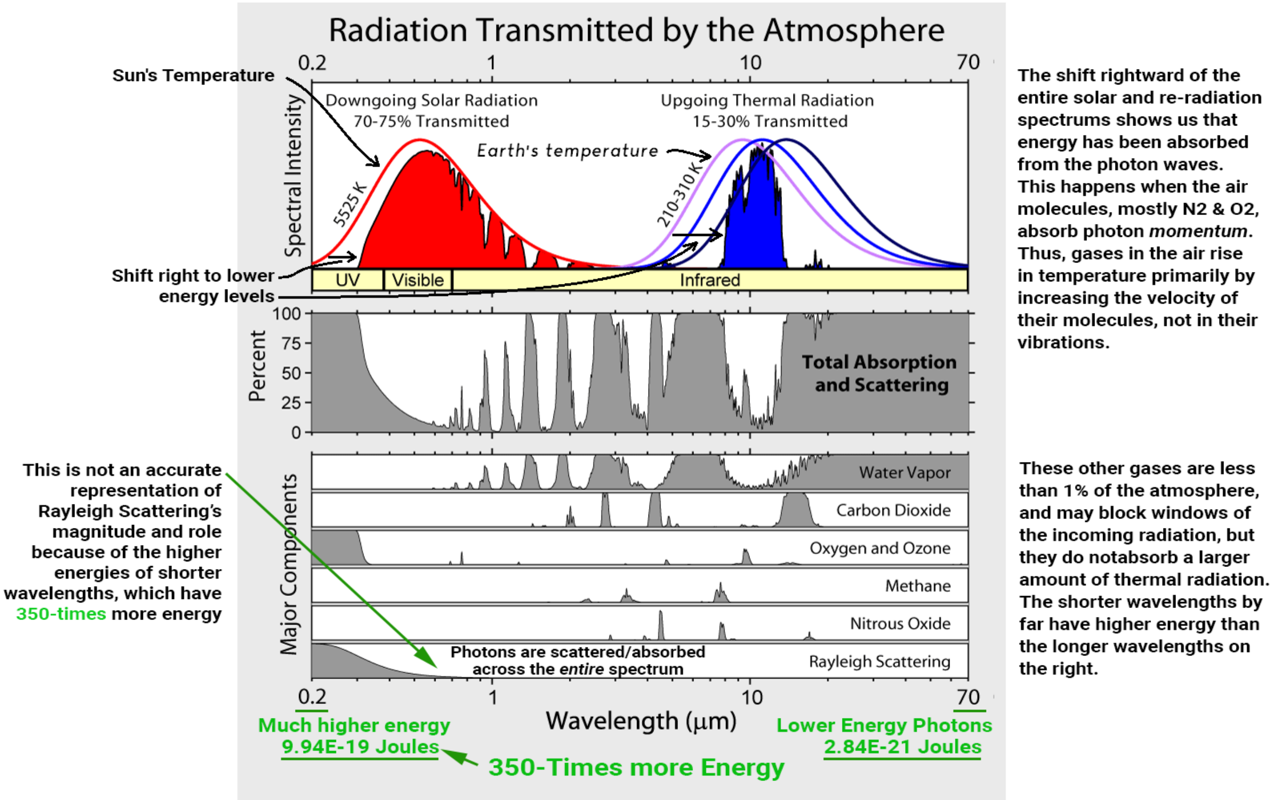
Why the "Greenhouse Gas" Theory is Invalid

The primary gases of **N_2 and O_2**, which make up 99% of the atmosphere, **absorb the vast amount of thermal energy in the atmosphere**, primarily through the increased translational velocity of their molecules. This is contrary to the now invalid *Greenhouse Gas Theory*.

The well-known graph below shows “atmospheric windows” where it is presumed solar radiation passes through the Earth’s atmosphere unobstructed except by “greenhouse gases”. However, looking closely we see that the **“Downgoing Solar Radiation” has shifted right from the red curve**, the latter produced by the Sun's temperature (with distribution as approximated by Planck's law[1]) because by the time it has reached the surface of the Earth it has been absorbed somewhat by the 99% of the atmosphere comprised of N_2 and O_2.

The solar radiation wavelengths are shifted to the right, **to lower-energy wavelengths**, as photon energy is absorbed by transferring momentum to these molecules.[2]

If all the light from the Sun were scattered, then we would also expect a shift of *absorption* lines, similar to that caused by the doppler shift of a moving star. But we do not see this shift at noon, when we cannot look directly at the Sun, because primary energy still arrives directly and only a tiny bit of solar light is scattered. The rest of the day, more light arrives to us from many directions, giving the sky its colour.



However, at Sunset we can look at the Sun directly, for example, as so much of its light has been scattered, and by molecular interaction, (not only Mie scattering). Again, Raleigh Scattering is the *primary* means by which solar energy is absorbed by the troposphere. Above, **“Upgoing Thermal Radiation” is similarly shifted right,** from the purple line (the relevant one, as it is the Earth's temperature range), **but *twice***, as on the return trip from the surface it is absorbed once again, also *predominantly* by N_2 and O_2. The shift is larger.

Photons, travelling at the speed of light, transmit some their momentum to N_2 and O_2 and other molecules travelling near the speed of sound (this shifts a photon to a longer wavelength/lower frequency, which has lower energy). Lightwave velocity is about 900,000 times that of sound waves.

Thus, by increasing the velocity of N_2 and O_2 molecules, they store the vast majority of thermal energy in the atmosphere, accounting for more stable air temperatures than otherwise.

Water vapour and the other trace gases do absorb some of the wavelengths, but nearly all of those wavelengths have already been shifted by partial absorption by the majority of N_2 and O_2 molecules. Importantly, the Raleigh Scattering, as shown above, is of the lower wavelength, **350-times higher energy photons**, thus having a correspondingly larger role in thermal energy storage in the air.

[1] From On the Theory of the Energy Distribution Law of the Normal Spectrum by M. Planck, 1900.

[2] Reducing the energy of photons can occur by increasing their wavelength (or decreasing their frequency), as Lord Rayleigh explained in the 1899 paper *On the Transmission of Light through an Atmosphere*.