument used to measure and record earthquake vibrations and other earth tremors. (AMS)
- SEISMOLOGY, n. — The science of observing and recording the generation and propagation of elastic waves in the earth regardless of whether these are of earthquake or artificial origin. (S&V)
- SEMIDIURNAL TIDE — The type of tide having two high waters and two low waters each tidal day, with small inequalities be-

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tween successive high and successive low water heights and durations. It is the most common type of tide throughout the world. (NOO)\*

**SENSIBLE TEMPERATURE** — The temperature at which "average indoor air" of moderate humidity would induce, in a lightly clothed person, the same sensation of comfort as that induced by the actual environment. (AMS)\*

**SENSITIVITY** — *Soil Mechanics*. The effect of remolding on the consistency of a clay, regardless of the physical nature of the causes of the change. The degree of sensitivity is different for different clays, and it may also be different for the same clay at different water contents. (S&V)

**SENSOR, n.** — A technical means to extend man's natural senses, including such devices as VELOCITY PICKUPS, ACCELEROMETERS, THERMOMETERS, THERMOCOUPLES, etc.; a piece of equipment which detects and indicates terrain configuration, the presence of military targets, and other natural and manmade objects and activities by means of energy emitted or reflected by such targets or objects. (AD)\*

**SERAC, n.** — A sharp ridge or pinnacle of ice among the crevasses of a glacier. (ND)

**SERIES, n.** — *Cartography*. A collection of sheets having the same scale and cartographic specifications collectively identified by the producing agency. (AD)

**SETBACK, n.** — Rearward jerk, caused by inertia, of free moving parts in a projectile when it is fired. This force is used to push back a spring or plunger in a time fuze and start the operation of the fuze. (AD)

**SETTLED SNOW** — Fallen snow which has lost all traces of its original crystalline structure and has reformed into grains which are not usually bonded together; a type of *old snow*. (ADT)

**SFERICS, n.** — The study of ATMOSPHERICS, especially from a meteorological point

of view. This involves techniques of locating and tracking atmospheric sources and evaluating received signals (waveform, frequency, etc.) in terms of source. (AMS)

**SHAKER, n.** — See VIBRATION MACHINE.

**SHAKER, DIRECT DRIVE** — A type of VIBRATION MACHINE consisting of a rotating eccentric or cam driving a positive linkage connection which forces a displacement between the base and table of the machine. (SVH)

**SHAKER, ELECTRODYNAMIC** — A type of VIBRATION MACHINE consisting of a table and armature assembly with a signal current driver coil which is caused to move in the annular air gap of a base assembly forming the magnetic circuit of a direct current field coil. (SVH)

**SHAKER, ELECTROMAGNETIC** — A type of VIBRATION MACHINE consisting of a table and laminated iron armature assembly which is moved by magnetic attraction and repulsion from the poles of a laminated iron electromagnet core upon which a signal current coil is wound, the latter assembly being the base of the machine. (SVH)

**SHAKER, HYDRAULIC** — A type of VIBRATION MACHINE which transforms power in the form of a high-pressure flow of fluid from a pump to a reciprocating motion of a table, an electrohydraulic valve responding to excitation signals to deliver the high pressure fluid alternatively to opposite sides of an actuator piston to which the table is mounted. (SVH)

**SHAKER, PIEZOELECTRIC** — A type of VIBRATION MACHINE in which the table is coupled on the base by means of a stack of piezoelectric or ferroelectric ceramic crystals, the table being moved by the additive crystal strains when an excitation voltage is applied to the electric terminals of the crystals. (SVH)

**SHAKER, REACTION** — A type of VIBRATION MACHINE consisting of a softly

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- suspended table to which is attached one or more unbalanced rotating masses and which is caused to vibrate due to the unbalanced force reaction of the table, without force reaction against the machine base.
- SHALE**, n. — A general term for lithified muds, clays, and silts that are fissile and break along planes parallel to the original bedding. A typical shale is so fine grained as to appear homogeneous to the unaided eye. (S&V)\*
- SHALLOW FORDING** — The ability of a vehicle or gun equipped with built-in waterproofing with its suspension in contact with the ground, to negotiate a water obstacle without the use of special waterproofing kit. (JD)
- SHEAR** — The variation (usually the directional derivative) of a vector field along a given direction in space. The most frequent context for this concept is **WIND SHEAR**. (AMS)
- SHEAR CRACK** — A crack in sea ice caused by two different, simultaneous forces acting in parallel but opposite directions on adjacent portions of the ice. The sheared parts undergo a displacement parallel to the plane of the crack. (NOO)
- SHEAR STRESS** — *Geology*. An action or stress, resulting from applied forces, which causes or tends to cause two contiguous parts of a body to slide relative to each other in a direction parallel to their plane of contact. The term is often used synonymously with couple, and may be employed to describe the sliding of rocks past each other along fractures. (S&V)\*
- SHEET**, n. — *Cartography*. An individual map or chart, either complete in itself or part of a series. (AD)
- SHEET ICE** — Ice formed in a thin, smooth layer over a water surface. (ND)\*
- SHELF BERG** — A large mass of floating or stranded ICE broken away from an ICE SHELF. The size varies from a few thousand square yards to 250 square miles or more in area; in the Arctic the thickness varies from about 50 feet to more than 200 feet. Arctic shelf bergs are characterized by a regularly undulating surface which gives them a ribbed appearance from the air; they are often referred to as ICE ISLANDS. (IC)
- SHELTERBELT**, n. — A belt of trees or shrubs arranged as protection against strong winds; a type of windbreak. The trees may be specially planted or left standing when the original forest is cut. (AMS)\*
- SHIELDING** — 1. Material of suitable thickness and physical characteristics used to protect personnel from radiation during the manufacture, handling, and transportation of fissionable and radioactive materials. (JD) 2. Obstructions which tend to protect personnel or materials from the effect of a nuclear explosion. (JD)
- SHINGLE**, n. — Small, rounded, water-worn stones. Shingle is similar to GRAVEL, but with the average size of stones generally larger. (ND)
- SHOAL**, n. — A submerged RIDGE, BANK, or BAR consisting of or covered by unconsolidated sediments (mud, sand, gravel) which is at or near enough to the water surface to constitute a danger to navigation. If composed of rock or coral, it is called a REEF. (NOO)\*
- SHOCK**, n. — See MECHANICAL SHOCK and THERMAL SHOCK.
- SHOCK FRONT** — The boundary between the pressure disturbance created by an explosion (in air, water, or earth) and the ambient atmosphere, water, or earth. (JD)
- SHOCK ISOLATOR** — A resilient support that tends to isolate a system from a shock motion. (SVH)
- SHOCK MACHINE** — A device for subjecting a system to controlled and reproducible mechanical shock. (ISO)
- SHOCK MOTION** — Any motion causing, or resulting from, a shock excitation. (ISO)

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**SHOCK PULSE** — A form of shock excitation characterized by a rise and decay of acceleration in a relatively short period of time. The major values of accelerations for a shock pulse are in one direction. (ISO)

**SHOCK PULSE DURATION** — The time required for the acceleration of the pulse to rise from some stated fraction of the maximum amplitude and to decay to this value. (SVH)

**SHOCK SPECTRUM (or SHOCK RESPONSE SPECTRUM)** — An approximate expression of the maximum responses (displacement, velocity or acceleration) of an assembly of single-degree-of-freedom systems to a shock excitation. The responses are expressed as a function of the natural frequencies of the systems. A shock spectrum exists for every shock excitation, whether service-induced or applied in the laboratory. (ISO)\*

**SHOCK TUBE** — A test device consisting of a controlled atmosphere tube in which a shock wave is used as a driving force to produce a high mach number of very short duration (order of milliseconds). The shock tube is of interest in environments other than high-speed propulsion since the shock wave causes a tremendous increase in the temperature of the gas.

**SHOCK, VELOCITY** — A mechanical shock resulting from a sudden non-oscillatory change in velocity. (ISO)\*

**SHOCK WAVE** — 1. The continuously propagated pressure pulse formed by the blast from an explosion in air by the air blast, underwater by the water blast, and underground by the earth blast. (JD) 2. A pressure disturbance; which is received by the ear as a noise or clap. (NASA)\*

**SHORE, n.** — The land bordering any body of water. (GS)

**SHORE LINE** — The boundary line between a body of water and the land. The shore line shown on charts generally approximates the mean high water line. The in-

stantaneous line marking the junction of water and land, or the height of water along the hull of a vessel, is called *water line*.

**SHOWER, n.** — Precipitation from a convective cloud. Showers are characterized by the suddenness with which they start and stop, by the rapid changes of intensity, and usually by rapid changes in the appearance of the sky. (AMS)\*

**SHRINKAGE LIMIT** — *Soil Mechanics*. That moisture content, expressed as a percentage of the weight of the oven-dried soil, at which a reduction in the amount of water will not cause a decrease in the volume of the soil mass, but at which an increase in the amount of water will cause an increase in the volume of the soil mass. (S&V)\*

**SHRUB, n.** — A perennial plant which differs from a perennial herb in having persistent and woody stems; it differs from a tree in having low stature and a habit of branching from the base.

**SIEF DUNE — A LONGITUDINAL SAND DUNE** of great height and length. In cross-section it has a knife-edge crest, one side of which is rounded and the other side of which falls abruptly as a collapsing front facing normal to the axis of the dune. The side on which the front occurs depends on the side to which the wind has temporarily veered out of its prevailing direction.

**SIEROZEM, n.** — *Pedology*. A zonal great soil group consisting of soils with pale grayish "A" horizons grading into calcareous material at a depth of one foot or less, and formed in temperate to cool, arid climates under a vegetation of desert plants, short grass, and scattered brush. (SSS)

**SIGMA, n.** — In random vibration terminology, the ratio of the maximum peak acceleration of a random acceleration time history to its root-mean-square acceleration.

**SIGNATURE** — The visible, identifying characteristics of a weapon or vehicle caused by operating in a specific environ-

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ment. For example, the dust cloud caused by BACK BLAST of a recoilless rifle or the dust generated by an armor column in the desert.

**SILICA GEL**—A highly porous form of silica having great surface area, which gives it the ability to absorb large percentages of water vapor. Hence, it is a good desiccant, drier, or dehydrating agent.

**SILT**, n. — 1. *Soil mechanics.* The Unified Soil Classification System defines silt as a fine-grained soil possessing low plasticity in relation to the liquid limit. Types are identified as ML (inorganic silt of low plasticity), OL (organic silt of low plasticity), and MH (inorganic silt with liquid limit greater than 50). 2. Individual mineral particles of soil that range in diameter between the upper size of clay, 0.002 mm, and the lower size of very fine sand, 0.05 mm. (YA) 3. *Pedology.* Soil of the U.S. Department of Agriculture textural class containing 80 percent or more of silt and less than 12 percent of clay. (YA) 4. Sediments deposited from water in which the individual grains are approximately the size of silt. (YA)\*

**SILT LOAM**—Soil of the U.S. Department of Agriculture textural class having (1) 50 percent or more of silt and 12 to 27 percent of clay or (2) 50 to 80 percent of silt and less than 12 percent of clay. (YA)

**SILTY CLAY**—Soil of the U.S. Department of Agriculture textural class having 40 percent or more of clay and less than 20 percent of sand. (YA)\*

**SILTY CLAY LOAM**—Soil of the U.S. Department of Agriculture textural class having 27 to 40 percent of clay and less than 20 percent of sand. (YA)

**SIMPLE TONE (or PURE TONE)** — 1. A sound wave, the instantaneous sound pressure of which is a simple sinusoidal function of the time. (ASA) 2. A sound sensation characterized by its singleness or pitch. (ASA) 3. A sound wave of only one sinusoidal frequency.

**SIMULATED ALTITUDE**—A set of air conditions maintained within a room or chamber that duplicates certain of the conditions, commonly pressure and temperature, that usually occur at some given altitude. (NASA)

**SIMPLE HARMONIC MOTION**—A motion such that the DISPLACEMENT is a sinusoidal function of time. (SVH)

**SINGLE-DEGREE-OF-FREEDOM SYSTEM**—In shock and vibration terminology, a system for which only one coordinate is required to define completely the configuration of the system at any instant. (SVH)

**SINK (or SINKHOLE)**—A depression that has subsurface drainage only, through natural holes and caverns in limestone or by seepage into a lower table (GS)

**SINKAGE**—The depth of soil-penetration required to achieve equilibrium between vehicle forces and soil forces; loosely, the depth of the rut made by a vehicle operating off-the-road.

