

Air junior

Air is all around us, even though we cannot see it, taste it or touch it. It does not even have an odour, but it is full of perfumes and bad smells that it transports up to our nose. The air that we breathe is made up of a mixture of gases and of solid and liquid particles. Nitrogen and oxygen, 78% and 21% by volume respectively, are the two main components of the atmosphere. Nitrogen is a colourless, odourless, inert gas that does not participate in vital processes in contrast with oxygen that is necessary for the respiration of living things. The oxygen present in the air is almost entirely of biological origin since it is produced by autotrophic organisms through photosynthesis. The remaining 1% is made up of water vapour, carbon dioxide and other gases.

The layer of gases that surrounds the Earth is called atmosphere. The atmosphere is an essential component of life on Earth: besides containing oxygen, it works as a filter for the Sun's harmful radiations, reflecting them and preventing them from reaching the ground. Moreover, like a "blanket" it traps part of the Sun's heat, permitting the Earth to have a temperature suitable to the life of plants and animals. This phenomenon is called greenhouse effect. The atmosphere is also the place where the main meteorological phenomena occur (wind, rain, snow, etc.) that summed together constitute the climate. When air moves from one place to another it originates wind. Wind is generated when air moves from a cold area to a warmer one or, to be more precise, from a low pressure zone to a high pressure one.

The atmosphere is subdivided into five concentric layers, called spheres, which have a different temperature, density and thickness and are separated by boundaries called pauses. The troposphere is the layer of the atmosphere that is closest to the ground, where life is formed, aeroplanes fly and meteorological phenomena take place. It is followed by the stratosphere, in which the ozone present absorbs ultraviolet rays and the harmful radiations of the sun, the mesosphere, the thermosphere, where the aurora borealis takes place and the exosphere.

The composition of air has remained unchanged for millions of years, but with industrial development and urbanisation it has been getting progressively polluted. Air pollution implies the presence of substances that modify its composition and its equilibrium. These substances cause, in the short and long term, at a local or global scale, harmful effects for man and for the animal and plant world. Pollutants are classified into those of anthropic origin that derive from human activities, and those that have a natural origin, that derive from volcanic eruptions, for example. Pollutants of anthropic origin are generated from big, unmoving sources (e.g. industries), from small unmoving sources (e.g. heating systems) and from mobile sources (vehicular traffic)