

Global Warming for Dummies

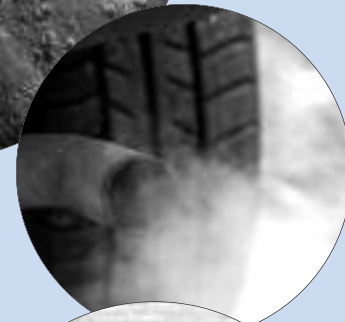
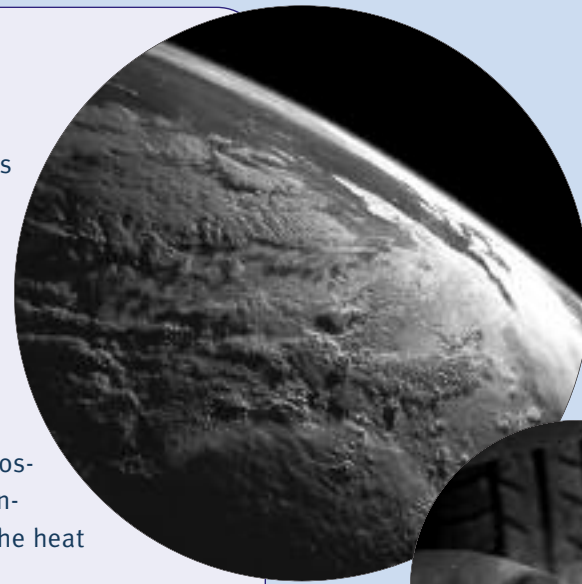
By Anne Donovan, CZM

Earth's atmosphere is made up of gases that form a protective layer that makes life as we know it possible on earth. Along with keeping the air we breathe from escaping to space, the atmosphere traps and holds the sun's energy to keep the earth warmer than the vast coldness that surrounds the planet. Of the sun's energy that reaches the earth, about 30 percent is reflected back into space by the atmosphere. The remaining 70 percent of this energy passes through the atmosphere and is absorbed by atmospheric gases, land areas, and the ocean. As this heat is later radiated off these surfaces, some escapes to space. The rest of this heat is trapped by substances in the atmosphere, keeping the planet warmer than space (just like the inside of a greenhouse stays warmer than the surrounding air when the glass panels keep the heat from the sun's rays from escaping).

Earth's climate has always been changing. "Global warming," however, refers to the extreme and relatively sudden changes that are occurring as a result of the human-induced buildup of "greenhouse gases" in the atmosphere. This buildup increases the capacity of the atmosphere to trap the sun's energy, causing global temperatures to rise. The primary greenhouse gases released by humans include:

- **Carbon dioxide (CO₂)** - Burning organic material (like wood, coal, and oil) releases CO₂, and because CO₂ absorbs the infrared radiation that typically escapes the earth's atmosphere, it is a critical component of rising global temperatures.
- **Nitrous oxide (NO₂)** - NO₂ is released from nitrogen-based fertilizers and combustion, and even though the amounts released by human activity are much smaller than CO₂, NO₂ absorbs about 270 times as much energy, making it a major contributor in global warming.
- **Methane** - Human-induced sources of methane include burning of coal, raising livestock animals (which produce methane as a product of digestion), growing rice (bacteria from rice paddies also release methane), and the decomposition of organic matter in landfills. Methane acts like CO₂ in the atmosphere, but traps even more heat.

Source: *How Global Warming Works* at <http://science.howstuffworks.com/global-warming.htm>.



*So many sources
of pollution, it's a
wonder people
can breathe!*

