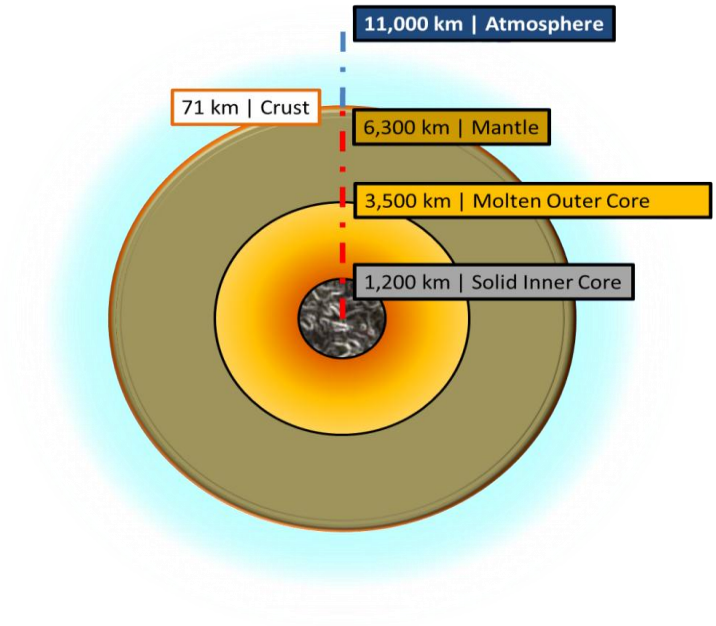
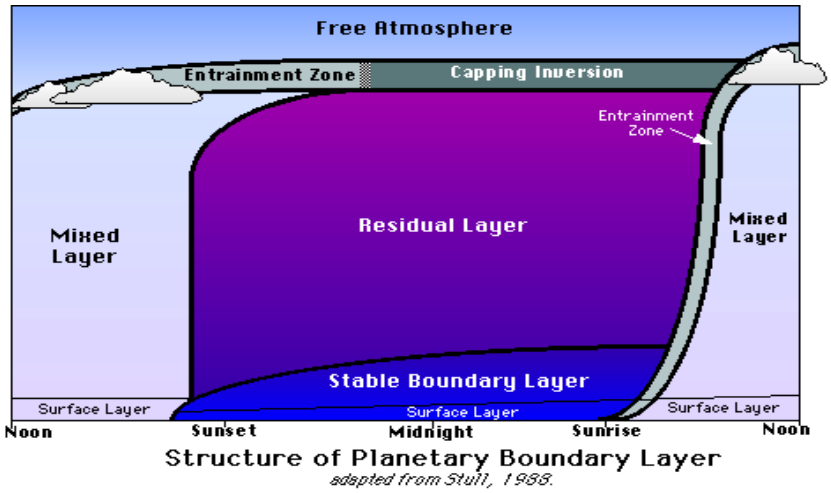
AIR

By air we refer to the mixture of gases that make up Earth's atmosphere, above the Earth's lithosphere and remains there. Air molecules are in constant and random motion, and the sum of the mass of all the molecules is equal to the mass of gas.



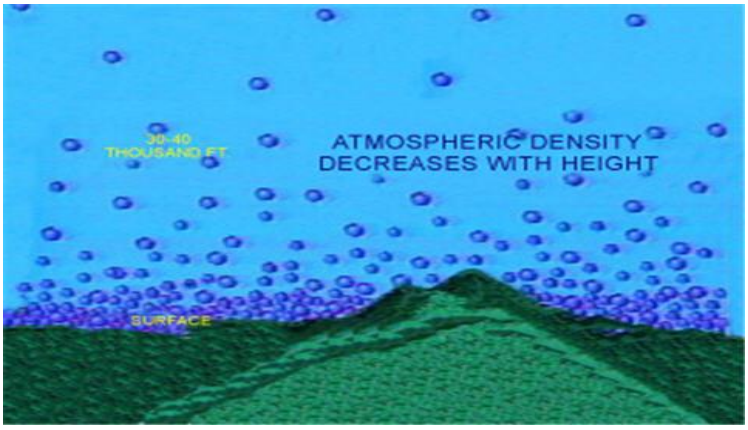
The air is thin, delicate, ethereal and transparent in short distances if it is clean. Usually studied as a uniform mass without changes or fluctuations, since it virtually has no changes up to about 10 km (6 miles) of altitude.



