



# Air

- A real-time animation of global winds. Fascinating!  
<http://www.windyty.com/>

The atmosphere is made of air (a mixture of 78 % nitrogen, 21% oxygen, and 1% other gases), water vapor, clouds (condensed water droplets), and aerosols (tiny particles such as dust and soot).

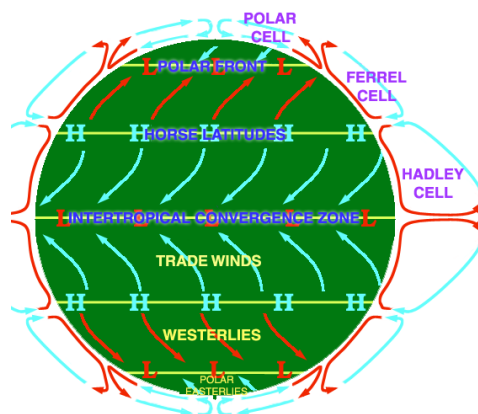
The atmosphere makes Earth livable because it blocks ultraviolet and other dangerous radiation from the Sun from reaching Earth. It also traps heat, making Earth warm enough for us to live.

Greenhouse gas levels have always been kept more or less constant by natural cycles. These move carbon and nitrogen gases among the ocean, land, living things, and atmosphere components. However, emissions from fossil fuel combustion has upset this equilibrium.

Water vapor, carbon dioxide, and methane are greenhouse gases that absorb and release heat energy to a much greater extent than more abundant gases like nitrogen and oxygen. This is why small increases in the amount of carbon dioxide have a large effect on atmospheric temperature.

Aerosols are tiny particles suspends in the atmosphere. Natural examples are fog, dust and clouds. Artificial examples are smoke and industrial chemicals. They can rise into the atmosphere through a variety of natural and man-made processes. These include volcanic eruptions, sea spray, forest fires, and emissions from human activities. Aerosols have a complex effect on Earth's energy balance. They can cause cooling by reflecting sunlight back out to space. They can also cause warming by retaining heat in the atmosphere.

Like the ocean, the atmosphere has big currents. The jet streams are currents of air located at several latitudes around Earth. They occur at high altitudes and move fast. They are caused by Earth's rotation and by temperature differences between cold air at the poles and warm air at the equator. Like the ocean, these currents of air also move heat around the globe.



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