

NASA LAUNCHES AURA SATELLITE TO MONITOR OZONE IN THE UPPER AND LOWER ATMOSPHERE

NASA launched the Aura satellite in June 2004 to track atmospheric conditions, from the upper ozone layer, which guards against solar radiation, to the air near the ground that people breathe. Aura is the third and final addition to a series of major satellites making up NASA's Earth Observing System. The other two "missions" include the Terra satellite, which monitors land-based processes, and Aqua, which observes the oceans and water cycle of Earth.

The spacecraft carries four instruments that will survey the atmosphere from top to bottom, including monitoring ozone in its good and bad forms. In the upper atmosphere, ozone in the stratosphere provides a protective barrier to harmful ultraviolet radiation from the Sun. In the troposphere, the atmospheric layer that goes from the ground up to about six miles, ozone produced by combustion is a major pollutant in smog. Aura will monitor the upper ozone layer, including seasonal "holes" that open over arctic areas, to see if the layer is recovering after a worldwide ban on ozone-depleting chemicals like chlorofluorocarbons. Studies indicate that between 1980 and 2000, stratospheric ozone decreased 3 percent globally. The craft will detect levels of ozone-eating chemicals and such byproducts as chlorine and bromine, and also help distinguish between natural and human-caused sources of destructive gases.

The spacecraft's ozone monitoring instrument, which also measures trace gases and pollutants important to air quality, will help scientists determine if there is any mixing between the "good" ozone in the stratosphere and the pollution variety nearer the ground. In addition, readings from Aura will examine the mechanisms in the atmosphere that clean pollution.

The spacecraft will also track greenhouse gases, like carbon dioxide and water vapor, which trap heat and contribute to global warming. In addition, it will observe heat emission from Earth's surface and atmosphere, day and night.