**SITE**, n. — An area, considered as to its ecological factors with reference to capacity to produce forests or other vegetation; the combination of biotic, climatic, and soil conditions of an area. (SAF)

**SKIMMING**, n. — The diversion of water from a stream or conduit by a shallow overflow used to avoid diversion of sand, silt, or other debris carried as bottom load. (MH)

**SKIRT FOG**—The cloud of steam and water that surrounds the engines of a missile being launched from a wet emplacement. (AF)

**SKY TEMPERATURE**—The effective temperature of the sky, used in determining the heat lost from the earth's surface by radiation to the sky. (MIL-STD 210A)

**SLEET**, n. — See ICE PELLETS. (AMS)

**SLING PSYCHROMETER**—A PSYCHROMETER in which the wet- and dry-

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- bulb thermometers are mounted upon a frame connected to a handle at one end by means of a bearing or a length of chain. Thus, the psychrometer may be whirled by hand in order to provide the necessary ventilation. (AMS)
- SLIME, n.**—Soft, fine, oozy mud or other substance of similar consistency. (NOO)
- SLIP TABLE**—An auxiliary assembly used for horizontal vibration testing, consisting of a table coupled to a vibration exciter, and a large stationary mass, the table being supported on the mass by a hydrostatic film of lubricating oil.
- SLIPPAGE RATIO**—The ratio which expresses the linear velocity of advance of an automotive vehicle as a fraction or percentage of the peripheral linear velocity of its wheels, tracks, or other tractive devices.
- SLIPPERINESS**—A soil condition of deficient traction capacity in a thin surface layer of a soil which is otherwise trafficable.
- SLOPE, n.**—The inclined surface of a hill, mountain, plateau, plain, or any part of the surface of the earth; the angle at which such surfaces deviate from the horizontal. (GS) A slope of 45 degrees is a slope of 1 on 1, or 100 percent.
- SLUDGE, n.**—1. Spongy whitish ice lumps a few centimeters across. They consist of slush, snow slush, and sometimes of spongy ice lumps formed on the bottom of a shallow sea and emerging at the surface. 2. An accumulation of ice crystals which remain separate or only slightly frozen together. It forms a thin layer and gives the sea surface a grayish or leaden-tinted color. With light winds no ripples appear on the surface. (NOO) 3. A mixture of oil and solid particulate generated during internal combustion engine operation.
- SLUSH, n.**—Snow or ice on the ground that has been reduced to a soft watery mixture by rain, warm temperature, or chemical treatment. (AMS)
- SLUSHING COMPOUND**—A non-drying oil, grease, or similar organic compound which when coated over a metal, affords at least temporary protection against CORROSION. (ECS)
- SMALL HAIL**—See ICE PELLETS.
- SMALL-SCALE MAP**—A map having a scale smaller than 1:600,000. (JD)
- SMOG, n.**—A natural FOG contaminated by industrial or other pollutants, often occurring over urban areas during the prevalence of TEMPERATURE INVERSIONS.
- Note:* Smog, a term coined in 1905 by Des Voeux, originally meant a mixture of fog and smoke. Although the term has experienced a recent rise in acceptance, so far it has not been given precise definition. (AMS)\*
- SMOKE, n.**—Foreign particulate matter in the atmosphere resulting from combustion processes; a type of LITHOMETEOR. When smoke is present, the disk of the sun at sunrise and sunset appears very red, and during the daytime has a reddish tinge. (AMS)\*
- SMOKE AGENT**—A substance which, through its chemical or physical properties, produces a screening or signal smoke. (AD)
- SMOKE, ARCTIC**—Same as STEAM FOG.
- SMOKE BLANKET**—Dense concentration of smoke established over and around friendly areas to protect them from air visual observation and visual precision bombing attack or established over enemy areas to protect attacking aircraft from air defense fire. (AD)
- SNAG, n.**—1. A standing dead tree from which the leaves and most of the branches have fallen, or a standing section of the stem of a tree broken off at a height of 20 feet or more. If less than 20 feet, properly termed a *stub*. (SAF) 2. A sunken log or a submerged stump. (SAF)
- SNOW, n.**—PRECIPITATION composed of white or translucent ICE CRYSTALS, chiefly in complex branched hexagonal form

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and often agglomerated into **SNOW-FLAKES**. See **HYDROMETEOR**. (AMS)\*

**SNOW ACCUMULATION** (or **SNOW DEPTH**) — The actual depth of snow on the ground at any instant during a storm, or after any single snowstorm or series of storms. (AMS)

**SNOW BLINK** — See **BLINK**.

**SNOW CONCRETE** — Snow which has been compressed at low temperatures and which sets into a tough substance of considerably greater strength than uncompressed snow. (ADT)\*

**SNOW COVER** — 1. The areal extent of snow-covered ground, usually expressed as percent of total area in a given region. (AMS) 2. In general, a layer of snow on the ground surface. (AMS) 3. The depth of snow on the ground, usually expressed in inches or centimeters. (AMS)

**SNOW DENSITY** — The ratio between the volume of melt water derived from a sample of snow and the initial volume of the sample. This is numerically equal to the specific gravity of the snow. See **WATER EQUIVALENT OF SNOW**. (MH)

**SNOWDRIFT**, n. — Snow deposited behind or in front of obstacles or irregularities of the surface, or collected in heaps by eddies in the wind. (AMS)\*

**SNOWFIELD**, n. — 1. Generally, an extensive area of snow-covered ground or ice, relatively smooth and uniform in appearance and composition. This term is often used to describe such an area in otherwise coarse, mountainous, or glacial terrain. (AMS) 2. In glaciology, a region of permanent snow cover, more specifically applied to the **ACCUMULATION AREA** of glaciers. (AMS)

**SNOWFLAKE**, n. — An **ICE CRYSTAL** or, much more commonly, an aggregation of many crystals which falls from a cloud. Simple snowflakes (single crystals) exhibit beautiful variety of form, but the symmetrical shapes reproduced so often in photo-

micrographs are not actually found frequently in snowfalls. (AMS)\*

**SNOW GAGE** — An instrument for measuring the vertical depth of snow. (AMS)\*

**SNOW GRAINS**—**PRECIPITATION** in the form of very small, white opaque particles of ice; the solid equivalent of **DRIZZLE**. They resemble **SNOW PELLETS** in external appearance, but are more flattened and elongated, and generally have diameters of less than 1 mm.; they neither shatter nor bounce when they hit a hard surface. (AMS)\*

**SNOW, HARD PACKED** — Snow which has been packed by vehicular or other traffic or possibly by the forces of nature.

**SNOW LINE** — In general, the outer boundary of a snow-covered area. It has at least two specific applications: (a) the actual lower limit of the snow cap on high terrain at any given time; (b) the ever-changing equatorward limit of **SNOW COVER**, particularly in the Northern Hemisphere winter. (AMS)

**SNOW, NEW** — Snow made up of crystals which retain all or most of their dendritic structure.

**SNOW, OLD** — Snow made up of roughly unidimensional, or spherical grains. It usually includes the various kinds of crusts.

**SNOW PELLETS** — Precipitation consisting of white, opaque, approximately round (sometimes conical) ice particles having a snow-like structure, and about 2 to 5 mm in diameter. Snow pellets are crisp and easily crushed, differing in this respect from **SNOW GRAINS**. (AMS)\*

**SNOW, POWDER** — A dry snow composed of crystals or grains which lie loosely, e.g., new powder snow, settling powder snow, and settled powder snow.

**SNOW, QUALITY OF** — The ratio of heat of melting snow, in calories per gram for melting pure ice at 0°C. A "quality" of 90 percent means that the snow has 10 percent liquid water stored in the matrix.

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- SNOW, SETTLED** — Snow which has lost all traces of dendritic structure. It is generally the early stage of OLD SNOW, and its grains are smaller than those of old snow.
- SNOW SURVEY** — The process of determining depth and water content of snow at representative points, for example, along a *snow course*. Snow surveys are usually made for hydrologic or water supply forecasting. (AMS)\*
- SNOW, WET** — Snow which is moist, uncompacted, and which will easily pack or adhere to equipment.
- SNUBBER, n.** — A cushion applied to one of two non-resilient members of a shock and vibration isolator or mounting which undergo relative motion. It is designed to prevent non-resilient impact.
- SOAK, n.** — The exposure of equipment to a given temperature for a period of time long enough for the temperature of the equipment to reach that of the environment in which the equipment is to be operated. (AFD)
- SOFT HAIL** — See SNOW PELLET.
- SOFTWOOD, n.** — Generally, one of the botanical group of trees that in most cases have needle or scale-like leaves; the conifers; also, the wood produced by such trees. (SAF)
- SOIL, n.**—1. The unconsolidated mineral material on the immediate surface of the earth that serves as a natural medium for the growth of land plants. (SSS) 2. The unconsolidated mineral matter on the surface of the earth that has been subjected to and influenced by genetic and environmental factors of: parent material, climate (including moisture and temperature effects), macro- and microorganisms, and topography, all acting over a period of time and producing a product — soil — that differs from the material from which it is derived in many physical, chemical, biological and morphological properties, and characteristics. (SSS)
- SOIL AIR** — The soil atmosphere; the gaseous phase of the soil, being that volume not occupied by solid or liquid. (SSS)
- SOIL ASSOCIATION** — *Pedology*. 1. A group of defined and named taxonomic soil units occurring together in an individual and characteristic pattern over a geographic region, comparable to plant associations in many ways. (SSS) 2. A mapping unit used on general soil maps, in which two or more defined taxonomic units occurring together in a characteristic pattern are combined because the scale of the map or the purpose for which it is being made does not require delineation of the individual soils. (SSS)
- SOIL BIN** — A laboratory container in which various soils and soil-vehicle relationships can be investigated under controlled conditions; analogous to wind tunnels or naval towing tanks in aircraft and ship practice.
- SOIL CATEGORY** — Any one of the ranks of the system of soil classification in which soils are grouped on the basis of their characteristics. (SSS)
- SOIL CHARACTERISTIC** — A feature of a soil that can be seen and/or measured in the field or in the laboratory on soil samples. Examples include soil slope and stoniness as well as the texture, structure, color, and chemical composition of soil horizons. (YA)
- SOIL CREEP** — The imperceptibly slow downward movement of slope-forming soil or rock under shear stress less than that required to produce shear failure. Seasonal creep in response to freezing and thawing, thermal expansion, or changes in water content is confined to the upper layers of ground. (S&V)
- SOIL FAILURE MODEL** — A mathematical equation describing the stress and strain states developed in natural soils, or laboratory soil simulating materials, when subjected to various external loadings that exceed the failure strength.

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**SOIL FAMILY** — *Pedology*. In soil classification, one of the categories intermediate between the great soil group and soil series. (SSS)

**SOIL-FORMATION FACTORS** — The variable, usually interrelated natural agencies that are active in and responsible for the formation of soil. The factors are usually grouped into five major categories as follows: parent rock, climate, organisms, topography, and time. (SSS)

**SOIL GENESIS** — The mode of origin of the soil with special reference to the processes or soil-forming factors responsible for the development of the solum, or true soil, from the unconsolidated parent material. (SSS)

**SOIL HORIZON** — *Pedology*. A layer of soil or soil material approximately parallel to the land surface and differing from adjacent genetically related layers in physical, chemical, and biological properties or characteristics such as color, structure, texture, consistency, kinds and numbers of organisms present, degree of acidity or alkalinity, etc. See ABC SOIL. (SSS)

**SOIL MOISTURE** — Water diffused in the soil, the upper part of the ZONE OF AERATION from which water is discharged by the transpiration of plants or by soil evaporation. (MH)

**SOIL MORPHOLOGY** — The constitution of the soil including the texture, structure, consistency, color, and other physical, chemical, and biological properties of the various soil horizons that make up the soil profile. (YA)

**SOIL PHASE** — *Pedology*. The subdivision of a soil type or other classificational soil unit having variations in characteristics not significant to the classification of the soil in its natural landscape but significant to the use and management of the soil. Examples of the variations recognized by phases of soil types include differences in slope, stoniness, and thickness because of accelerated erosion. (YA)

**SOIL REACTION** — The degree of acidity or alkalinity of a soil, usually expressed as a pH value. Descriptive terms commonly associated with certain ranges in pH are: extremely acid, <4.5; very strongly acid, 4.5-5.0; strongly acid, 5.1-5.5; moderately acid, 5.6-6.0; slightly acid, 6.1-6.5; neutral, 6.6-7.3; slightly alkaline, 7.4-7.8; moderately alkaline, 7.9-8.4; strongly alkaline, 8.5-9.0; and very strongly alkaline, >9.1. See HYDROGEN ION CONCENTRATION and pH. (SSS)

**SOIL SERIES** — *Pedology*. The basic unit of the U. S. Department of Agriculture soil classification being a subdivision of a family and consisting of soils which are essentially alike in all major profile characteristics except the texture of the "A" horizon. (SSS)

**SOIL, STABILIZED** — Soil hardened by addition of a binder such as cement. (AD)

**SOIL STRUCTURE** — The combination of arrangement of primary soil particles into secondary particles, units, or peds. These secondary units may be, but usually are not, arranged in the profile in such a manner as to give a distinctive characteristic pattern. (SSS)

**SOIL TEXTURE** — The relative proportions of the various size groups of individual soil grains in a mass of soil. Specifically, in the U. S. Department of Agriculture classification system it refers to the proportions of sand, silt, and clay. (YA)\*

**SOIL TRACTIONABILITY** — The capacity of a soil to provide traction for nontracked military vehicles. (AFD)

**SOIL TRAFFICABILITY** — The capacity of a soil to withstand traffic, especially the traffic of military vehicles. (AFD)

**SOIL TYPE** — *Pedology*. The lowest unit in the natural system of the U. S. Department of Agriculture soil classification; a subdivision of a soil series and consisting of or describing soils that are alike in all characteristics including the texture of the "A" horizon. (SSS)

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**SOIL VALUES** — A set of empirically determined mathematical parameters which describe the measured horizontal and vertical stress-deformation curves of natural soils or laboratory soil simulating materials.