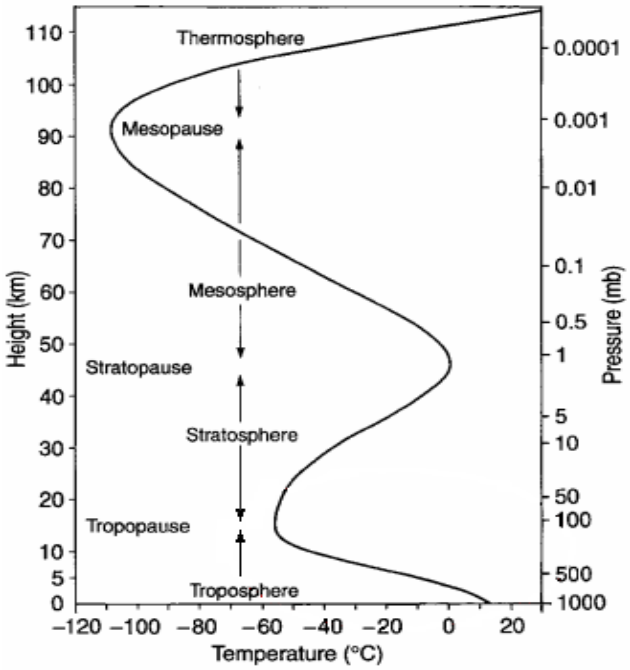
Structure of Planetary Boundary Layer
adapted from Stull, 1988.

At sea level, the air density is 1,229 kg per m^3 or in other words, with a specific volume of 0.814 m^3 per kilogram, the air pressure is 101.3 kiloNewtons per square meter with a temperature of 15 ° C and "viscosity" (adhesion or friction tangential to the surface) of 1.73 x 10-5 Newtons-seconds/square meter.

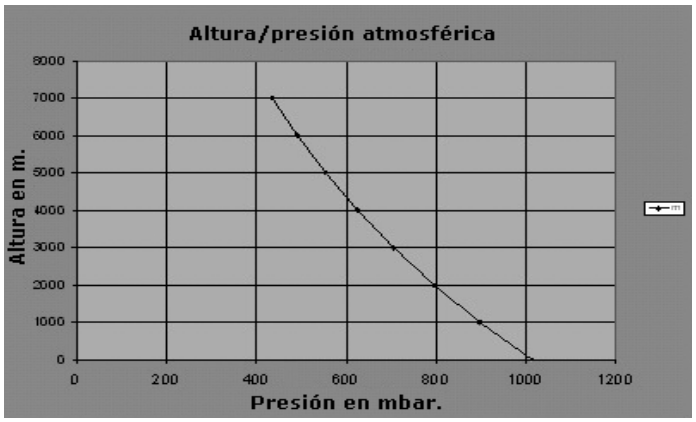
Air will have a density of 1.29 kg/m3 that will increase as the temperature decreases to -100 ° C with a density of 1.98 kg/m3, increasing its coefficient of expansion. If the air is heated, its density decreases to 0.946 kg/m3 at 100 ° C and heat capacity will also be lower, but the viscosity will increase.



The air temperature is reduced to a rate of approximately 0.6 ° C per 100 meters (328 feet) of elevation.



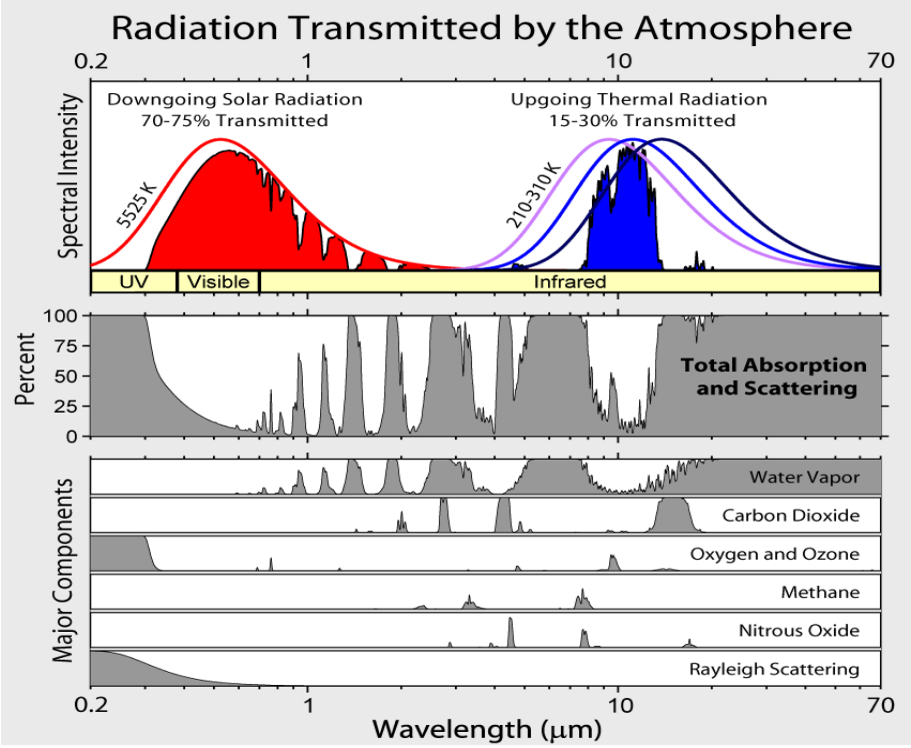
The composition of air varies depending on altitude, temperature and of course how its components interact in the atmosphere. At higher altitudes, the lower air pressure and air weight will be.



