



Targamh
Art Of Translation

English ↔ Arabic ↔ French

Earth Science Glossary

معتم الصارث الضوي

absolute humidity

The mass of water vapor in a given volume of air. It represents the density of water vapor in the air.

A-horizon

The uppermost soil horizon (topsoil) made up of a mixture of organic material (up to 30% humus) and minerals. The A-horizon becomes coarser as you move downward due to the water washing through the soil and carrying away the fine particles.

absolute vorticity

See vorticity

absolute zero

A temperature reading of -273°C , -460°F , or 0 K . Theoretically, there is no molecular motion at this temperature.

absolutely stable air

An atmospheric condition that exists when the environmental lapse rate is less than the moist adiabatic rate. This results in a lifted parcel of air being warmer than the air around it.

absorption

Absorption of light refers to the removal of photons from a light stream. The energy of the photon is absorbed by the molecule and converted to heat.

absorption coefficient

A measure of the amount of radiant energy, incident normal to a planar surface, that is absorbed per unit distance or unit mass of a substance.

abyssal plain

Flat areas of the ocean floor lying at a depth of 3000 to 6000 metres. The abyssal plain has a slope of less than 1:1000 and is generally covered in a thick layer of sediment.

accreted (planet)

The process where small particles and gases in the solar nebula came together to form larger bodies, eventually of planetary size.

accretion

The growth of a precipitation particle by the collision of an ice crystal or snowflake with a supercooled liquid droplet that freezes upon impact.

accumulation (glacial)

All processes, which include snowfall, condensation, avalanching, snow transport by wind, and freezing of liquid water, that add snow or ice to a glacier, floating ice, or snow cover. The term also includes the amount of snow or other solid precipitation added to a glacier or snowfield by these processes.

acid deposition

The depositing of acidic particles (usually sulfuric acid and nitric acid) at the earth's surface. Acid deposition occurs in dry form (dry deposition) or wet form (wet deposition). Acid rain and acid precipitation often denote wet deposition. (See Acid rain.)

acid fog

See acid rain.

acid rain

Cloud droplets or raindrops combining with gaseous pollutants, such as oxides of sulfur and nitrogen, to make falling rain (or snow) acidic - pH less than 5.6. If fog droplets combine with such pollutants it becomes acid fog. It is caused by emissions of sulphur dioxide and nitrogen oxides. Although natural sources of sulphur oxides and nitrogen oxides do exist, more than 90% of the sulphur and 95% of the nitrogen emissions occurring in eastern North America are of human origin. These primary air pollutants arise from the use of coal in the production of electricity, from base-metal smelting, and from fuel combustion in vehicles. Once released into the atmosphere, they can be converted chemically into such secondary pollutants as nitric acid and sulfuric acid, both of which dissolve easily in water. The resulting acidic water droplets can be carried long distances by prevailing winds, returning to Earth as acid rain, snow, or fog.

acoustic thermography

The use of sound waves to measure seawater temperature.

actual vapor pressure

See vapor pressure.

adiabatic process

A process that takes place without a transfer of heat between the system (such as an air parcel) and its surroundings. In an adiabatic process, compression always results in warming, and expansion results in cooling. It is a thermodynamic change of state of a system such that no heat or mass is transferred across the boundaries of the system.

advection

The predominately horizontal large-scale movement of air that causes changes in temperature or other physical properties. In oceanography, advection is the horizontal or vertical flow of seawater as a current.

advection fog

Occurs when warm, moist air moves over a cold surface and the air cools to below its dew point.

aerosol

In atmospheric science, tiny suspended solid particles (dust, smoke, etc.) or liquid droplets that enter the atmosphere from either natural or human (anthropogenic) sources, such as the burning of fossil fuels. In general it is a suspension in which the dispersion medium is a gas (usually air) and the dispersed (colloidal) phase are liquid or solid particles

(e.g. mist, haze, smoke). The particulate material, other than water or ice, in the atmosphere ranges in size from approximately 10^{-3} to larger than $10^2 \mu\text{m}$ in radius. Aerosols are important in the atmosphere as nuclei for the condensation of water droplets and ice crystals, as participants in various chemical cycles, and as absorbers and scatterers of solar radiation, thereby influencing the radiation budget of the earth-atmosphere system, which in turn influences the climate on the surface of the Earth.

aerovane

A wind instrument that indicates or records both wind speed and wind direction.