**SOLAR CONSTANT** — The power per unit area received from the sun outside the earth's atmosphere on a surface normal to the direction of the sun at the earth's mean distance from the sun; solar irradiance prior to ATTENUATION by the earth's atmosphere.

**SOLARIZATION**, n. — An active effect of sunlight or ultraviolet upon glass which results in a reduction of transparency, and sometimes permanent coloration. A reversal or gradation sequence in a dense photographic image as a result of great overexposure.

**SOLAR NOISE** — Electromagnetic radiation from the atmosphere of the sun at radio frequencies. (AF)

**SOLAR RADIATION** — The total electromagnetic radiation emitted by the sun. To a first approximation, the sun radiates as a BLACK BODY at a temperature of about 5700°K; hence about 99.9 percent of its energy output falls within the wavelength interval from 0.20 microns to 11.0 microns, with peak intensity near 0.47 microns. (AMS)\*

**SOLAR SPECTRUM** — The relative power or flux density of solar radiation per unit wavelength (or frequency) interval as a function of wavelength (or frequency).

**SOLIFLUCTION**, n. — The slow downslope flow or creep of saturated soil, often initiated and augmented by frost action in high latitudes and at high elevations. Also called *soil flow*. (ADT)\*

**SOLONCHAK**, n. — *Pedology*. A great soil group of the intrazonal order and halomorphic suborder, consisting of soils with gray, thin, salty crust on the surface, and with fine granular mulch immediately be-

low being underlain with grayish, friable, salty soil; formed under subhumid to arid, hot or cool climate, under conditions of poor drainage. (SSS)\*

**SOLONETZ** — *Pedology*. A great soil group of the intrazonal order and halomorphic suborder, consisting of soils with a very thin, friable, surface soil underlain by a dark, hard columnar layer usually highly alkaline. (SSS)\*

**SOLOTH** — *Pedology*. A great soil group of the intrazonal order and halomorphic suborder having a gray, leached surface horizon, which rests upon a fine-textured, brown or dark-brown horizon, developed under grass or shrub vegetation, mostly in a subhumid or semiarid climate. (NAS)\*

**SOLUM**, n. (pl. SOLA) — The upper and most weathered part of the soil profile; the "A" and "B" horizons. (SSS)

**SONE**, n. — A unit of loudness. By definition, a simple tone of frequency 1000 cycles per second, 40 decibels above a listener's threshold, produces a loudness of one sone. (ASA)\*

**SONIC ALTIMETER** — An absolute altimeter which determines height above the terrain by measuring the time interval between transmission of a sound and the return of its echo. (ND)

**SONIC BOOM** — A noise caused by a SHOCK WAVE that emanates from an aircraft or other object traveling at or above the speed of sound. (NASA)\*

**SONIC THERMOMETER** — A THERMOMETER based upon the principle that the velocity of a SOUND WAVE is a function of the temperature of the medium through which it passes. The velocity of a sound wave also depends upon the velocity of the medium through which it passes; therefore, this quantity must be known. (AMS)\*

**SONNE PHOTOGRAPH** — Continuous strip photography. A photograph of a strip of terrain in which the image remains unbroken throughout its entire length, being

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produced by a moving film passing an aperture of extremely narrow width and synchronized with the speed of the aircraft. (AD)

**SORPTION**, n. — Process of taking up and holding gas, liquid or solid particles by absorption (internal solution) and/or by adsorption (surface adhesion); specifically, the action of activated charcoal and chemical agent vapors. (AD)

**SOUND**, n. — 1. An oscillation in pressure, stress, particle displacement, particle velocity, etc., in a medium with internal forces (e.g., elastic, viscous), or the superposition of such propagated oscillations. (ASA) 2. An auditory sensation evoked by the oscillation described above. (ASA)

**SOUND ABSORPTION** — The change of sound energy into some other form, usually heat, in passing through a medium or on striking a surface. (ASA)

**SOUND ATTENUATION** — The diminution of sound; for instance, pressure or velocity, from one point to another due to spherical propagation, reflection, or dissipation.

**SOUND INTENSITY (SOUND-ENERGY FLUX DENSITY or SOUND-POWER DENSITY)** — The average rate of sound energy transmitted in the specified direction through a unit area normal to this direction at the point considered. (ASA)\*

**SOUND INTENSITY LEVEL** — The intensity level, in decibels, of a sound is 10 times the logarithm to the base 10 of the ratio of the intensity of this sound to the reference intensity. The reference intensity shall be stated explicitly. (ASA)\*

*Note:* In discussing sound measurements made with pressure or velocity microphones, especially in enclosures involving normal modes of vibration or in sound fields containing standing waves, caution should be observed in using the terms "intensity" and "intensity level".

**SOUND LEVEL** — A weighted sound pressure level, obtained by the use of metering characteristics and the weightings A, B,

or C specified in American Standard Sound Level Meters for Measurement of Noise and Other Sounds, Z24.3-1944. (ASA)\*

**SOUND POWER LEVEL** — In decibels, ten times the logarithm to the base 10 of the ratio of a given power to a reference power. The reference power must be indicated. (ASA)

**SOUND PRESSURE LEVEL** — In decibels, twenty times the logarithm to the base 10 of the ratio of the pressure of a sound to the reference pressure. The reference pressure must be indicated. (ASA)\*

**SOUND SOURCE, SIMPLE** — A source that radiates sound uniformly in all directions under free-field conditions. (ASA)

**SOUND WAVE** — A mechanical disturbance advancing with finite velocity through an elastic medium and consisting of longitudinal displacements of the ultimate particles of the medium, i.e., consisting of compressional and rarefactional displacements parallel to the direction of advance of the disturbance; a longitudinal wave. (AMS)\*

**SOUND WAVES, INTERFERENCE OF** — See WAVE INTERFERENCE.

**SOURCE REGION, AIR-MASS** — An extensive area of the earth's surface over which bodies of air frequently remain for a sufficient time to acquire characteristic temperature and moisture properties imparted by that surface. (AMS)\*

**SPACE CHARGE** — Any net electrical charge that exists in a given region of space. In atmospheric electricity, space charge refers to a preponderance of either negative or positive ions within any given portion of the atmosphere. (AMS)\*

**SPALL**, n. — A chip or fragment of rock broken off by hammering or by natural agencies. The thin curved pieces split off by exfoliation are examples. (S&V)

**SPALLING**, n. — The chipping or fragmenting of a surface or surface coating caused, for example, by differential thermal ex-

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- pansion or contraction. See EXFOLIATION. (ECS)
- SPECIES, n. — A group of plants or animals which have many distinctive characteristics in common and which produce offspring with the same distinctive characteristics. (ADT)
- SPECIFIC HEAT — The heat capacity of a system per unit mass, i.e., the ratio of the heat absorbed (or released) by unit mass of the system to the corresponding temperature rise (or fall). (AMS)\*
- SPECIFIC HUMIDITY — In a system of moist air, the (dimensionless) ratio of the mass of WATER VAPOR to the total mass of the system. The specific humidity may be approximated by the MIXING RATIO for many purposes. (AMS)\*
- SPECTRUM, n. — 1. A description of a resolution into components, each of different frequency and (usually) different amplitude and phase. (ASA) 2. A continuous range of components, usually wide in extent, within which waves have some specified common characteristic; e.g., *audio-frequency spectrum*. (ASA) 3. The relative energy, power, or flux density per unit frequency (or wavelength) interval as a function of frequency (or wavelength). 4. A graphical representation of any distribution function.
- SPEECH INTERFERENCE LEVEL — The average, in decibels, of the sound pressure levels of a noise in the three octave bands of frequency 300-600 cps, 600-1200, 1200-2400, and 2400-4800 cps.
- SPEED OF SOUND — 1. The speed at which sound travels in a given medium under specified conditions. The speed of sound at sea level in the International Standard Atmosphere is 1108 ft/second, 658 knots, 1215 km/hour. (JD) 2. In the United States' Standard Atmosphere, 1962, and the atmosphere adopted by the International Civil Aeronautics Organization, the speed of sound in air at zero altitude is 340.294 m/sec or 1116.45 ft/sec.
- SPILLOVER, n. — That part of OROGRAPHIC PRECIPITATION which is carried along by the wind so that it reaches the ground in the nominal RAIN SHADOW on the lee side of the barrier. (AMS)
- SPIT, n. — A small point of land or narrow shoal projecting into a body of water from the shore. (GS)
- SPORADIC PERMAFROST — One or more deposits of perennially frozen ground surrounded by ground which is not perennially frozen. Sporadic permafrost occurs along the southern limits of regions where summer frost conditions are usual. (ADT)
- SPOUT, n. — A phenomenon consisting of an often violent whirlwind, revealed by the presence of a cloud column or inverted cloud cone (funnel cloud), protruding from the base of a cumulonimbus, and of a "bush" composed of water droplets raised from the surface of the sea or of dust, sand or litter, raised from the ground. (WMO)\* Spout includes both TORNADO and WATERSPOUT.
- SPRAY, n. — An ensemble of water droplets torn by the wind from the surface of an extensive body of water, generally from the crests of waves, and carried up a short distance into the air. (WMO)\*
- SPRING, n. — A place where water issues naturally from the rock or soil upon the land or into a body of surface water. (GS)
- SPRING SNOW — A coarse, granular, wet snow, resembling finely chopped ice, generally found in the spring. Also called *corn snow*. (ADT)
- SQUALL, n. — 1. A strong wind characterized by a sudden onset, a duration of the order of minutes, and a rather sudden decrease in speed. (AMS)\* 2. A severe local storm considered as a whole, that is winds and cloud mass and (if any) precipitation, thunder, and lightning. (AMS)\*
- SQUALL LINE — Any non-frontal line or narrow band of active THUNDER-

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- STORMS** (with or without **SQUALLS**); a mature instability line. (AMS)\*
- STACK**, n. — A lofty, isolated mass of rock left standing in the sea by the quarrying and erosive action of the waves. (S&V)
- STAGE**, n. — The height of a water surface above an established datum plane. (MH)
- STAGE-CAPACITY CURVE** — A graph showing the relation between the surface elevation of the water in a reservoir, usually plotted as ordinate, against the volume below that elevation, plotted as abscissa. (MH)
- STAGE-DISCHARGE CURVE** (or **RATING CURVE**) — A graph showing the relation between the gage height, usually plotted as ordinate, and the amount of water flowing in a channel, expressed as volume per unit of time, plotted as abscissa. (MH)
- STAGNATION TEMPERATURE** — The temperature created on the leading edges of an aircraft or spacecraft traveling through the atmosphere. Refers to the complete standstill of air molecules on the leading edges of the craft. (AF)
- STAIN**, n. — A discoloration of wood caused by fungus or chemical agencies. This includes blue stain, iron-tannate stain, mineral stain, weather stain, wound stain, etc. (SAF)\*
- STANDARD ARTILLERY ATMOSPHERE** — A set of values describing atmospheric conditions on which ballistic computations are based, namely: no wind; a surface temperature of 15°C; a surface pressure of 1000 millibars; a surface relative humidity of 78%; and a lapse rate which yields a prescribed density-altitude relation. (AMS)
- STANDARD ARTILLERY ZONE** — A vertical subdivision of the **STANDARD ARTILLERY ATMOSPHERE**; it may be considered a layer of air of prescribed thickness and altitude. (AMS)
- STANDARD ATMOSPHERE** — See **ATMOSPHERE, STANDARD**.
- STANDARDIZE**, v.t. — To reduce to, or compare with, a standard; to calibrate. In the environmental field, the verification process by whatever steps are necessary, to assure that all investigators in a given field are performing in a similar manner and will produce similar results.
- STANDARD PRESSURE** — In meteorology, the arbitrarily selected atmospheric pressure of 1000 mb to which adiabatic processes are referred for definitions of **POTENTIAL TEMPERATURE**, equivalent potential temperature, etc. Other pressures may be used as standard for specific purposes. (AMS)
- STANDARD TEMPERATURE** — In physics, usually the ice point (0°C); less frequently, the temperature of maximum water density (4°C). In meteorology, this has no generally accepted meaning, except that it may refer to the temperature at zero pressure-altitude in the **STANDARD ATMOSPHERE** (15°C). (AMS)
- STANDARD TEMPERATURE AND PRESSURE** — A phrase used in physics to indicate a temperature of 0°C and a pressure of one **STANDARD ATMOSPHERE**. (AMS)
- STANDING WAVE** — A periodic wave (time-wise) having a fixed amplitude distribution in space. A standing wave can be considered to be the result of interference of progressive waves of the same frequency and kind. (ISO)\*
- STANDING-WAVE RESONANT SYSTEM** — 1. A resonant system terminating at a node. 2. A traveling-wave transmission system terminated by a reflecting element in such manner that some characteristic of the reflected wave field will be in phase with that of the transmitted wave field at a resonant frequency, resulting in standing maxima and minima.
- STAR DUNE** — An eolian deposit normally composed of a large peak from which four or more ridges radiate. The cross-sectional

