climatology

ஆங்கிலம்

பலுக்கல்

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climatology

- *நிலவியல்.* காலநிலையியல்
- *மருத்துவம்.* சூழலியல்

விளக்கம்

1. தகவல்களின் அடிப்படையில் உலகளாவிய மற்றும் வட்டார காலநிலையை விளக்கும் பிரிவாகும். இதன் மூலமாக வானிலையியல், வளிமண்டலத்தின் கலவை, அடுக்கமைப்பு மற்றும் மாற்றங்களை அறியவியலும்.

உசாத்துணை

- தமிழ் இணையப் பல்கலைக்கழக அகரமுதலியில் climatology.

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Humidity

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Humidity is the concentration of water vapor present in the air. Water vapor, the gaseous state of water, is generally invisible to the human eye.[1] Humidity indicates the likelihood for precipitation, dew, or fog to be present.

Humidity depends on temperature and the pressure of the system of interest. The same amount of water vapor results in higher humidity in cool air than warm air. A related parameter is the dew point. The amount of water vapor needed to achieve saturation increases as the temperature increases. As the temperature of a parcel of air decreases it will eventually reach the saturation point without adding or losing water mass. The amount of water vapor contained within a parcel of air can vary significantly. For example, a parcel of air near saturation may contain 28 grams of

water per cubic metre of air at 30 °C, but only 8 grams of water per cubic metre of air at 8 °C.

Three primary measurements of humidity are widely employed: absolute, relative and specific. **Absolute humidity** describes the water content of air and is expressed in either grams per cubic metre[2] or grams per kilogram.[3] **Relative humidity**, expressed as a percentage, indicates a present state of absolute humidity relative to a maximum humidity given the same temperature. **Specific humidity** is the ratio

of water vapor mass to total moist air parcel mass.

Humidity plays an important role for surface life. For animal life dependent on perspiration (sweating) to regulate internal body temperature, high humidity impairs heat exchange efficiency by reducing the rate of moisture evaporation from skin surfaces. This effect can be calculated using a heat index table, also known as a humidex.

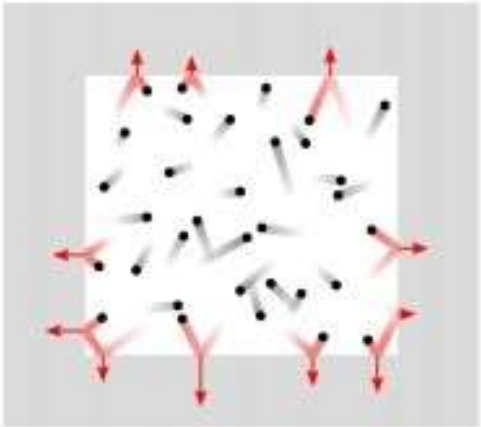
The notion of air "holding" water vapor or being "saturated" by it is often mentioned

in connection with the concept of relative humidity. This, however, is misleading—the amount of water vapor that enters (or can enter) a given space at a given temperature is almost independent of the amount of air (nitrogen, oxygen, etc.) that is present. Indeed, a vacuum has approximately the same equilibrium capacity to hold water vapor as the same volume filled with air; both are given by the equilibrium vapor pressure of water at the given temperature.[4][5] There is a very small difference described under "Enhancement factor" below, which can be

Pressure

Pressure (symbol: *p* or *P*) is the force applied perpendicular to the surface of an object per unit area over which that force is distributed.[:445][1] Gauge pressure (also spelled *gage* pressure)[a] is the pressure relative to the ambient pressure.

Pressure	
Common symbols	*p*, *P*
SI unit	Pascal [Pa]
In SI base units	1 N/m^2, 1 kg/(m·s^2), or 1 J/m^3
Derivations from other quantities	$p = F / A$
Dimension	$\mathbf{M\,L^{-1}\,T^{-2}}$



Various units are used to express pressure. Some of these derive from a unit of force divided by a unit of area; the SI unit of pressure, the pascal (Pa), for example, is one newton per square metre (N/m^2); similarly, the pound-force per square inch (psi) is the traditional unit of pressure in the imperial and U.S. customary systems. Pressure may also be expressed in terms of standard atmospheric pressure; the atmosphere

(atm) is equal to this pressure, and the torr is defined as $^{1}/_{760}$ of this. Manometric units such as the centimetre of water, millimetre of mercury, and inch of mercury are used to express pressures in terms of the height of column of a particular fluid in a manometer.

Definition

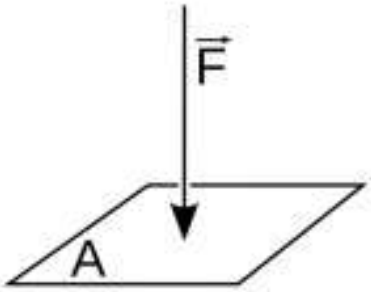
Pressure is the amount of force applied at right angles to the surface of an object per unit area. The symbol for it is "p" or *P*.[2] The IUPAC recommendation for pressure is a lower-case *p*.[3] However, upper-case *P*

is widely used. The usage of *P* vs *p* depends upon the field in which one is working, on the nearby presence of other symbols for quantities such as power and momentum, and on writing style.

Formula

Mathematically:

$$p = \frac{F}{A},$$[4]



where:

p is the pressure,

F is the magnitude of the normal force,

A is the area of the surface on contact.

Pressure is a scalar quantity. It relates the vector area element (a vector normal to the surface) with the normal force acting on it. The pressure is the scalar proportionality constant that relates the two normal vectors:

$$d\mathbf{F}_n = -p\,d\mathbf{A} = -p\,\mathbf{n}\,dA.$$

The minus sign comes from the fact that the force is considered towards the surface element, while the normal vector points outward. The equation has meaning