

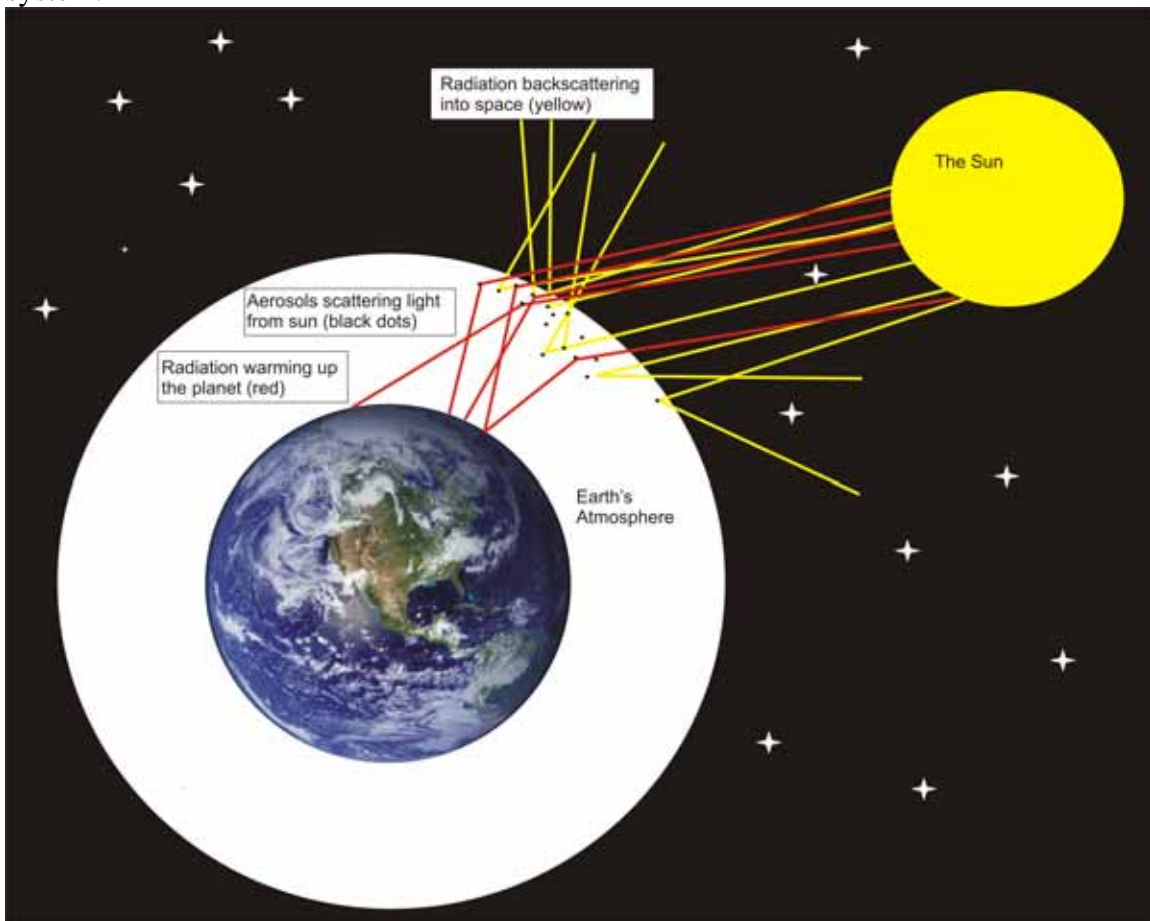
## Measuring Global Warming

Global warming is impacting the entire planet on which we live. Many governments throughout the world have realized the size and complexity of the problem and are beginning to take decisive action to ameliorate the effects of global warming. A key component of taking action is to understand:

- What is happening?
- Why is it happening?
- How is it happening?

Global warming/climate change has many interrelated factors that influence the type, rate direction of changes that can affect the earth's radiation balance.

The Earth is warmed principally by the sun's radiation which enters the atmosphere. Not all the radiation penetrates the atmosphere as some is scattered back into space. The amount of back-scattering into space alters the amount of energy that is absorbed into the atmosphere (see figure below). Measuring the amount of backscattering of this energy provides valuable information on the change of the earth's radiation balance and how different activities (artificial and anthropogenic) can affect this delicately balanced system.



Studies have found that natural and man-made aerosols in the earth's atmosphere can influence the rate of global warming through their ability to reflect radiant energy. One study performed during the 9/11 terrorist attacks in the USA showed that when all air traffic was stopped for a three day period at the height of that emergency days, the earth's surface temperature increased.

[www.cnn.com/2002/TECH/science/08/07/contrails.climate/index.html](http://www.cnn.com/2002/TECH/science/08/07/contrails.climate/index.html).

The Ecotech Aurora Nephelometer is the ideal instrument for use in back-scatter global warming studies. The Aurora Nephelometer has a backscatter option that allows analysis of the aerosol affects on light through its backscattering. The Aurora is ideal for any study as its low cost and easy maintenance allow small and large scale projects to be setup and performed quickly, easily and cheaply.