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- shapes may include combinations of rolling and crested.
- STATE-OF-THE-GROUND CODE** — A standardized surface synoptic observation which describes the condition of the ground surface. Basically, the states-of-the-ground are recognized as dry, moist, wet, frozen, and ice or snow covered. The system has been used by the World Meteorological Organization since its creation in 1950 and by its predecessor, the International Meteorological Organization, since 1923.
- STATIC DEHUMIDIFICATION** — The dehumidification of a space accomplished by placing a predetermined quantity of desiccant in a space to take up the moisture contained therein without forced air circulation through the desiccant.
- STATIC ELECTRICITY** — A negative or positive charge of electricity that an object accumulates, which charge creates a spark when the object comes near another object to which it may transmit its charge, or from which it may receive a charge. (AFD)\*
- STEAM FOG** — FOG formed when water vapor is added to air which is much colder than the vapor's source; most commonly, when very cold air drifts across relatively warm water. (AMS)\*
- STEP GAGE** — A type of instrument which indicates that motion of a specified severity has occurred. Generally, the severity of the motion is defined in terms of a value of maximum acceleration which has been reached or exceeded. (SVH)
- STEPPE, n.** — A term of Russian origin for a level or rolling, treeless land, where temperature ranges usually are extreme. (ADT)
- STEREOCOMPARAGRAPH, n.** — Stereoscopic instrument used for the preparation of topographic maps to determine ground elevations by measuring the displacement of their images on photographs. (AD)
- STEREOPHOTOGRAMMETRY, n.** — Photogrammetry, with the aid of stereoscopic equipment and methods. (AD)
- STEREOPLANIGRAPH, n.** — A very accurate stereoscopic photogrammetric mapping instrument with mechanical drafting attachment, capable of providing a stereoscopic picture from overlapping photographs, regardless of angle at which they were taken. (AD)
- STICKINESS** — The ability of soils to cling to and build up on the running gear of vehicles.
- STIFFNESS** — The ratio of change of force (or torque) to the corresponding change in translational (or rotational) deflection of an elastic element. (SVH)
- STONE, n.** — A rock fragment greater than ten inches in diameter if rounded, and greater than fifteen inches along the greater axis if flat. (SSS)
- STORAGE, n.** — 1. Water artificially impounded in surface or underground reservoirs, for future use. The term *regulation* refers to the action of this storage in modifying **STREAMFLOW**. (MH) 2. Water naturally detained in a drainage basin, such as **GROUND WATER**, channel storage, and depression storage. (MH)\*
- STORM, n.** — 1. Any disturbed state of the atmosphere, especially as affecting the earth's surface, and strongly implying destructive or otherwise unpleasant weather. (AMS)\* 2. In the **BEAUFORT WIND SCALE**, a wind whose speed is 56 to 63 knots (64 to 72 mph). (AMS)
- STORM CENTER** — The area of lowest atmospheric pressure of a **CYCLONE**. This is a more general expression than **EYE OF THE STORM**, which refers only to the center of a well-developed tropical cyclone, in which there is a tendency of the skies to clear. (ND)
- STORM TRACK** — The path followed by a center of low atmospheric pressure. (AMS)

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- STRAIN**, n. — Deformation caused by stress. Technically, strain is the elongation or shortening per unit of original length of a body under tension or compression, or the distortion in angle between two planes in a body under shear stress. (S&V)
- STRAND LINE** — Driftwood scattered along a river bank or a sea coast which indicates the flood level or high tide mark. (ADT)
- STRAIT**, n. — A relatively narrow body of water connecting two larger bodies. (GS)
- STRATIFICATION**, n. — The characteristic structural feature of sedimentary rocks produced by the deposition of sediments in beds, layers, strata, laminae, lenses, wedges, and other essentially tabular units. (S&V)\*
- STRATOCUMULUS**, n. — A principal cloud type (cloud genus), predominantly stratiform, in the form of a gray or whitish layer or patch, which nearly always has dark parts and is non-fibrous. Its elements are tessellated, rounded, roll-shaped, or undulatory. (AMS)\*
- STRATUS**, n. — A principal cloud type (cloud genus) in the form of a gray layer with a rather uniform base. Stratus does not usually produce precipitation, but when it does occur it is in the form of minute particles, such as DRIZZLE. (AMS)\*
- STREAM**, n. — 1. A course of water flowing between approximately parallel banks, such as a river. (ND) 2. A long narrow area of drift ice, usually consisting of small fragments detached from the main belt and drifting under the influence of wind or current. (ND) 3. A steady flow of a fluid, small solid particles, or radiant energy. (ND)
- STREAM CHANNEL** — The bed where a natural stream of water runs; the trench or depression washed in the surface of the earth by running water; a wash, arroyo, or coulee. (GS)
- STREAMFLOW**, n. — The discharge that occurs in a natural channel. Although the term *discharge* can be applied to the flow of a canal, the word *streamflow* uniquely describes the discharge in a surface stream course. Streamflow may be applied to discharge whether or not it is affected by diversion or regulation. (MH)\*
- STREAM GAGING** — The process and art of measuring the depths, areas, velocities, and rates of flow in natural or artificial channels. (MH)
- STREAMLINE**, n. — A line whose tangent at any point in a fluid is parallel to the instantaneous velocity of the fluid at that point. (AMS)
- STREAMLINE FLOW** — A steady flow of fluid past a body in which the fluid remains smooth and relatively unchanged, as in LAMINAR FLOW. (AFD)
- STREAM ORDER** — A method of numbering streams as part of a drainage basin network. The smallest unbranched mapped tributary is called first order, the stream receiving the tributary is called second order, and so on. (MH)\*
- STRESS**, n. — 1. In general, a resultant condition of applied force. 2. *Mechanics*. a. A condition existent in a body when its internal structure or surfaces resist a force that produces or tends to produce deformation in the body. b. Molecular resistance to change in shape or size. (AFD)\*
- STRESS, ALLOWABLE** — The permissible maximum stress used in the design of a structure or component which takes into account efficiency in the use of material and uncertainties in expected conditions of service, in properties of the material and in stress analysis.
- STRESS, CLIMATIC** — The stresses which are components of the climatic phase of the environment, such as temperature, moisture, solar radiation, atmospheric pressure, wind, rain, etc.

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**STRESS CORROSION CRACKING**—Cracking resulting from the combined effect of **CORROSION** and **STRESS**. (ECS)

**STRESS, DYNAMIC** — **STRESS** induced in an elastic element by the dynamic deflection applied to it.

**STRESS ENDURANCE LIMIT**—The value of alternating stress, repetitively applied to an elastic element, below which the element is not expected to experience fatigue failure after an infinite (or extremely large) number of stress reversals.

**STRESS, ENVIRONMENTAL** — The component force of an **ENVIRONMENT**. (Temperature, humidity, solar radiation, etc. are environmental stresses).

**STRESS, INDUCED** — A stress which is a component of the man-made phase of the environment, such as acceleration, shock, and vibration.

**STRESS, STATIC** — Stress induced in an elastic element by the static deflection applied to it.

**STRIKE, n.** — The direction of a line formed by the intersection of a bedding plane, vein, fault, slaty cleavage, schistosity, or similar geologic structure, with a horizontal plane. It is at right angles to the *dip*. (S&V)

**STRUCTURE, SOIL** — The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. (YA)\*

**SUBARCTIC, n.** — 1. A region of variable width immediately south of the arctic. Within this area the mean temperature of the warmest 4-month period is less than 50 degrees Fahrenheit. (AD) 2. Those land areas which extend south from the northern limit of forest to the northern limit of the developed transportation net are considered operationally to be subarctic. Although treeless, such coastal areas as the

Aleutians are subarctic rather than arctic. (AD)

**SUBLIMATION, n.** — The transition of a substance from the solid phase directly to the vapor phase, or *vice versa*, without passing through an intermediate liquid phase. (AMS)\*

**SUBLIMATION NUCLEUS** — Any particle upon which an **ICE CRYSTAL** may grow by the process of **SUBLIMATION**. (AMS)\*

**SUBSCALE FORMATION** — The precipitation of one or more oxides of alloying elements beneath the external surface of an alloy as a result of oxygen diffusing into the alloy from an external source. (ECS)

**SUBSIDENCE, n.** — 1. *Meteorol.* A descending motion of air in the atmosphere, usually with the implication that the condition extends over a rather broad area. (AMS) 2. *Geol.* A sinking of a large area of the earth's crust. (S&V) 3. *Soil Mechanics.* A settling of surface soils, particularly unconsolidated materials, either by the introduction of moisture into upper layers and resulting lubrication, or by removal of moisture (either by pumping or lowering the water table) from lower strata, leaving voids filled by weight of the overburden.

**SUBSOIL, n.** — *Pedology.* The "B" horizons of soils with distinct profiles. In soils with weak profile development, the subsoil can be defined as the soil below the plowed soil (or its equivalent of surface soil), in which roots normally grow. (YA)

**SUBSONIC, adj.**—Of or pertaining to speeds less than the speed of sound. (JD)

**SUBSURFACE RUNOFF** — That part of precipitation which infiltrates the surface soil, and moves toward the streams as ephemeral, shallow, perched ground water above the main ground-water level. (MH)\*

**SUBSURFACE WATER** — Water that exists below the surface of the **LITHOSPHERE**. It may be in liquid, solid, or

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- gaseous state. See **GROUND WATER** and **SOIL AIR**. (S&V)
- SUBTERRANEAN STREAM** — A body of flowing water that passes through a very large interstice, such as a cave or cavern, or a group of large communicating interstices. (S&V)
- SUBTROPICAL HIGH** — One of the semi-permanent anticyclones of the subtropical high-pressure belt. They appear as centers of action on mean charts of surface pressure. They lie over oceans, and are best developed in the summer season. (AMS)
- SUCCESSION**, n. — The replacement of one plant community by another. (SAF)\*
- SUMMIT**, n. — The highest point of any undulating land, as of a rolling plain; a mountain. The apex, the top, or the highest point of any landform. (GS)
- SUNSCALD**, n. — 1. Localized injury to bark and cambium often resulting in wounds and caused by a sudden increase in exposure of a stem to intense sunshine and high temperatures. (SAF) 2. A blanching of surface tissues of leaves from sudden exposure to hot sun. (SAF)
- SUNSHINE**, n. — Direct radiation from the sun, as opposed to the shading of a location by clouds or by other obstructions. (AMS)\*
- SUPERCOOL**, v.t. — To cool below the freezing point without solidification.
- SUPERCOOLED CLOUD** — A cloud composed of supercooled liquid water drops. The importance of such clouds lies in their unstable compositions, since natural or artificial addition of ice crystals or other ice nuclei will initiate the rapid phase change to a mixed cloud or to an ice crystal cloud. (AMS)\*
- SUPERCOOLING**, n. — The reduction of temperature of any liquid below the melting point of the substance's solid phase; that is, cooling beyond its nominal **FREEZING POINT**. (AMS)\*
- SUPERSATURATION**, n. — In meteorology, the condition existing in a given portion of the atmosphere (or other space) when the **RELATIVE HUMIDITY** is greater than 100 percent, that is, when it contains more **WATER VAPOR** than is needed to produce **SATURATION** with respect to a plane surface of pure water or pure ice. (AMS)\*
- SUPERSONIC**, adj. — Of or pertaining to speed in excess of the speed of sound. (JD)
- SUPRAPERMAFROST LAYER** — Thickness of ground above the **PERMAFROST**, consisting of **ACTIVE LAYER**, **TALIK**, and also the **PERELETOK**, wherever present. (AD)
- SUPRAPERMAFROST WATER-GROUND WATER** above the **PERMAFROST** table. (ADT)
- SURFACE GEOMETRY** — The three-dimensional configuration of the terrain surface. (WES)
- SURFACE INVERSION** — A **TEMPERATURE INVERSION** based at the earth's surface; that is, an increase of temperature with height beginning at the ground level. This condition is due primarily to greater radiative loss of heat at and near the surface than at levels above. (AMS)\*
- SURFACE RUNOFF** — That part of the runoff which travels over the soil surface to the nearest stream channel. It is also defined as that part of the runoff of a drainage basin that has not passed beneath the surface since precipitation. (MH)
- SURFACE SOIL** — The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, about five to eight inches in thickness. (YA)
- SURFACE STORAGE** — The part of precipitation retained temporarily at the ground surface as interception or depression storage so that it does not appear as infiltration or surface runoff either during the rainfall or shortly thereafter. (AMS)

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**SURFACE WATER** — Water on the surface of the earth. (MH)

**SURVEY, GEODETIC** — That survey which takes into consideration the size and shape of the earth; implies a reference spheroid which represents the geoid and the horizontal and vertical control datums. (AD)

**SURVEY METER** — A portable instrument, such as a Geiger counter or ionization chamber, used to detect nuclear radiation and to measure the dose rate. (AD)

**SURVEY, PLANE** — That survey in which the effect of the curvature of the earth is almost entirely neglected, and computations of the relative positions of the stations are made using the principles of plane geometry and trigonometry. (AD)

**SWALE, n.** — A slight depression in generally level land, usually covered with a rank growth of grass and often marshy. (NAS)\*

**SWAMP, n.** — 1. In general, any area of continuously saturated or spongy ground having poor drainage; therefore synonymous with MARSH. 2. In botany, an area of continuously saturated ground, supporting large aquatic plants having submerged or floating leafy shoots, often dominated by shrubs and trees. (ADT)

**S-WAVE** (Also called SECONDARY WAVE, SHEAR WAVE, TRANSVERSE WAVE) — A transverse body wave which travels through the interior of an elastic medium. Originally applied to earthquake seismology where it was the second (hence: S) type of wave to arrive at a recording station.

