

Where in the World is the Data?



EARTHDATA
EOSDIS NASA'S EARTH OBSERVING SYSTEM
DATA AND INFORMATION SYSTEM

Exploring Data Pathfinders at [Earthdata.nasa.gov](https://earthdata.nasa.gov)

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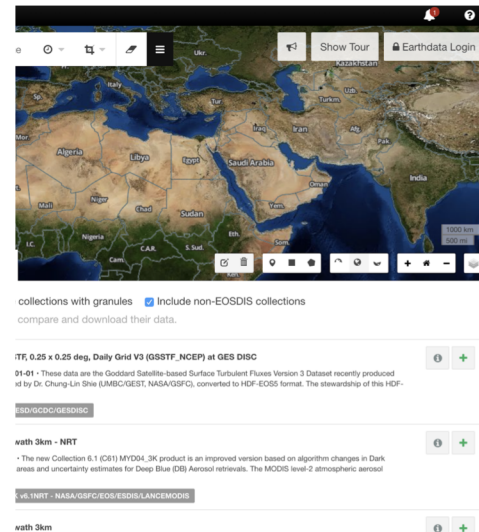
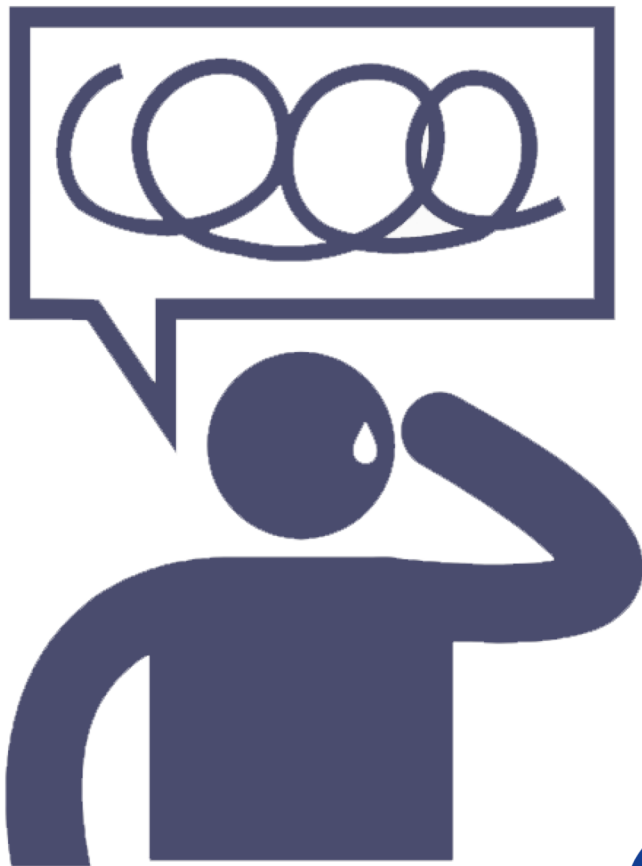
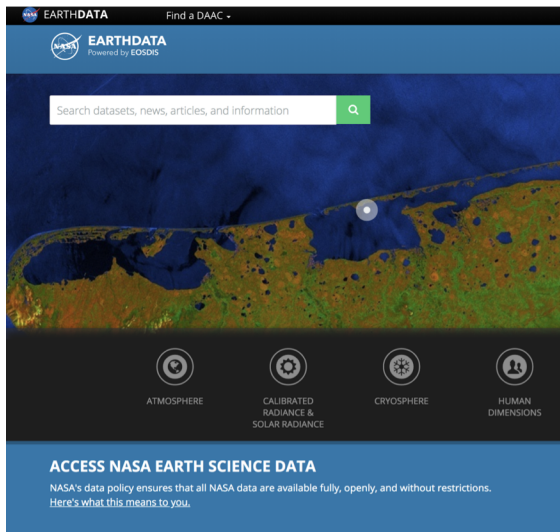
Who we are...

NASA's Earth Science Data Systems (ESDS) program builds and maintains systems that collect, store, and deliver petabytes of multi-disciplinary data, which is used to advance our understanding of Earth. *Earthdata.nasa.gov* provides access to this information through search and discovery tools as well as open APIs.