AFOS

(Meteorology) Acronym for Automation of Field Operations and Services, an electronic-computerized system that displays weather information on TV-type consoles.

agglomeration

(Meteorology) The process by which precipitation particles grow larger by collision or contact with cloud particles or other precipitation particles.

air density

See density.

air glow

A faint glow of light emitted by excited gases in the upper atmosphere. Air glow is much fainter than the aurora.

air mass

A large body of air that has similar horizontal temperature and moisture characteristics. An air mass, by definition, is a large dome of air which has similar horizontal temperature and moisture characteristics. Often, a front separates two different air masses. Fronts are very narrow zones of transition. In other words, temperatures can change dramatically with short horizontal distances near fronts. Fronts are usually anywhere from 10 kilometers to hundreds of kilometers wide, while air masses can be thousands of kilometers wide.

air mass weather

A persistent type of weather that may last for several days (up to a week or more). It occurs when an area comes under the influence of a particular air mass.

air parcel

See parcel of air.

air pressure

or atmospheric pressure. Air pressure is the force exerted on a surface by the weight of the air above it. The internationally recognized unit for measuring this pressure is the kilopascal. In the U.S.A. usually expressed in millibars (mb) or inches of mercury (Hg).

airborne fraction

The portion of CO₂ released from all energy consumption and land use activities that remains in the atmosphere as opposed to the amounts absorbed by

plants and oceans. How the world's total carbon is partitioned among the oceanic, terrestrial, and atmospheric pools is determined by complex biogeochemical and climatological interactions.

airborne particulates

Total suspended matter found in the atmosphere as solid pieces or liquid droplets. Airborne particulates include windblown dust, emissions from industrial processes, smoke from the burning of wood and coal, and the exhaust of motor vehicles. See aerosols.

air-mass thunderstorm

A thunderstorm produced by local convection within an unstable air mass.

Aitken nuclei

See condensation nuclei.

albedo

The fraction of the total solar radiation incident on a body that is reflected by it.

Aleutian low

The subpolar low-pressure area that is centered near the Aleutian Islands on charts that show mean sea level pressure.

algae

Any photosynthetic member of the kingdom Protista. A member of the plant divisions Rhodophyta (red algae), Chlorophyta (green Algae), or Phaeophyta (brown algae).

alluvial fan

The mass of sediment deposited in a cone shape where a stream widens or there is a sharp decrease in gradient.

alluvium

The sediment (sand, mud etc.) left by flowing water.

altimeter

An instrument that indicates the altitude of an object above a fixed level. Pressure altimeters use an aneroid barometer with a scale graduated in altitude instead of pressure.

altocumulus

A middle cloud, usually white or gray. Often occurs in layers or patches with wavy, rounded masses or rolls.

altocumulus castellanus

An altocumulus cloud showing vertical development. Individual cloud elements have tower-like tops, often in the shape of tiny castles.

altostratus

A middle cloud composed of gray or bluish sheets or layers of uniform appearance. In the thinner regions, the sun or moon usually appears dimly visible.

amniotic

possessing an amnion. The amnion is a membrane lining the sac that encloses the embryos of reptiles, birds and mammals. The amniotic sac contains amniotic fluid.

amphibole

A common dark rock-forming silicate mineral present in many igneous and metamorphic rocks. Examples are hornblende and anthophyllite (asbestos).

analogue method of forecasting

A forecast made by comparison of past large-scale synoptic weather patterns that resemble a given (usually current) situation in its essential characteristics.

analysis (weather)

The drawing and interpretation of the patterns of various weather elements on a surface or upper-air chart.

andesite

A dark-colored fine-grained rock of volcanic origin composed mainly of plagioclase feldspar (andesine) and one or more of pyroxene, hornblende or biotite. Andesite is named after the Andes mountains in South America.

anemometer

An instrument to measure wind speed. Wind directions are always reported as the direction winds are coming from a southerly wind pushes air from the south to the north.

aneroid barometer

An instrument designed to measure atmospheric pressure. It contains no liquid.

angular momentum

The product of an object's mass, speed, and radial distance of rotation.

annual range of temperature

The difference between the warmest and coldest months at any given location.

anthropogenic

Man made. Usually used in the context of emissions that are produced as the result of human activities.

anticline

A fold in rock that resembles an arch (generally convex upwards). The rocks in the core of an anticline are generally the oldest.