**SWAY SPACE** — The total space occupied by all parts of a resiliently supported body during all of its possible translational and rotational elastic excursions from its static or quiescent position.

**SWEAT, n.** — Condensed water vapor on a relatively cold surface, similar to DEW. The term dew usually refers to condensed vapor on natural objects such as leaves and grass when they are cooled during the

night, while sweat refers more specifically to condensed vapor on a man-made object, such as a pipe or an instrument, at any time. (ND)

**SWEEP, n.** — An increase or decrease of applied vibration test frequency between two frequency limits, the rate of change of frequency being a particular function of time or frequency.

**SWEEP RATE** — In vibration testing, (a) the rate of change of applied frequency, expressed as a function of time or frequency; (b) the instantaneous value of the rate of change at a particular time or frequency.

**SWELL, n.** — 1. Ocean waves which have traveled out of their generating area. Swell characteristically exhibits a more regular and longer period and has flatter crests than waves within their FETCH. 2. A long, broad elevation that rises gently and generally smoothly from the sea floor. (Also called RISE.) (NOO)\*

**SWELL-AND-SWALE** — The type of topography characteristic of the ground moraine of a continental glacier. Gentle, well-rounded hills alternate with corresponding subdued depressions. (S&V)

**SWELLING, n.** — The expansion of wood caused by the sorption of swelling liquids, such as water, when the liquid content of the material is below the fiber-saturation point for the liquid sorbed. (SAF)\*

**SWIMMING CAPABILITY** — As applied to vehicles, the ability of a vehicle to negotiate water obstacles by propelling itself across, without being in contact with the bottom. (AD)

**SYMBOLIC FORM** — Conventions of arrangement used by international agreement for transmitting weather information in order to conserve time and expense. (AD)

**SYNOPTIC CLIMATOLOGY** — The study and analysis of CLIMATE in terms of syn-

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optic weather information principally in the form of synoptic charts. The information thus obtained gives the climate of a given locality in a given synoptic situation, rather than the usual climatic parameters which represent averages over all synoptic conditions. (AMS)\*

**SYNOPTIC METEOROLOGY** — The study and analysis of synoptic weather information (synoptic charts, synoptic weather observations). (AMS)

**SYNOPTIC WEATHER CHART** — A chart of any extended portion of the earth's surface on which are delineated the weather conditions at different points observed at the same moment of actual time. (AD)

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**TABLELAND, n.** — A flat or undulating elevated area; a plateau or mesa. (GS)

**TABULAR ICEBERG** — A mass of ice, with a flat tablelike surface and an upper portion formed of stratified snow or firn, which has calved from an ice shelf. (See **ICE ISLAND** and **SHELF BERG**). (ADT)

**TACTICAL LOCALITY** — An area of terrain which, because of its location or features, possesses a tactical significance in the particular circumstances existing at a particular time. (JD)

**TAIGA, n.** — A term of Russian origin for the circumboreal or circumpolar forest belt of the Northern Hemisphere. The predominant trees of the taiga are conifers, principally pine, fir, spruce, and larch; hardwood species also occur, as birch, aspen, and alder. (ADT)\*

**TALIK, n.** — A Russian term applied to permanently unfrozen ground in regions of **PERMAFROST**. It usually applies to a layer which lies above the permafrost, but below the active layer. (AD)

**TALUS, n.** — A collection of fallen disintegrated material that has formed a slope at

the foot of a steeper declivity. (GS)

**TANGENTIAL ADFREEZING STRENGTH** — The resistance to the force required to shear off an object which is frozen to the ground, and to overcome the friction along the plane of contact between the ground and the object. (ADT)

**TARN, n.** — A small mountain lake or pool. (GS)

**TARNISH, n.** — Discoloration of a metal surface due to a formation of an adherent continuous film of corrosion products. (ECS)

**TELEMETER, n.** — The measuring, transmitting, receiving, and indicating apparatus for obtaining the value of a quantity at a distance. The **RADIOSONDE** system is a meteorological example of a telemeter, or telemeteorograph. (AMS)

**TELEMETRY** — The science concerned with measuring a quantity or quantities, transmitting the results to a distant station, and interpreting, indicating, or recording the quantities measured. (NASA)\*

**TEMPERATE CLIMATE** — Very generally, the climate of the "middle" latitudes; the variable climate between the extremes or tropical climate and polar climate. (AMS)\*

*Note:* This term has no precise meaning and cannot be used to delimit a particular range of climatic conditions.

**TEMPERATE RAINFOREST** — A type of forest which exists in cool but generally frost-free regions of heavy annual precipitation. (AMS)\*

**TEMPERATURE GRADIENT** — The rate of change in temperature between one point and another. (AFD)

**TEMPERATURE INVERSION** — A layer of air in which temperature increases with altitude. The principal characteristic of an inversion layer is its marked static stability, so that very little turbulent exchange can occur within it. (AMS)\*

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**TEMPERATURE, MEAN RADIANT**—The temperature at which an object gives out as much radiation as it receives from its surroundings. (AMS)\*

**TEMPERATURE, SURFACE**—1. In meteorology, the temperature of the air near the surface of the earth, almost invariably determined by a thermometer in an INSTRUMENT SHELTER. (AMS) Also called *shelter temperature*. 2. In oceanography, the temperature of the layer of sea water nearest the atmosphere. It is generally determined either as *bucket temperature* or *injection temperature*. (AMS)

**TEMPERATURE SHOCK**—1. A sudden, severe change in the temperature of a piece of equipment. 2. An environmental test intended to simulate the effect of such a change.

**TERMINAL MORAINE**—A rampart of drift, predominantly TILL, deposited at the terminus of a glacier. Also called an *end moraine*, *frontal moraine*. (ADT)\*

**TERMINAL VELOCITY**—Hypothetical maximum speed a body could attain along a specified flight path under given conditions of weight and thrust if diving through an unlimited distance in air of specified uniform density. (JD)

**TERRACE, n.**—1. A BERM, or discontinuous segments of a berm, in a valley at some height above the flood plain, representing a former abandoned flood plain of the stream. (MH) 2. A relatively narrow plain or bench on the side of a slope terminating in a short declivity; a plain, natural or artificial, from which the surface descends on one side and ascends on the other. (GS)

**TERRAIN, n.**—An area considered as to its extent, and man-made and natural features in relation to its use for military operations. (FM)

**TERRAIN ANALYSIS**—The process of interpreting a geographical area to determine the effect of the natural and man-made features on military operations. This in-

cludes the influence of weather and climate on those features. (FM)

**TERRAIN ANALYZER**—A mobile instrument developed by the Land Locomotion Laboratory for rapid measurement and automatic reduction of soil strength and terrain profile data, and consisting of a mounting vehicle, a Bevameter, a gyro-referenced two point profile follower, and electronic components.

**TERRAIN ESTIMATE**—That portion of an analysis of the area of operations which concerns the description of the terrain, the military aspects of the terrain, and the effects of the characteristics of terrain on enemy and friendly courses of action, including their influence on the response to nuclear weapon effects. (FM)

**TERRAIN EVALUATION**—The valuation and interpretation of an area of probable military operations to determine the effect of the terrain on the lines of action open to opposing forces in this area. (AD)

**TERRAIN FACTOR**—A specific attribute of the terrain that can be described in quantitative terms. (WES)

**TERRAIN INTELLIGENCE**—Processed information on the military significance of natural and man-made characteristics of an area. (JD)

**TERRAIN PROFILE**—A geometric representation of the earth's surface as an amplitude distance curve.

**TERRAIN STUDY**—An analysis and interpretation of natural and man-made features of an area, their effects on military operations, and the effect of weather and climate on these features. (JD)

**TERRAIN TRAFFICABILITY**—The ability of terrain to support the passage of vehicles. (WES)

**TERRAIN TYPE**—A region throughout which a specified assemblage of factors occurs. (WES)

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**TERRESTRIAL RADIATION (or EARTH RADIATION)** — The total **INFRARED RADIATION** emitted from the earth's surface; to be carefully distinguished from effective terrestrial radiation, atmospheric radiation, and **INSOLATION**. (AMS)

**TEST, ACCELERATED** — A test designed to shorten testing time by increasing the severity of the test. This includes what might be termed "aggravated" testing where the limits are extended so as to introduce a greater degree of severity.

**TEST, DESTRUCTIVE, n.** — 1. A test in which materiel or equipment is subjected to environmental conditions which are inherently damage-producing or destructive. 2. A test in which materiel or equipment is intentionally damaged to determine its damage or fatigue resistance.

**TEST, ENDURANCE** — A dynamic fatigue test (e.g., vibration test) usually conducted at accelerated stress levels.

**TEST, ENVIRONMENTAL FIELD**—A test in which a piece of equipment or an entire system is exposed or operated under natural environmental conditions.

**TEST, ENVIRONMENTAL SIMULATION** — A test in which a piece of equipment or an entire system is exposed or operated under simulated service conditions, usually in a laboratory.

**TEST, NONDESTRUCTIVE** — 1. A test in which materiel or equipment is subjected to environmental conditions which are inherently non-damaging or non-destructive. 2. A test in which materiel or equipment is subjected to inherently damage-producing conditions, but the stress levels or exposure times are intentionally reduced to prevent equipment damage or destruction.

**TEST, SIMULATED SERVICE** — A controlled test, usually conducted in a laboratory, designed to produce results having a meaningful relationship to those produced in service under natural environmental conditions.

**TEXTURAL CLASS** — *Pedology*. Kinds of soil material according to the proportions of sand, silt, and clay. The principal U. S. Department of Agriculture textural classes in soil, in increasing order of the amount of silt and clay, are as follows: sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay. (YA)\*

**THALWEG, n.** — *Geol.* 1. The line following the lowest part of a valley, whether under water or not. 2. The line of continuous maximum descent from any point on a land surface, or that cutting all contours at right angles. (S&V)\*

**THAW, n.** — A weather condition occurring when the temperature rises above the freezing point and ice and snow melt. (ADT)

**THAWING INDEX** — The number of degree days (above and below 32°F) between the lowest and highest points on the cumulative degree days time curve for one thawing season. It is used as a measure of the combined duration and magnitude of above-freezing temperatures occurring during any given thawing season. (ADT)

**THEORETICAL GRAVITY** — The value of gravity at the earth's surface if the earth were a perfect sphere with no variation in mass to induce anomalies. (AF)

**THERMAL, n.** — A relatively small-scale, rising current of air produced when the atmosphere is heated enough locally by the earth's surface to produce absolute instability in its lowest layers. For example, glider pilots seek out and ride "thermals," showing how strong and persistent the thermal updraft may be.

**THERMAL BARRIER**—1. A popular term for flight speed limitations imposed by aerodynamic heating. Also called the *heat-barrier*. (NASA) 2. An insulation wall, layer, blanket, enclosure, or heat exchanger designed to protect equipment from the effects of high temperatures.

**THERMAL CONDUCTIVITY** — An intrinsic

sic physical property of a substance, describing its ability to conduct heat as a consequence of molecular motion. (AMS)\*

**THERMAL DETERIORATION** — Impairment of physical properties due to effects of high or very low temperatures.

**THERMAL EFFICIENCY** — In climatology, an expression of the effectiveness of temperature in determining the rate of plant growth, assuming sufficient moisture. (AMS)\*

**THERMAL EXPOSURE** — The total normal component of thermal radiation striking a given surface throughout the course of a detonation; expressed in the units: calories per square centimeter. (AD)

**THERMAL HEATING** — Aerodynamic heating produced by supersonic and hypersonic travel through the atmosphere; transfer of heat from a laminar or turbulent flow around the nose of a re-entry body as it loses kinetic energy. (AF)

**THERMAL INSTABILITY** — 1. The instability resulting in free CONVECTION in a fluid heated at a boundary. (AMS)\* 2. In meteorology, the instability of a body of air with respect to its temperature distribution. (AFD)\*

**THERMAL LOAD** — Stresses imposed upon a missile structure because of expansion or contraction (or both) of certain structural elements by aerodynamic heating during flight and re-entry, by exposure to the heat of a rocket flame, or by cooling effects of liquid oxygen in the oxidizer system. (AF)

**THERMAL RADIATION** — 1. The heat and light produced by a nuclear explosion. (JD)  
2. Electromagnetic radiation emitted by any substance as a result of thermal excitation of its molecules.

**THERMAL SHOCK** — See TEMPERATURE SHOCK.

**THERMISTOR**, n. — A device whose electrical resistance varies markedly and mon-

otonically and which possesses a negative temperature coefficient of resistivity. The thermistors used in meteorology are composed of solid semi-conducting materials whose resistance decreases 4 percent per  $^{\circ}\text{C}$ . They are constructed in a variety of sizes, and may be obtained with thermal time-constants of a milli-second or less. Meteorological applications include THERMOMETERS, ANEMOMETERS, and BOLOMETERS. (AMS)

**THERMOCOUPLE**, n. — A temperature-sensing element which converts thermal energy directly into electrical energy. In its basic form it consists of two dissimilar metallic electrical conductors connected in a closed loop. One pair of junctions form a thermocouple, several pairs form a thermopile. If electrical energy is passed through a thermocouple it creates "cold" (Peltier effect) which can be used for refrigeration.