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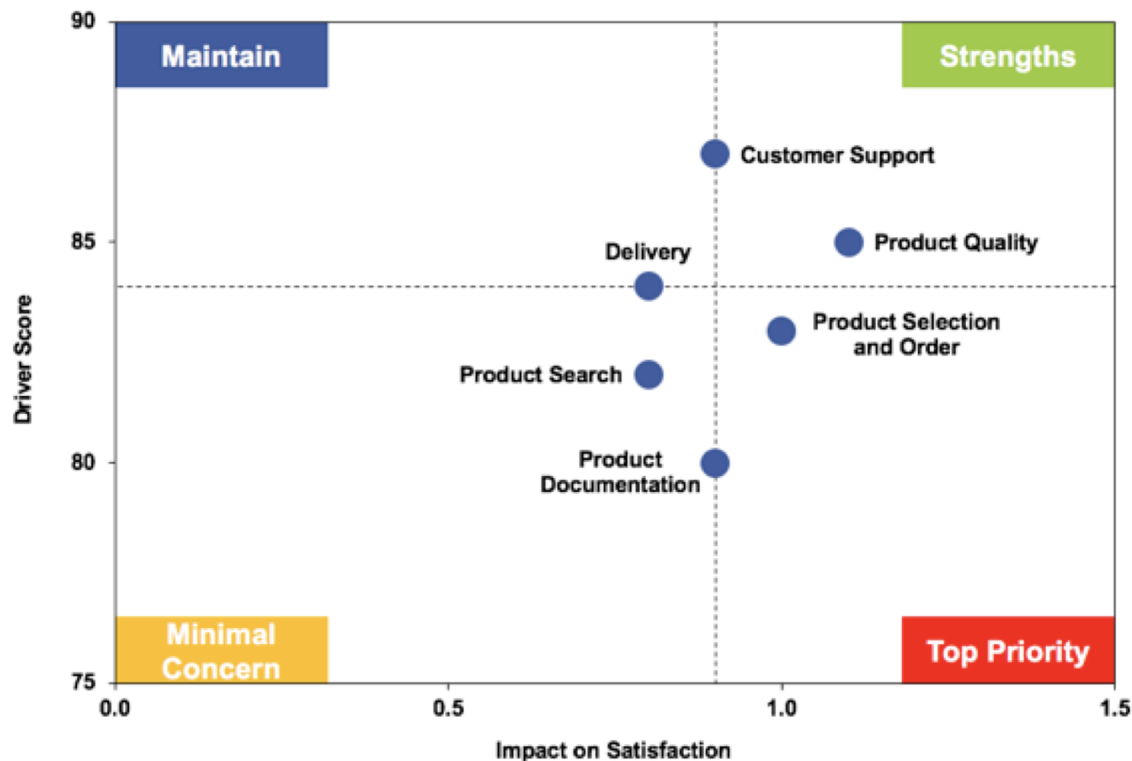
Finding Data...



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Finding Data...

Users agree that product selection from search results is a problem area.



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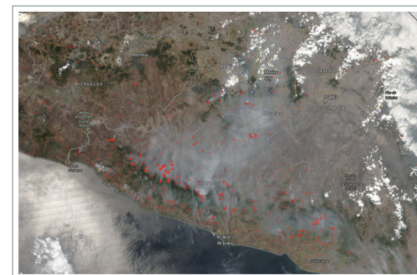
Data Pathfinders...

- Data product selection guides
- Direct links to the most commonly-used datasets
- Links to tools

Wildfires Data Pathfinder

This pathfinder provides access to datasets that are critical in fire monitoring and fire management. Wildfire data, from NASA satellite missions, can be used to aid in forecasting events, monitor ongoing events, and assess post-fire areas.

- Forecasting—precipitation, soil moisture, drought severity, topography, land surface temperatures, vegetation density and extent
- Risk and response—total area burning, fire radiative power
- Post-fire impacts—total burned area, burn severity, and vegetation regrowth

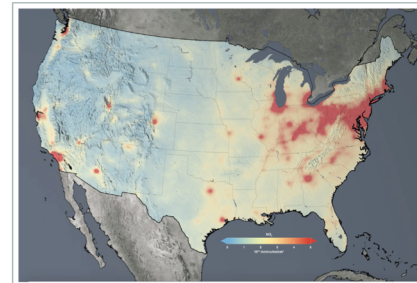


True color image from the Visible Infrared Imaging Radiometer Suite (VIIRS) on the joint NASA/NOAA Suomi-NPP satellite.

Health and Air Quality Data Pathfinder (coming soon)

This pathfinder is geared to air quality managers and public/environmental health managers as well as citizens interested in using NASA data to monitor air quality for a particular area and to correlate air quality to health conditions. Monitoring air quality provides a means to visualize trends, aid in forecasting events or the movement of pollutants, and responding to events.

