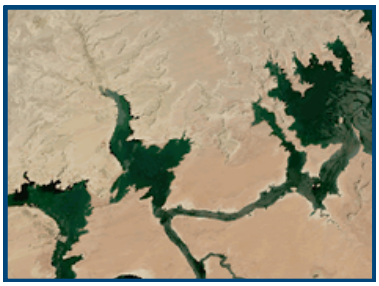
National Aeronautics and
Space Administration

SNWG Solutions
with GIS Capabilities

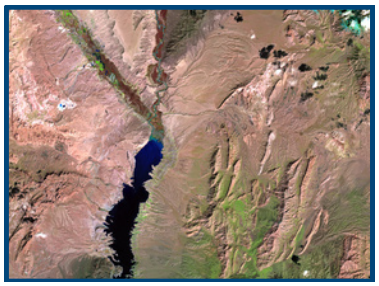
Every two years, the **Satellite Needs Working Group (SNWG)** conducts a survey to formally document and communicate the satellite Earth-observing needs of federal agencies to NASA, NOAA, and USGS. By identifying gaps in current Earth observations, these surveys drive new NASA-directed solutions (e.g., data products, services, or other investments) to support agency decision making.

SNWG Solutions in Cloud-Optimized GeoTIFF (COG) Format

COG format is often used for distributing satellite or aerial imagery to enable cloud-friendly workflows, but it is also fully compatible with GIS tools that read GeoTIFFs. The following SNWG solutions are available in COG format:



Harmonized Landsat and Sentinel-2 (HLS) provides 30 m surface reflectance data globally every 1.6 days and is used to develop the **HLS Vegetation Indices Suite**. These solutions are used in applications such as detecting land surface change, responding to disasters, and monitoring vegetation health and soil properties.



The Observational Products for End-Users from Remote Sensing Analysis (OPERA) **Dynamic Surface Water eXtent (DSWx)** solution provides 30 m optical and radar data for flood and drought monitoring and wetland preservation. In addition, the OPERA **Surface Disturbance (DIST)** solution detects land surface disturbance at 30 m resolution, making it useful for tracking wildfires and monitoring deforestation.

NASA **Earth**

NSITE: NASA'S SNWG IMPLEMENTATION TEAM

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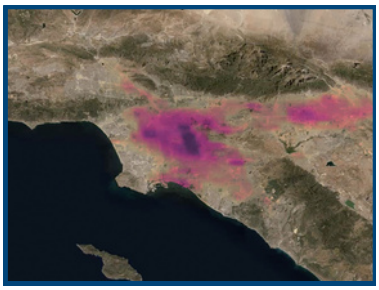
SNWG Solutions with GIS Services and Tutorials

A number of SNWG solutions (described below) also have services and tutorials to facilitate access and use in GIS tools and software.



Tropospheric Emissions: Monitoring Pollution near real-time (**TEMPO NRT**) products provide air quality measurements over North America for forecasting and monitoring. Access the following TEMPO NRT **ArcGIS image services**:

- Nitrogen dioxide
- Formaldehyde
- Cloud fraction

SNWG supported the installation of an additional NISAR downlink station to accommodate additional **high-resolution NISAR data** over North America and enable a global **NISAR soil moisture** product. These solutions support land monitoring applications such as crop assessment, forest fire prediction, and water supply management. Access the following resources to use NISAR data in GIS:

- NISAR in GIS StoryMap
- Work with NISAR Sample Data Tutorial

In addition, **OPERA solutions** have an ArcGIS toolbox and QGIS plugins available to GIS users. **HLS** can also be accessed through QGIS plugins and will be available on the ArcGIS Living Atlas of the World in early summer 2026.

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https://go.nasa.gov/4tYbrJT

Looking for more information?

Discover GIS at NASA to access more step-by-step tutorials. To learn more about NASA's SNWG Implementation TEam (NSITE), scan the QR code to explore all of SNWG's solutions including data access, solution resources, and potential use cases.