**THERMOGRAM**, n. — The record of a THERMOGRAPH. (AMS)

**THERMOGRAPH**, n. — A self-recording THERMOMETER. The thermometric element is most commonly either a bimetal strip or a BOURDON TUBE filled with a liquid. (AMS)\*

**THERMOKARST**, n. — Karst-like topographic features produced by the melting of ground ice and the subsequent settling or caving of ground, characterized by an uneven topography with short ravines, sink holes, funnels, and caverns similar to those produced in a limestone terrain by the solvent action of water. (AD)

**THERMOMETER**, n. — An instrument for measuring temperature by utilizing the variation of the physical properties of substances according to their thermal states. (AMS)\*

**THERMOMETER, SONIC** — A thermometer based on the principle that the velocity of a sound wave is a function of the temperature of the medium through which it passes.

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- THIN NATURAL SCREEN** — Natural growth left in front of entrenchments and emplacements to aid in concealing them. (AD)
- THUNDER**, n. — The sound emitted by rapidly expanding gases along the channel of a lightning discharge. (AMS)\*
- THUNDERHEAD**, n. — A popular term for the *incus* ("anvil") of a cumulonimbus cloud; or, less appropriately, the upper portion of a swelling cumulus, or the entire cumulonimbus. (AMS)
- THUNDERSTORM**, n. — In general, a local storm invariably produced by a cumulonimbus cloud, and always accompanied by **LIGHTNING** and **THUNDER**, usually with strong gusts of wind, heavy rain, and sometimes **HAIL**. It is usually of short duration, seldom lasting over two hours for any one storm. (AMS)\*
- TIDAL CURRENT** — The alternating horizontal movement of water associated with the rise and fall of the tide caused by the astronomical tide-producing forces. In relatively open locations, the direction of tidal currents rotates continuously through 360 degrees diurnally or semidiurnally. In coastal regions, the nature of tidal currents will be determined by local topography as well. (NOO)
- TIDAL FLAT**—A marsh or sandy or muddy coastal flatland which is covered and uncovered by the rise and fall of the tide. (NOO)
- TIDAL MARSH** — Any marsh or flatland, the surface of which is wetted by a tidal flow. (GS)
- TIDE**, n. — The periodic rising and falling of the earth's oceans and atmosphere. It results from the tide-producing forces of the moon and sun acting upon the rotating earth. This disturbance actually propagates as a wave through the atmosphere and through the surface layer of the oceans. (NOO)\*
- TIDE GAGE** — A device for measuring the height of **TIDE**. It may be simply a graduated staff in a sheltered location where visual observations can be made at any desired time; or it may consist of an elaborate recording instrument (sometimes called *marigraph*) making a continuous graphic record of tide height against time. Such an instrument is usually actuated by a float in a pipe communicating with the sea through a small hole which filters out the shorter waves. (NOO)
- TILL**, n. — Unsorted and unstratified rock fragments ranging in size from clay to boulders, deposited directly by a glacier. Sometimes called *boulder clay* or *glacial till*. (ADT)
- TILL PLAIN** — Relatively level area of **GROUND MORAINE** consisting of till.
- TIMBERLINE**, n. — 1. The upper limit of erect trees in mountainous regions. (ADT)  
 2. The northern limit of erect trees in the Arctic. (ADT) Also called *tree line* or *forest limit* (both senses).
- TOMBOLO**, n. — A sandbar built by the sea, tying an island to the mainland. (GS)
- TONE**, n. — 1. A sound wave capable of exciting an auditory sensation having pitch. (ASA) 2. A sound sensation having pitch. (ASA)
- TOPOGRAPHIC MAP** — A map which presents the vertical position of features in measurable form as well as their horizontal positions. (JD)
- TOPOGRAPHIC PLOT** — Representation, by means of contour lines, of the ground relief of an area shown in a stereoscopic model. (AD)
- TOPOGRAPHY**, n. — The physical features, both natural and man-made, of the earth's surface. In terrain analysis the following categories of topographical features are considered: relief, drainage, surface materials, vegetation, special physical phenomena, and man-made (cultural) features. (FM)
- TORNADO**, n.—A violently rotating column

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- of air, pendant from a cumulonimbus cloud, and nearly always observable as a "funnel cloud" or *tuba*. On a local scale, it is the most destructive of all atmospheric phenomena. (AMS)\*
- TORR, n. — A unit for measurement of a state of vacuum, defined as 1/760th of a standard atmosphere; a torr is very nearly equal to a millimeter of mercury.
- TORSIOGRAPH, n. — A type of VIBROGRAPH designed for the measurement of torsional vibration.
- TOUGHNESS, n. — The ability of material to absorb energy during plastic deformation.
- TOWN FOG — An ICE FOG created by extremely low temperatures (minus 50 to 65 degrees Fahrenheit), usually noticeable over more or less densely inhabited places, because of the conflict between locally generated warm moist air and the surrounding cold air. At extremely low temperatures such a fog may appear over a body of troops, herd of cattle, gasoline powered vehicles, artillery fire, etc. (AD)\*
- TOWNSEND SUPPORT — A fixed support mounting MAXIMUM and MINIMUM THERMOMETERS of the liquid-in-glass type. The support holds the thermometers at the correct operating attitude and also permits their rotation for resetting when desired. (AMS)
- TRAFFICABILITY — Capability of terrain to bear traffic. It refers to the extent to which the terrain will permit continued movement of any and/or all types of traffic. (AD)
- TRANSDUCER, n. — A device for converting energy from one form to another. For example, a THERMOCOUPLE transduces heat energy into electrical energy. (AMS)
- TRANSMISSIBILITY — The non-dimensional ratio of the response amplitude of a system in a steady-state forced vibration to the vibration amplitude. The ratio may be one of forces, displacements, velocities, or accelerations. (SVH)
- TRANSMISSIBILITY, ABSOLUTE — (a) For foundation motion excitation, the ratio of the vibration amplitude of a piece of equipment to the vibration amplitude of the foundation; (b) for force excitation from within a piece of equipment, the ratio of the force amplitude transmitted to the foundation to the amplitude of the existing force. (SVH)
- TRANSMISSIBILITY, RELATIVE — The ratio of the relative deflection amplitude of an ISOLATOR to the displacement amplitude imposed at the foundation. (SVH)
- TRANSVERSE DUNE — A ridge of sand oriented at a right angle to the direction of the prevailing wind. Cross sectional shape is generally asymmetric and crested, with some areas rolling.
- TRIAxIAL TEST — *Soil Mechanics*. A test to determine the maximum shearing strength of a soil. Also called *confined compression test*.
- TROPICAL CYCLONE — The general term for a CYCLONE that originates over the tropical oceans. By international agreement, tropical cyclones have been classified according to their intensity, as TROPICAL DEPRESSIONS, TROPICAL STORMS, and HURRICANES or TYPHOONS. (AMS)\*
- TROPICAL DEPRESSION — A TROPICAL CYCLONE in which the surface wind speed is less than 34 knots (38 miles per hour).
- TROPICAL RAINFOREST — A type of forest which exists in tropical regions where precipitation is heavy (generally more than 100 inches per year). It consists mainly of a wide variety of lofty broad-leaf evergreen trees which carry a profusion of parasitic or climbing plants. (AMS)\*
- TROPICAL STORM — A TROPICAL CYCLONE in which the surface wind speed

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- is at least 34, but not more than 63 knots. (JD)
- TROPICALIZATION** — Preparation of materiel to limit infiltration of moisture into critical parts of equipment and to kill and discourage fungiferous growths, thereby permitting storage and use in tropical regions. (AD)
- TROPOPAUSE**, n. — The boundary of the TROPOSPHERE, usually characterized by an abrupt change of LAPSE RATE. The change is in the direction of increased atmospheric stability from regions below to regions above the tropopause. (AMS)\*
- TROPOSPHERE**, n. — That portion of the atmosphere from the earth's surface to the TROPOPAUSE: that is, the lowest 10 to 20 km of the atmosphere. The troposphere is characterized by decreasing temperature with height, appreciable vertical wind motion, appreciable water vapor content, and WEATHER. (AMS)\*
- TROUGH**, n. — In meteorology, an elongated area of relatively low atmospheric pressure; the opposite of a RIDGE. (AMS)\*
- TRUE NORTH** — The direction from an observer's position to the geographic north pole. (AD)\*
- TSUNAMI**, n. — (Also called *seismic sea wave* and, popularly, *tidal wave*) — An ocean wave produced by a submarine earthquake, landslide, or volcanic eruption. These waves may reach enormous dimensions and have sufficient energy to travel across entire oceans. Tsunamis steepen and increase in height on approaching shallow water, inundating low-lying areas, and where local submarine topography causes extreme steepening, they may break and cause great damage. Tsunamis have no connection with tides; the popular name is entirely misleading. (AMS)\*
- TUBERCULATION**, n. — The formation of localized corrosion products scattered over the surface in the form of knoblike mounds. (ECS)
- TUNDRA**, n. — 1. A flat or gently rolling area, having a MUCK to rock surface over PERMAFROST, above or north of the TIMBERLINE. (ADT)\* 2. In botany, a mixture of several types of vegetation occurring in arctic and alpine districts, beyond and above timberline, where the plant cover includes low shrubs, herbs, sedges, grasses, lichens, and mosses. (ADT)
- TUNDRA SOIL** — *Pedology*. One of a series of a zonal group of soils having a tough fibrous peaty mat underlain by a dark-colored humus-rich stratum, which grades into lighter colored gray or mottled soil beneath. (ADT)\*
- TURBIDITY**, n. — In meteorology, any condition of the atmosphere which reduces its transparency to RADIATION, especially to visible radiation. (AMS)\*
- TURBULENCE**, n. — A state of fluid flow in which the instantaneous velocities exhibit irregular and apparently random fluctuations so that in practice only statistical properties can be recognized and subjected to analysis. (AMS)\*
- TURBULENT FLOW** — A fluid flow characterized by TURBULENCE. (AMS)
- TUSSOCK**, n. — A tuft of grasses or grass-like plants. (ADT)
- TWILIGHT**, n. — The periods of incomplete darkness following sunset (evening twilight) or preceding sunrise (morning twilight). Twilight is designated as *civil*, *nautical*, or *astronomical*, as the darker limit occurs when the center of the sun is 6°, 12°, or 18° below the celestial horizon, respectively. (ND)
- TYPHOON**, n. — A severe TROPICAL CYCLONE in the western Pacific. (See HURRICANE) (AMS)\*

**U**

**ULTRASONIC**, adj. — Of or pertaining to

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- frequencies above those that affect the human ear, i.e., above 20,000 cycles per second. (AFD)\*
- ULTRASONIC RELIEF MAP** — A special map made of various sound reflecting materials, used with the ultrasonic trainer so as to simulate the radar reflection that would occur from that part of the earth represented. (AFD)
- ULTRAVIOLET RADIATION** — Electromagnetic radiation of shorter wavelength than visible radiation but longer than x-rays; roughly, radiation in the wavelength interval from 10 to 4000 angstroms. (AMS)\*
- UMBRA, n.** — The darkest part of a shadow in which light is completely cut off by an intervening object. A lighter part surrounding the umbra, in which the light is only partly cut off, is called the *penumbra*. (ND)
- UNDERCURRENT, n.** — A water current flowing beneath a surface current at a different speed or in a different direction. (NOO)
- UNDERFLOW, n.** — The downstream flow of water through the permeable deposits that underlie a stream and that are more or less limited by rocks of low permeability. (MH)
- UNDERGROWTH, n.** — Small trees and shrubby plants growing under a forest canopy. (SAF)
- UNDERSTORY, n.** — In botany, the young or stunted trees in a forest which are below the level of the main canopy. (ADT)
- UNDERTOW, n.** — 1. A seaward flow near the bottom of a sloping beach. 2. The subsurface return by gravity flow of the water carried up on shore by waves or breakers. (NOO)
- UNDISTURBED, adj.** — 1. *Geol.* Applied to geologic structures in which the strata lie essentially horizontal or, as in a coastal plain, with gentle seaward dip. 2. *Soil Me-*
- chanics.* Undisturbed samples may be defined broadly as samples in which the material has been subjected to so little disturbance that it is suitable for all laboratory tests and thereby for approximate determination of the strength, consolidation, and permeability characteristics and other physical properties of the material *in situ*. (S&V)
- UNFREEZING, n.** — The upward movement of stones to the surface as a result of repeated freezing and thawing of the containing soil. (ADT)
- UNIT HYDROGRAPH** — The hydrograph of direct runoff from a storm uniformly distributed over the drainage basin during a specified unit of time; the hydrograph is reduced in vertical scale to correspond to a volume of runoff of one inch from the drainage basin. (MH)\*
- UNSTABLE WAVE** — A wave motion whose amplitude increases with time or whose total energy increases at the expense of its environment. (AMS)
- UPLAND, n.** — A highland; ground elevated above the lowlands along rivers or between hills. (GS)
- UPPER AIR** — In synoptic meteorology and in weather observing, that portion of the atmosphere which is above the lower TROPOSPHERE. No distinct lower limit is set but the term is generally applied to the levels above 850 mb. (AMS)
- UPPER FRONT** — A FRONT which is present in the UPPER AIR but does not extend to the ground. (AMS)
- UPSLOPE FOG** — A type of FOG formed when air flows upward over rising terrain and is, consequently, adiabatically cooled to or below its DEWPOINT. (AMS)
- UPWELLING, n.** — The process by which water rises from a lower to a higher depth, usually as a result of divergence and offshore currents. It is most prominent where persistent wind blows parallel to a coastline so that the resultant wind-driven cur-

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rent sets away from the coast. (NOO)\*

**U-SHAPED VALLEY** — A valley having a distinctive rounded profile and a gentle gradient bottom resulting from the abrasive and plucking action of the glacier it once contained. (ADT)

## V

**VACUUM**, n. — 1. An enclosed space from which air is evacuated to reduce the atmospheric pressure inside the enclosure to a very low value. 2. A region of space containing a negligible amount of matter.