anticyclone

(high-pressure area) An atmospheric high-pressure closed circulation with clockwise rotation in the Northern Hemisphere, counterclockwise in the Southern Hemisphere, and undefined at the Equator.

anticyclonic rotation

Rotation in the opposite sense as the Earth's rotation, i.e., clockwise in the Northern Hemisphere as would be seen from above. The opposite of cyclonic rotation.

aphanitic

The texture of an igneous rock is said to be aphanitic when the crystalline components are not distinguishable to the naked eye. See phaneritic.

apparent pole wandering

The apparent movement of the magnetic poles with respect to the continents.

aquifer

A permeable zone below the Earth's surface which stores groundwater and allows it to move easily.

Archaean

This is the earlier part of Precambrian time.

Arctic haze

A persistent winter diffuse layer in the Arctic atmosphere whose origin may be related to long-range transport of midlatitude continental man-made pollutants.

arcus cloud

See roll cloud.

arid climate

An extremely dry climate - drier than the semi-arid climate. Often referred to as a "true desert" climate.

arroyos

A small deep flat-floored channel or gully formed by an intermittent stream, usually with vertical or steeply cut banks, that is usually dry. The term "arroyos" derives from the Spanish for "stream, brook; gutter, watercourse of a street" and is applied in arid and semi-arid regions of the South-Western US.

ASOS

(Meteorology) Acronym for Automated Surface Observing Systems. A system designed to provide

continuous information of wind, temperature, pressure cloud base height, and runway visibility of selected airports.

asthenosphere

The upper mantle zone directly below the lithosphere from about 70-200 km. The material in this zone is thought to be soft and yielding to plastic flow. Magmas can be generated here.

atmosphere

The envelope of gases that surround a planet and are held to it by the planet's gravitational attraction. The Earth's atmosphere is mainly nitrogen and oxygen and is subdivided into four sections: the troposphere- from the earth's surface to an altitude of about 10 km; the stratosphere from 10 km to 50 km; the mesosphere from 50 km to 80 km; and the thermosphere- beyond 80 km.

atmosphere (an)

A standard unit of pressure representing the pressure exerted by a 29.92-in. column of mercury at sea level at 45 degrees latitude. 1 atmosphere (atm.) = 1.013 bar = $1.013 \times 10^5 \text{ Pa} = 1.013 \times 10^5 \text{ N m}^{-2} = 14.7 \text{ lbs in}^{-2}$.

atmospheric greenhouse effect

The warming of an atmosphere by its absorbing and reemitting infrared radiation while allowing shortwave radiation to pass on through. The gases mainly responsible for the earth's atmospheric greenhouse

effect are water vapor and carbon dioxide. Also called the greenhouse effect.

atmospheric models

Simulation of the atmosphere's behavior by mathematical equations or by physical models.

atmospheric stagnation

A condition of light winds and poor vertical mixing that can lead to a high concentration of pollutants. Air stagnations are most often associated with fair weather, an inversion, and the sinking air of a high-pressure area.

atmospheric turbulence

A state of the flow of air in which apparently random irregularities occur in the air's instantaneous velocities, often producing major deformations of the flow.

atmospheric window

The wavelength range between 8 and 11 p.m. in which little absorption of infrared radiation takes place.

attenuation

Any process in which the rate of flow of a beam of energy decreases (mainly due to absorption or scattering) with increasing distance from the energy source.

aurora

Glowing light display in the nighttime sky caused by excited gases in the upper atmosphere giving off light. In the Northern Hemisphere it is called the aurora

borealis (northern lights); in the Southern Hemisphere, the aurora australis (southern lights).

aurora borealis

Also known as the northern lights The luminous, radiant emission from the upper atmosphere over middle and high latitudes, and centred around the earth's magnetic poles. These silent fireworks are often seen on clear winter nights in a variety of shapes and colours.

automated weather station

An unmanned station with various sensors that measure weather elements such as temperature/wind/pressure and transmit these readings for use by meteorologists.

autumnal equinox

The equinox at which the sun approaches the Southern Hemisphere and passes directly over the equator.

Occurs around September 23.

AWIPS

(Meteorology) Acronym for Advanced Weather Interactive Processing System. New computerized system that integrates and processes data received at a Weather Forecasting Office from NEXRAD, ASOS; and analysis and guidance products prepared by NMC.