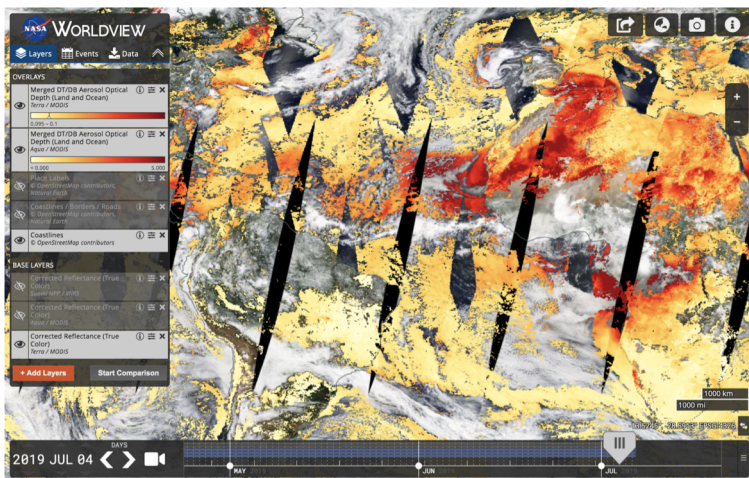
- Aerosol Optical Depth (AOD)
- AOD to Particulate Matter (PM)
- Trace Gases - NO₂, CO, SO₂, surface level ozone
- Pollutant Transport—aerosol index, dust score, and surface reflectance
- Public Health



NO₂ data from the Ozone Monitoring Instrument (OMI) on board the Aura satellite. Figure credit: NASA.

Data Pathfinders...

Health and Air Quality Data Pathfinder



Benefits and Limitations



Aerosol Optical Depth



AOD to PM2.5



Trace Gases



Pollutant Transport



Public Health



Other NASA Assets of Interest



Other Resources



Tools for Data Access and Visualization



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Data Pathfinders...

Trace Gases - Nitrogen Dioxide

- Science quality data from Earthdata Search
- Data within tools such as Panoply and Giovanni
- Visualizations of the data in Worldview

Nitrogen Dioxide

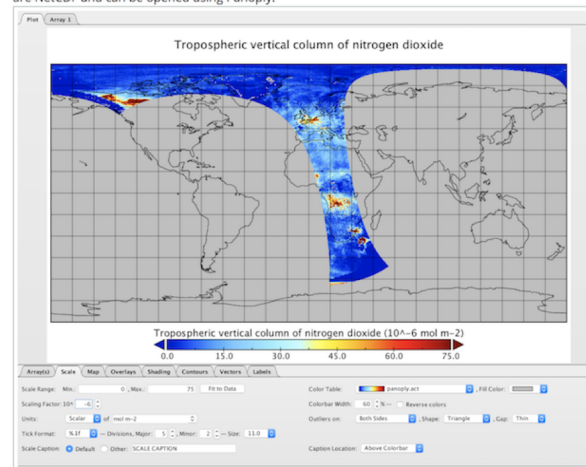
Nitrogen Dioxide (NO₂) is a pollutant, the primary sources being the burning of fossil fuels, automobiles, and industry. Once in the air, it can aggravate respiratory conditions in humans, especially those with asthma, leading to an increase of symptoms, hospital admissions, and emergency visits. Long-term exposure can lead to the development of asthma and potentially increase susceptibility to respiratory infections. NO₂ reacts with other chemicals in the atmosphere, forming particulate matter and ozone, producing haze and even acid rain, and contributing to nitrogen pollution in coastal waters. [NASA Goddard's Air Quality site](#) provides more information on NO₂, as well as trend maps and pre-made images of NO₂ over cities and power plants.

- Science quality, or higher-level "standard" data products can be accessed via the Earthdata Search:
 - OMI NO₂ data from Earthdata Search

The Ozone Monitoring Instrument (OMI), aboard the Aura spacecraft, provides daily gridded and non-gridded products at 13x24 km resolution; data are in HE5 format (Hierarchical Data Format Release 5) and can be opened using Panoply. A tutorial on using OMI NO₂ data is available as a PDF

- TROPOMI NO₂ data from Earthdata Search

The TROPospheric Monitoring Instrument (TROPOMI) aboard Sentinel 5, is a European Space Agency Mission, The ESA TROPOMI NO₂ provides additional information on this level 2 data product. It is important to note that, because of the very small numbers in tropospheric vertical column of nitrogen dioxide, you will need to change the scaling factor in Panoply (see image from June 2018 to right). Data are NetCDF and can be opened using Panoply.



- Data products can be visualized as a time-averaged map, an animation, seasonal maps, scatter plots, time series, and through an online interactive tool, Giovanni. For more information on choosing a type of plot, see the Giovanni User Manual.
- - OMI NO₂ data in Giovanni
- Near real-time (NRT) data can be accessed via Worldview:
 - OMI NO₂ data in Worldview
- Trends over time
 - Ground level NO₂ in Worldview (data are from 1996-1998 and 2010-2012)

We Need You...

Be an SME reviewer of
the pathfinder

Contact me at
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