**VALLEY**, n. — A depression in the land surface, generally elongated and usually containing a stream; low land bounded by hills or mountains; a sink. (GS)

**VALLEY GLACIER** — A GLACIER which flows down a valley. (IG)

**VALLEY TRAIN** — An outwash deposit extending downstream from a glacier's terminus or terminal moraine, usually confined by valley sides. The valley train may or may not merge with the outwash plain. (ADT)\*

**VAPOR**, n. — Any substance existing in the gaseous state at a temperature lower than that of its critical point; that is, a gas cool enough to be liquefied if sufficient pressure were applied to it. (AMS)\*

**VAPOR DENSITY** — Same as ABSOLUTE HUMIDITY.

**VAPORIZATION**, n. — Same as EVAPORATION.

**VAPOR PRESSURE** — 1. The pressure exerted by the vapor of liquid in a confined space such that vapor can form above it. (ND) 2. The pressure of water vapor in the air; that part of the total ATMOSPHERIC PRESSURE which is due to water vapor. (ND)

**VARVE**, n. — A pair of sediment layers ideally representing a year's record of melt

water deposition in a glacier-fed lake or bay. The laminated soil structure of varves is similar in appearance to annual growth rings in trees. The sediments are known as *varved clays* or *varved sediments*. (ADT)\*

**VEHICLE CONE INDEX** (Abbreviated VCI) — The index assigned to a given vehicle that indicates the minimum soil strength required for 40 to 50 passes of the vehicle. (TB ENG 37)

**VEHICLE GROUND MOBILITY** — The measure of the ability of an automotive vehicle to traverse the variety of terrain conditions, including inland waterways, found on the surface of the earth, and in a minimum time with minimum support and remaining capable of performing its design function.

**VELOCITY**, n. — Rate of motion in a given direction. (ND)

**VENTIFACT**, n. — A stone fashioned or modified by wind-driven debris. (ADT)\*

**VENTURI TUBE** — A tube designed to measure the rate of flow of fluids. It consists of a tube having a constriction or throat at its midsection. The difference between the pressure measured at the inlet and at the throat is a function of the fluid velocity. (AMS)\*

**VERTICAL OBSTACLE** — An obstacle that forces a vehicle to move in the vertical plane while surmounting it. (WES)

**VIBRATION**, n. — 1. A periodic or random motion of the particles in an elastic body in alternately opposite directions. (AFD) 2. The variation with time of the magnitude of a quantity, which is descriptive of the motion or position of a mechanical system, when the magnitude is alternately greater and smaller than some average value. (ISO)

**VIBRATION, COMPLEX WAVE** — Vibration consisting of sinusoidal components which are not harmonically related to one another. (SVH)\*

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- VIBRATION, FORCED (or FORCED OSCILLATION)** — The oscillation of a system is forced if the response is imposed by an excitation. If the excitation is periodic and continuing, the oscillation is steady-state. (ASA)
- VIBRATION ISOLATOR** — A resilient support that tends to isolate a system from steady-state excitation. (SVH)
- VIBRATION MACHINE**—A device for subjecting a mechanical system to controlled and reproducible mechanical vibration. (SVH)
- VIBRATION, SELF-INDUCED (or SELF-EXCITED)** — The vibration of a mechanical system is self-induced if it results from conversion, within the system, of non-oscillatory excitation to oscillatory excitation. (ASA)
- VIBRATION, STEADY-STATE** — See **VIBRATION, FORCED**.
- VIBRATION, SWEPT RANDOM** — A type of random vibration test in which the test specimen is subjected to a narrow band or random excitation, swept across the total frequency spectrum. The bandwidth of the filter may be constant or a constant percentage of the center frequency.
- VIBRATION, TRANSIENT** — Temporarily sustained vibration of a mechanical system. It may consist of forced or free vibration, or both. (SVH)
- VIBRATORY REED METER** — A device to measure the frequency of an excitation by detecting the **RESONANCE** of one or more vibratory reeds.
- VIBROGRAPH** — A mass-spring type of **DISPLACEMENT PICKUP** with self-contained means for recording the relative motion between the mass and the case, consisting of a recording medium contained on a supply spool, a transport mechanism for the recording medium, and a take-up spool. (SVH)
- VIRGA, n.** — Wisps or streaks of water or ice particles falling out of a cloud but evaporating before reaching the earth's surface as **PRECIPITATION**. (AMS)\*
- VIRTUAL PRESSURE** — The pressure of a parcel of **MOIST AIR** when it has the same density as a parcel of dry air at the same temperature. (AMS)
- VIRTUAL TEMPERATURE** — The fictitious temperature which dry air must have at a given pressure in order to have the same density as moist air at the same pressure.
- VISCOMETER, n.** — An instrument for measuring flow properties. The term viscometer is preferred to *viscosimeter*.
- VISCOSITY, n.** — 1. That molecular property of a fluid which enables it to support tangential stresses for a finite time and thus to resist deformation. (AMS) 2. The property of a fluid that resists internal flow by releasing counteracting forces.
- VISCOSITY, ABSOLUTE** — For a given liquid, the force which will move 1 square centimeter of plane surface with a speed of 1 centimeter per second relative to another parallel plane surface from which it is separated by a layer of the liquid 1 centimeter thick. This viscosity is expressed in **DYNES** per square centimeter, the unit being the *poise*, which is equal to one dyne-second per square centimeter.
- VISCOSITY, DYNAMIC** (Also called *coefficient of molecular viscosity, coefficient of viscosity*) — A coefficient defined as the ratio of the **SHEARING STRESS** to the **SHEAR** of the motion. It is independent of the velocity distribution, the dimensions of the system, etc., and for a gas it is independent of pressure except at very low pressures. While the dynamic viscosity of most gases increases rapidly with increasing temperature, that of most liquids, including water, decreases rapidly with increasing temperature. (AMS)\*
- VISCOSITY, KINEMATIC** — A coefficient defined as the ratio of the **DYNAMIC**

**VISCOSITY** of a fluid to its density. The kinematic viscosity of most gases increases with increasing temperature and decreasing pressure. For dry air at 0° C., the kinematic viscosity is about 0.13 square centimeters per second. (AMS)\*

**VISIBILITY, n.** — In United States weather observing practice, the greatest distance in a given direction at which it is just possible to see and identify with the unaided eye (a) in the daytime, a prominent dark object against the sky at the horizon, and (b) at night, a known, preferably unfocused, moderately intense light source. (AMS)\*

**VISIBILITY CHART** — Map or photograph showing which areas can be seen, and which cannot be seen, from a given observation point. (AD)

**VISIBLE RADIATION** — Electromagnetic radiation lying within the wavelength interval to which the human eye is sensitive, the spectral interval from approximately 0.4 to 0.7 microns (4000 to 7000 angstroms). (AMS)\*

**VISIBLE SPECTRUM** — That portion of the electromagnetic spectrum occupied by the wavelengths of **VISIBLE RADIATION**. (AMS)

**VOID RATIO** — The ratio of volume of voids to the volume of solid substance in any material consisting of solid material and voids. (S&V)

**VOLATILIZATION, n.** — The evaporation or changing of a substance from liquid to vapor. (YA)

**VOLCANIC ASH** — The unconsolidated fine-grained material thrown out in volcanic eruptions. It consists of minute fragments of glass and other rock material, which in color and general appearance may resemble organic ashes. (S&V)\*

**VOLCANIC BRECCIA** — More or less indurated volcanic rocks consisting chiefly of angular ejecta 32 mm or more in diameter.

(S&V)\*

**VOLCANIC CINDERS** — Uncemented volcanic fragments that range from 4 to 32 mm in diameter. Such fragments are usually glassy or vesicular. (S&V)

**VOLCANIC CONE** — A cone-shaped eminence formed by volcanic discharges. (GS)

**VOLCANIC ERUPTION** — The appearance, usually sudden and violent, at the surface of the earth of lava, ash, vapor, steam, and other materials from a volcano. (S&V)

**VOLCANIC NECK** — The solidified material filling a vent or pipe of a dead volcano. If or when a volcanic neck has resisted degradation better than the mass of the mountain, it will stand alone as a column, tower, or crag of igneous rock. (GS)

**VOLCANIC ROCKS** — see **IGNEOUS ROCKS**.

**VOLCANIC RUBBLE** — An unconsolidated accumulation of volcanic fragments larger than **CINDERS**.

**VOLCANO, n.** — A mountain that has been built up by the materials ejected from the interior of the earth through a vent. (GS)

## W

**WADI, n.** — Same as **DRY WASH**.

**WALLOW COURSE** — Wide trench filled with a decontaminating chemical, usually chlorinated lime mixed with mud. Vehicles that have come in contact with chemical agents are driven or wallowed through this trench so that they can be freed from the agents. Also called *mud lime slurry course*. (AD)

**WASH, n.** — 1. A **DRY WASH**. 2. Detritus (alluvium) collected, carried, and deposited by the action of water. (GS)

**WASTAGE, n.** — 1. The process or processes by which glaciers lose substance. Wastage is usually considered as including wind erosion, corrosion, and calving as well as evaporation and melting, but is sometimes used

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- as a synonym for ablation. 2. The amount of material lost by this process. (ADT)
- WASTELAND, n.—Land not suitable for, or capable of, producing materials or services of value. (SSS)\*
- WATER CONTENT — See MOISTURE CONTENT.
- WATERCOURSE, n.—1. A stream of water. (ND) 2. A natural channel through which water may or does run. (ND)
- WATER EQUIVALENT OF SNOW — Amount of water that would be obtained if the snow should be completely melted. See SNOW DENSITY. (MH)\*
- WATER GAP — A pass in a mountain ridge through which a stream flows. (GS)
- WATER LOSS — The difference between the average precipitation over a drainage basin and the water yield from the basin for a given period. (MH)\*
- WATER SKY — Dark patches or streaks on the clouds due to the reflection of leads and polynas, or a uniform black due to an open sea in the vicinity of large areas of ice or snow covered land. Details of the arrangement of the ice can be seen clearly when low stratus clouds are present. (AD)
- WATERSPOUT, n. — Usually, a TORNADO occurring over water; rarely, a lesser whirlwind over water, comparable in intensity to a DUST DEVIL over land. (AMS)\*
- WATER TABLE — The surface defined by the upper limit of the ZONE OF SATURATION, or the surface of unconfined ground water. (AMS)\*
- WATER VAPOR — Water in vapor form; one of the most important of all constituents of the atmosphere. Its amount varies widely in space and time due to the great variety of both "sources" of EVAPORATION and "sinks" of CONDENSATION that provide active motivation to the HYDROLOGIC CYCLE. (AMS)\*
- WATER YEAR — In referring to surface-water supply, the 12-month period, October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. (MH)\*
- WATER YIELD — The runoff from the drainage basin, including ground-water outflow that appears in the stream plus ground-water outflow that bypasses the gaging station and leaves the basin underground. Water yield is the PRECIPITATION minus the EVAPOTRANSPIRATION. (MH)
- WAVE, n.—1. An undulation or ridge on the surface of a fluid. A *wind wave* is generated by friction between wind and the fluid surface. Ocean waves are produced principally in this way. (ND)\* 2. A disturbance propagated in such a manner that it may progress from point to point. An *electromagnetic wave* is produced by oscillation of an electric charge. (ND)\* 3. A marked variation from normal weather, as a *heat wave* or a *cold wave*. (ND)
- WAVE-BUILT TERRACE — The coarser upper portion of a beach where the waves have thrown the pebbles up in low ridges parallel to the shore line and a few feet above mean high water level. (S&V)\*
- WAVE-CUT TERRACE — A flat or gently sloping surface, usually covered by shallow water, which waves have cut by removal of bedrock or unconsolidated material. (S&V)
- WAVE, DIFFRACTED — A wave whose front has been changed in direction by an obstacle or other nonhomogeneity in a medium, otherwise than by reflection or refraction. (ASA)
- WAVE GUIDE — A hollow rectangular or cylindrical tubing used as a special form of very high frequency transmission line, the dimensions of the tubing determining the wave length to be transmitted. (AFD)
- WAVE INTERFERENCE — The phenomenon which results when waves of the same

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or nearly the same frequency are superposed and is characterized by a spatial or temporal distribution of amplitude differing from that of the individual superposed waves. (ASA)

**WAVE LENGTH (or WAVELENGTH)**— In general, the mean distance between maxima (or minima) of a roughly periodic pattern. More specifically, wave length is the least distance between particles moving in the same phase of oscillation in a wave disturbance. The wave length is measured along the direction of propagation of the wave, usually from the midpoint of a crest (or trough) to the midpoint of the next adjoining crest (or trough). (AMS)\*

**WAVE, LONGITUDINAL**— A wave in which the direction of displacement at each point of the medium is normal to the wave front. (SVH)

**WAVE, SHEAR**— A wave in an elastic medium which causes an element of the medium to change its shape without a change of volume. (SVH)

**WAVE, TRANSVERSE**— A wave in which the direction of displacement at each point of the medium is parallel to the wave front. (SVH)

**WAVE VELOCITY** (Also called *phase speed*) — The speed of propagation of a point of constant phase (or **PHASE ANGLE**) of a simple harmonic wave component. With reference to ocean waves, the terms wave velocity or *wave celerity* are used more commonly than phase speed. (AMS)\*

**WBGT INDEX** (Abbrev. for: **WET BULB, GLOBE TEMPERATURE INDEX**) — A measure of the severity of a hot climate by taking into account relative humidity and radiant heat load as well as the dry-bulb temperature. The WBGT Index is made up by weighting the wet-bulb temperature by 0.7 (for relative humidity), the black globe temperature by 0.2 (for radiant temperature), and the dry-bulb temperature by 0.1 (shade temperature).