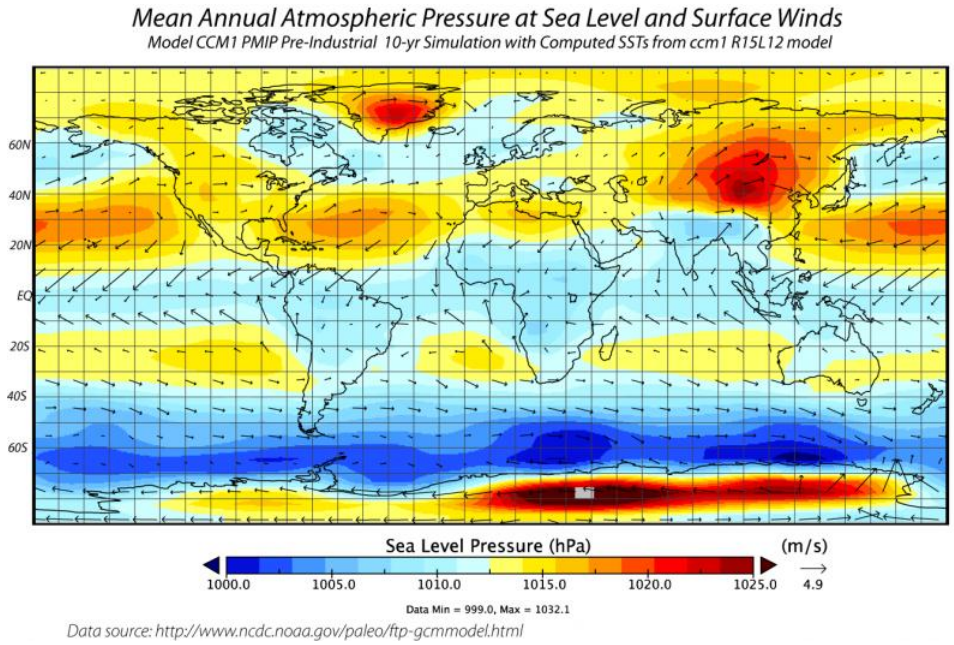
In general terms at sea level with a temperature of 15 ° C, by volume air is composed of nitrogen (N2) 78%, oxygen (O2) 21%, water vapor (H2O) from 0 to 7%, argon (Ar) 1% , 1% ozone (O3), carbon dioxide at 0.035% (CO2), hydrogen (H) and noble gases such as helium, krypton, argon, and other substances such as methane, sulfur dioxides, nitrogen oxides, nitrous oxides and ammonia . Vapor content in the air varies depending on temperature.

Gas	Proportion
Nitrogen	78%
Oxygen	21%
Carbon Dioxide	0.038%
Argon	1%
Water	Variable

In the troposphere is where the “breathable” air for animals and plants is found, and here is where clouds and most of the water vapor concentrates while above it, there is the “ozone layer” that protects Earth high-energy radiation from the sun.



In general terms, the air behaves like a noble gas, however, for engineering calculations elements like moisture should be consider. The pressure and the air temperature will depend on the location on Earth, the altitude, the time of year, changing daily, however, you can use standard values at sea level for the design of models, products and processes.



Source: http://www.artinaid.com/2013/04/air/