

Encyclopedic Entry

atmospheric pressure

air pressure, barometric pressure

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The [air](#) around you has weight, and it presses against everything it touches. That pressure is called [atmospheric pressure](#), or air pressure. It is the [force exerted](#) on a surface by the air above it as [gravity](#) pulls it to Earth.

Atmospheric pressure is commonly measured with a [barometer](#). In a barometer, a column of [mercury](#) in a glass tube rises or falls as the weight of the atmosphere changes. [Meteorologists](#) describe the atmospheric pressure by how high the mercury rises.

An [atmosphere](#) (atm) is a unit of measurement equal to the average air pressure at [sea level](#) at a temperature of 15 degrees Celsius (59 degrees Fahrenheit). One atmosphere is 1,013 [millibars](#), or 760 millimeters (29.92 inches) of mercury.

Atmospheric pressure drops as [altitude](#) increases. The atmospheric pressure on Denali, Alaska, is about half that of Honolulu, Hawai'i. Honolulu is a city at sea level. Denali, also known as Mount McKinley, is the highest peak in North America.

As the pressure decreases, the amount of [oxygen](#) available to breathe also decreases. At very high altitudes, atmospheric pressure and available oxygen get so low that people can become sick and even die.

Mountain climbers use bottled oxygen when they ascend very high peaks. They also take time to get used to the altitude because quickly moving from higher pressure to lower pressure can cause [decompression sickness](#). Decompression sickness, also called "the bends", is also a problem for [scuba divers](#) who come to the surface too quickly.

[Aircraft](#) create artificial pressure in the cabin so passengers remain comfortable while flying.

Atmospheric pressure is an indicator of [weather](#). When a [low-pressure system](#) moves into an area, it usually leads to [cloudiness](#), [wind](#), and [precipitation](#). [High-pressure systems](#) usually lead to fair, calm weather.

VOCABULARY

Term	Part of Speech	Definition
air	<i>noun</i>	the layer of gases surrounding Earth.
aircraft	<i>noun</i>	vehicle able to travel and operate above the ground.

air pressure	<i>noun</i>	force pressed on an object by air or atmosphere.
altitude	<i>noun</i>	the distance above sea level.
atmosphere (atm)	<i>noun</i>	(atm) unit of measurement equal to air pressure at sea level, about 14.7 pounds per square inch. Also called standard atmospheric pressure.
atmospheric pressure	<i>noun</i>	force per unit area exerted by the mass of the atmosphere as gravity pulls it to Earth.
barometer	<i>noun</i>	an instrument that measures atmospheric pressure.
Celsius scale	<i>noun</i>	scale for measuring surface temperature, used by most of the world, in which the boiling point of water is 100 degrees.
cloud	<i>noun</i>	visible mass of tiny water droplets or ice crystals in Earth's atmosphere.
decompression sickness	<i>noun</i>	serious condition resulting from gases forming tiny bubbles in the bloodstream as a body adjusts to a major change in atmospheric pressure. Also known as DCS, divers disease, and the bends.
exert	<i>verb</i>	to force or pressure.
Fahrenheit scale	<i>noun</i>	scale for measuring surface temperature used by Belize, Liberia, Myanmar, and the United States.
force	<i>noun</i>	power or energy that activates movement.
gravity	<i>noun</i>	physical force by which objects attract, or pull toward, each other.
high-pressure system	<i>noun</i>	weather pattern characterized by high air pressure, usually as a result of cooling. High-pressure systems are usually associated with clear weather.
low-pressure system	<i>noun</i>	weather pattern characterized by low air pressure, usually as a result of warming. Low-pressure systems are often associated with storms.
mercury	<i>noun</i>	chemical element with the symbol Hg.
mercury barometer	<i>noun</i>	tool that determines atmospheric pressure by measuring how much mercury moves in a glass tube.
meteorologist	<i>noun</i>	person who studies patterns and changes in Earth's atmosphere.
millibar	<i>noun</i>	(mbar) unit of pressure equal to .001 bar of atmospheric pressure.
oxygen	<i>noun</i>	chemical element with the symbol O, whose gas form is 21% of the Earth's atmosphere.
precipitation	<i>noun</i>	all forms in which water falls to Earth from the atmosphere.
scuba	<i>noun, adjective</i>	(self-contained underwater breathing apparatus) portable device for breathing underwater.
sea level	<i>noun</i>	base level for measuring elevations. Sea level is determined by measurements taken over a 19-year cycle.
weather	<i>noun</i>	state of the atmosphere, including temperature, atmospheric pressure, wind, humidity, precipitation, and cloudiness.
wind	<i>noun</i>	movement of air (from a high pressure zone to a low pressure zone) caused by the uneven heating of the Earth by the sun.

For Further Exploration

Articles & Profiles

- [PBS Nova: Lost on Everest—Atmospheric Pressure](#)

Websites

- [National Geographic Environment: Water Pressure](#)
- [NASA: It's a Breeze—How Air Pressure Affects You](#)



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