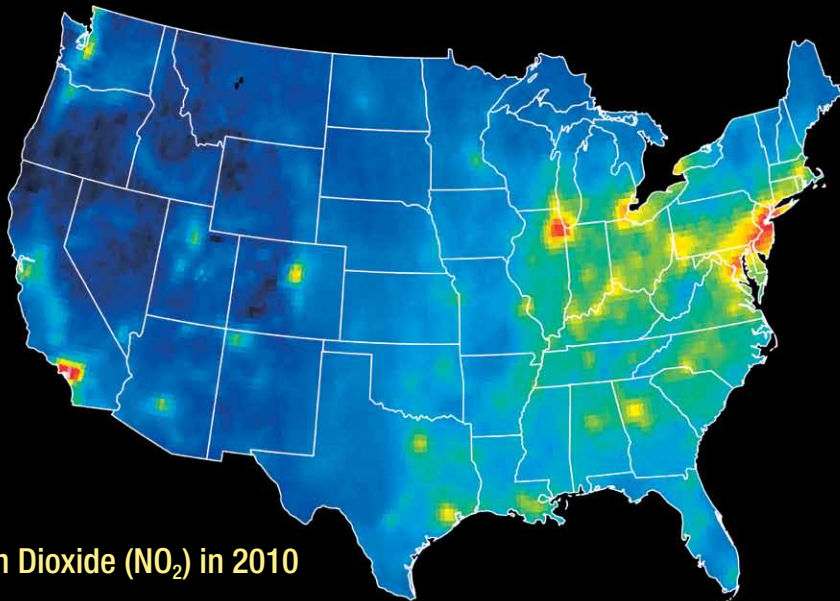
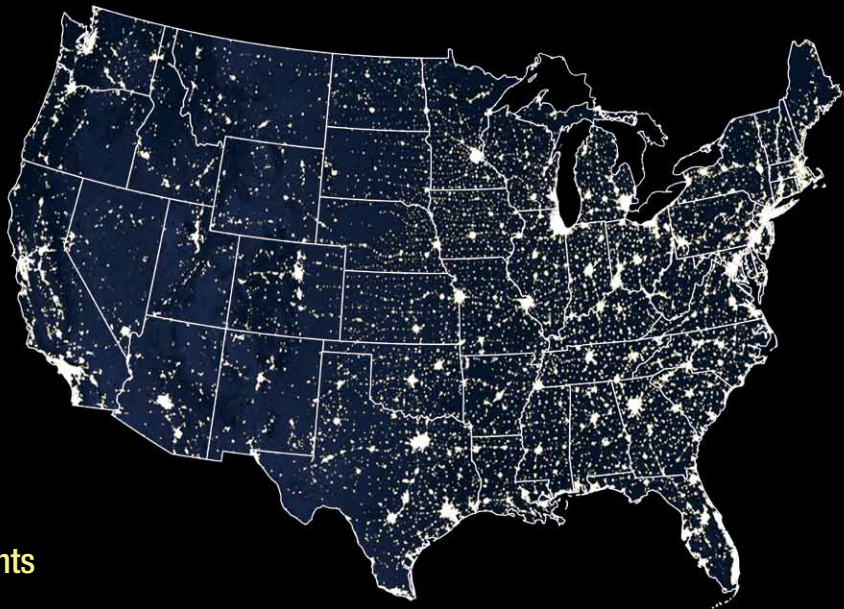


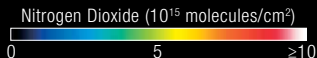
Nitrogen Dioxide (NO₂) in 2005



Nitrogen Dioxide (NO₂) in 2010



City Lights



NASA ACAST:

Serving the Needs of U.S. Air Quality Management

In 2011, NASA's Applied Sciences Program created the Air Quality Applied Sciences Team, or ACAST, to serve the needs of U.S. air quality management through the use of Earth science satellite data, suborbital data, and models. ACAST members have expertise using a wide array of tools and datasets from NASA as well as other agencies that allows them to respond quickly and efficiently to the urgent and evolving needs of air quality management.

Satellites are a powerful resource for monitoring changes in air quality. Maps **A** and **B** show annual mean observations of tropospheric nitrogen dioxide (NO_2) from the Ozone Monitoring Instrument aboard the NASA Aura spacecraft. Notice the large decrease between 2005 and 2010 as a result of federal and state regulations of NO_x ($\text{NO}_x = \text{NO} + \text{NO}_2$) emissions. NO_2 is unhealthy to breathe and reacts with other gases to produce ozone, which is also unhealthy to breathe.

The Defense Meteorological Satellite Program Operational Linescan System measures the intensity of city lights from space (see map **C**). This intensity is an excellent indicator of pollution, where the brightest lights coincide with the highest pollution.

For more information, visit: acmg.seas.harvard.edu/aqast, aura.gsfc.nasa.gov and appliedsciences.nasa.gov