**WEATHER, n.**— 1. The state of the atmosphere, mainly with respect to its effects upon life and human activities. (AMS)\*  
 2. As used in the making of surface weather observations, a category of individual and combined atmospheric phenomena which must be drawn upon to describe the local atmospheric activity at the time of observation. (AMS)\*

**WEATHER, v.t.** — To expose to the atmosphere. (AMS)

**WEATHER CENTRAL** — An organization which collects, collates, evaluates, and disseminates meteorological information in such manner that it becomes a principal source of such information for a given area. (JD)

**WEATHER CODE** — Proforma code used for describing weather conditions. (AD)

**WEATHER FORECAST** — A prediction of weather conditions at a point, along a route, or within an area for a specified period of time. (JD)

**WEATHERING, n.**— The mechanical, chemical, or biological action of the atmosphere, hydrometeors, and suspended impurities on the form, color, or constitution of exposed material; to be distinguished from **EROSION**. (AMS)\*

**WEATHERING, ACCELERATED** — An artificial means used to accelerate and duplicate the effects of rain modified sunlight, etc.

**WEATHER INTELLIGENCE** — Weather information interpreted in relation to its effects upon personnel, materiel and the area of operations. (AD)

**WEATHER MAP** — A map showing weather conditions prevailing or predicted over a considerable area. Usually, the map is based upon weather observations taken at the same time at a number of stations. (JD)

**WEATHER STATION** — An installation or facility which provides meteorological observations and may also provide medium

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range weather forecasts for limited geographical areas on a full or part time schedule. (AD)

**WET-BULB DEPRESSION**—The difference in degrees between the DRY-BULB TEMPERATURE and the WET-BULB TEMPERATURE. (AMS)

**WET-BULB TEMPERATURE**—The lowest temperature to which air can be cooled at any given time by evaporating water into it at constant pressure, when the heat required for evaporation is supplied by the cooling of the air. This temperature is indicated by a well-ventilated WET-BULB THERMOMETER. (ND)

**WET-BULB THERMOMETER**—A thermometer having the bulb covered with a cloth, usually muslin or cambric, saturated with water. (ND)

**WET SNOW**—In the International Snow Classification, snow which is saturated or almost saturated with water. If free water entirely fills the air spaces in the snow it is classified as "very wet snow." (ADT)

**WHALEBACK, n.**—A tremendous sand ridge built by movement of dunes over the same path for long periods of time. Ridges are elongated in plan and exhibit gentle, rounded crests, although one or more longitudinal dunes may be superimposed.

**WHITE BODY**—A hypothetical "body" whose surface absorbs no electromagnetic radiation of any wavelength, i.e., one which exhibits zero absorptivity for all wavelengths; an idealization exactly opposite to that of the BLACK BODY. (AMS)\*.

**WHITECAP, n.**—See BREAKER.

**WHITE FROST**—See HOARFROST.

**WHITEOUT, n.**—A weather condition in the polar regions in which no object casts a shadow, the horizon becomes indistinguishable, and light-colored objects are very difficult to see. Also called *milky weather*. A whiteout occurs when there is complete snow cover, and the clouds are so thick

and uniform that light reflected by the snow is about the same intensity as that from the sky. (ADT)\*

**WILLIWAW, n.**—1. A sudden violent gust of cold land air, common along mountainous coasts of high latitudes. (AD) 2. A very violent squall in the Straits of Magellan. They may occur in any month but are most frequent in winter. (AMS)

**WIND, n.**—Air in motion relative to the surface of the earth. Since vertical components of atmospheric motion are relatively small especially near the surface of the earth, meteorologists use the term to denote almost exclusively the horizontal component. (AMS)\*

**WINDBREAK, n.**—A planting of trees, shrubs, or other vegetation, usually perpendicular or nearly so to the principal wind direction, to protect soil, crops, homesteads, roads, etc., against the effects of winds, such as wind erosion and the drifting of soil and snow. (SSS)

**WINDCHILL, n.**—The combined cooling effect of wind and air temperature on heated bodies. Windchill is expressed in kilogram calories per square meter per hour. (AD)

**WIND COMPONENT INDICATOR**—Device which mechanically determines the range and deflection components of the computed wind that is equivalent to all true winds encountered by a projectile in flight. (AD)

**WIND CORRECTION**—Any adjustment which must be made to allow for the effect of the wind; especially the adjustments to correct for the effect on a projectile in flight, on sound received by sound-ranging instruments, and on aircraft flown by dead reckoning navigation. (AD)\*

**WIND CORRECTOR**—A mechanical device which computes the correction necessary for the effect of wind, used in sound ranging and artillery fire control. (AD)

**WIND DRIFT**—Shift in the apparent posi-

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tion of a sound source or target observed by sound apparatus. Wind drift is caused by the effect of wind on sound waves which changes their direction and increases or decreases sound lag. (AD)

**WIND EROSION** — The process of wearing away a surface by wind action and the abrasion of wind-borne materials. (ADT)

**WINDFALL**, n. — 1. A tree uprooted or broken off by wind. 2. An area on which the trees have been thrown by wind. (SAF)

**WIND GAP** — A pass or gap not occupied by a stream; an air gap. (GS)

**WIND PRESSURE** — The total force exerted upon a structure by wind. For a flat surface it consists of two factors, the first being the dynamic pressure exerted on the windward side of the surface. The second factor is the pressure decrease, or suction, produced on the leeward side of the surface. (AMS)\*

**WIND RESOLVING MECHANISM** — A device similar to a **WIND COMPONENT INDICATOR**, which is mounted on a deflection board or is part of a computer. It mechanically determines the range and deflection components of the ballistic wind. (AD)

**WIND ROSE** — Any one of a class of diagrams designed to show the distribution of wind direction experienced at a given location over a considerable period; it thus shows the prevailing wind direction. (AMS)\*

**WIND SHEAR** — A change in space of wind direction and magnitude. (JD)

**WIND TEE** — A large weather vane located on or near a landing field to show the direction of the wind or direction of the traffic pattern around the field. (AD)

**WIND TUNNEL** — A tunnel through which a stream of air is drawn at controlled speeds for aerodynamic tests and experimentation. (AF)

**WINTERIZATION**, n. — The process of con-

verting equipment, especially changes in accessories, instruments, or special installations, for use in cold or very cold weather, as in the Arctic. (AD)

**WIPE SAMPLE** — A sample made for the purpose of determining the presence of removable radioactive contamination on a surface. It is done by wiping, with slight pressure, a piece of soft filter paper over a representative area of surface.

## X

**XEROPHYTES**, n. — Plants that grow in or on extremely dry soils or soil materials. (SSS)

**X-RADIATION (or X-RAYS)** — Electromagnetic radiation in the wavelengths region from about 100 to 0.1 Angstroms, which overlaps the ultraviolet region at long x-ray wavelengths and the gamma ray region at short x-ray wavelengths. The distinction is that x-rays and ultraviolet radiation are produced by different processes. See **GAMMA RAY**.

**XYLOPHAGOUS**, adj. — Eating, boring in, or destroying wood, said especially of certain insect larvae, crustaceans, and mollusks.

## Y

**YARDANGS**, n. — Irregular ridges or mounds, commonly alternating with round-bottomed troughs, formed by wind erosion of silt and clay, often of ancient **PLAYA** surfaces.

**YELLOW PODZOLIC SOILS** — *Pedology*. Formerly used for a zonal group of soils having thin organic and organic-mineral layers over grayish-yellow leached horizons that rest on yellow B horizons, developed under coniferous or mixed coniferous and deciduous forests in a warm-temperate to warm, moist climate. These soils are now

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combined into the Red-Yellow Pedzolic group. (YA)

**YIELD, n.** — See **NUCLEAR YIELDS**.

**YOUNG ICE** — Ice that has formed so recently that it is not strong enough for a man to walk on. Frequently referred to in connection with **LEADS**. (AD)

## Z

**ZENITH, n.** — The point on the celestial sphere directly above the observer's position. (AF)

**ZEPHYR, n.** — A warm, gentle breeze, especially one from the west. (ND)

**ZERO CURTAIN** — The layer of ground between the **ACTIVE LAYER** and the **PERMAFROST** where the temperature 0°C (32°F) lasts for a considerable time during the freezing and thawing of overlying ground. (ADT)

**ZERO GRAVITY** — The complete absence of gravitational effects, existing when the gravitation attraction of a primary is ex-

actly nullified or counterbalanced by inertial force. (AF)\*

**ZONAL, adj.** — In meteorology, latitudinal; easterly or westerly; opposed to *meridional*. (AMS)

**ZONAL SOIL** — *Pedology*. 1. A soil characteristic of a large area or zone. (SSS) 2. One of the three primary subdivisions (orders) in soil classification as used in the United States. (SSS)

**ZONE OF AERATION** — The region of soil or rock above a **WATER TABLE** where the pore spaces contain air as well as water. (AMS)

**ZONE OF MAXIMUM PRECIPITATION** — In a mountain region, the belt of elevation at which the annual precipitation is greatest. (AMS)\*

**ZONE OF SATURATION** — The soil or rock beneath the **WATER TABLE**. Pore spaces in the zone of saturation are filled with water, in contrast to the pore spaces above the water table which may contain considerable air. (AMS)

**Custodians:**

Army—GL

Navy—AS

Air Force—11

**Review activities:**

Army—CE, EL, MD, MI, MR, MU, WC

Navy—AS, MS

Air Force—11

**User activities:**

Army—AT, AV

Navy—CG, MC, OS, SA, SH

**Preparing activity:**

Army—GL

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## APPENDIX

### 10. Explanation of sources.

The sources listed below are grouped into three categories. The first consists of official glossaries of major elements of the Department of Defense. Definitions of environmental terms that have been standardized by any of these elements generally take precedence over other definitions in Department of Defense usage. The second category consists of other sources having some degree of official acceptance by Governmental agencies or professional organizations. These include glossaries that have been published by Department of Defense agencies for less than Department-wide use, glossaries published by other Governmental agencies, and glossaries that have been adopted for use within professions that deal with environmental sciences or engineering. Many definitions have been borrowed from these sources for use in the present Glossary, but explanations and notes accompanying the definitions in the original works are generally omitted here. The third category consists of sources to which the reader is referred for terms not included in this Glossary or for alternative meanings that are not given here. Some of the works in this category are references of a general nature that treat large segments of science or technology; others are standard references for fields marginal to the environmental sciences but having some relationship to the work of the environmental scientist or engineer. Still others are either compilations of diverse uses of terms for which preferred definitions are not specified or are dictionaries reflecting the predilections of an individual author rather than the officially adopted decisions of an organized group or profession.

For convenience in identifying the authorities for definitions included in this Military Standard, references under the first two categories are listed under the name of the sponsoring organization or agency rather than the editor or author; references in the third category are listed in the usual bibliographic

style. Letters preceding each entry are listed in identifying symbol by which it is referred to in the body of the Glossary. Definitions for which no source is cited in this Glossary are based on the draft *Environmental Terminology* prepared by the Department of the Navy in 1963, or on comments submitted by military agencies that reviewed various drafts of this Military Standard.

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AF—Department of the Air Force. *Air Force Glossary of Standardized Terms and Definitions*, Air Force Manual No. 11-1, Washington, D.C., 1 May 1965.

ND—Department of the Navy. *Navigation Dictionary*, H.O. Pub. 220, Washington, D.C., 1956.

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ADT—Arctic, Desert, Tropic Information Center, Research Studies Institute, Air University. *Glossary of Arctic and Subarctic Terms*, ADTIC Pub. A-105, Maxwell AFB, Ala., Sept 1955.

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