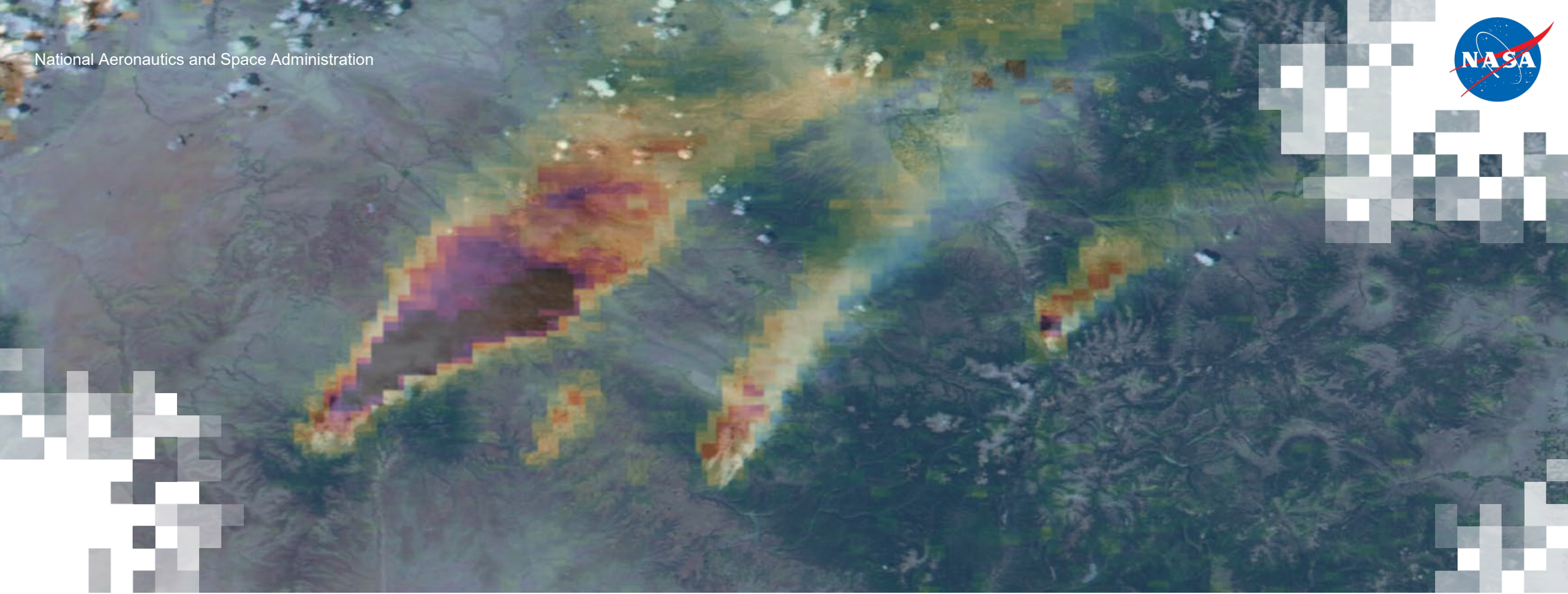




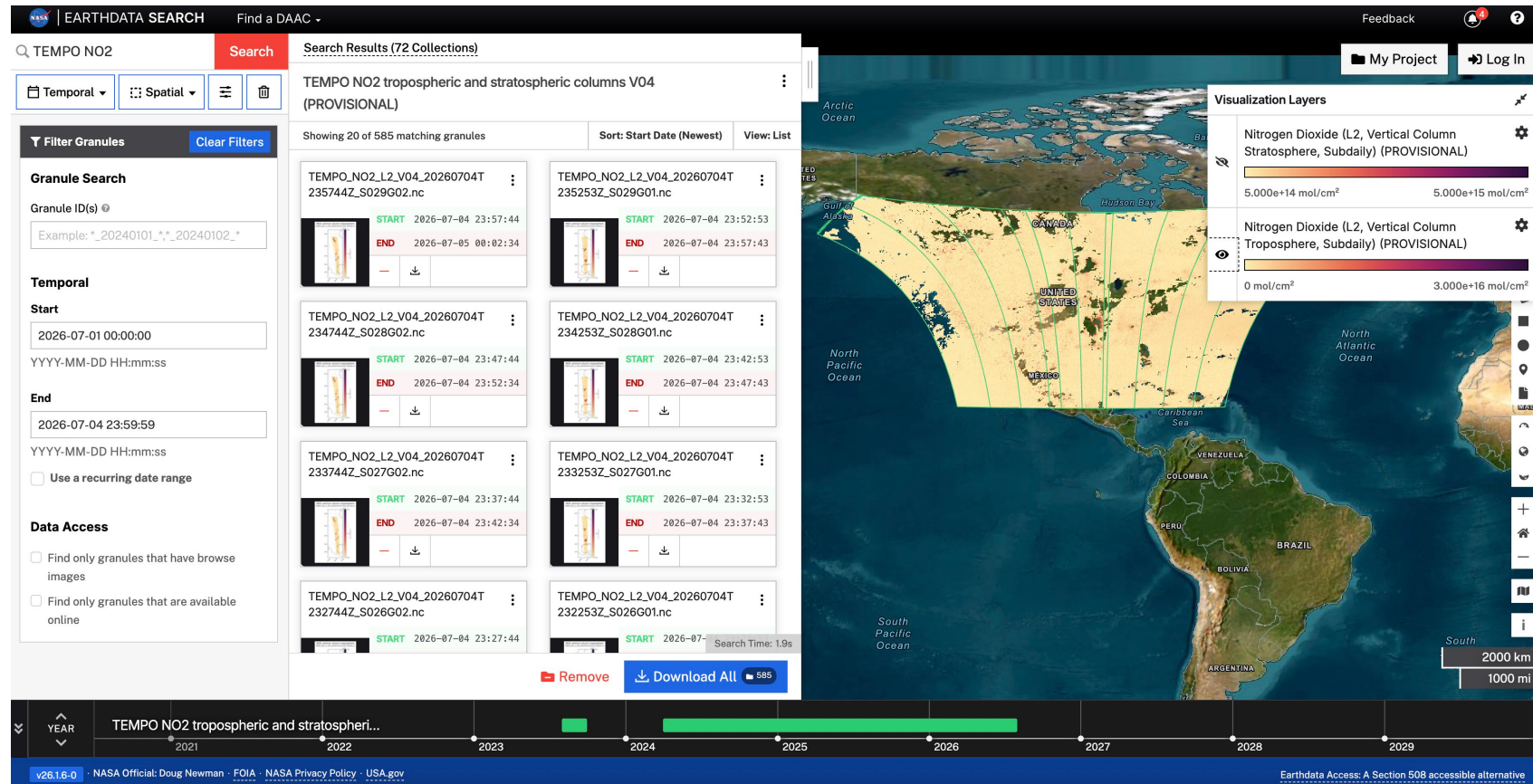
Other NASA resources and tools

August 10, 2026

Earthdata Search

<https://search.earthdata.nasa.gov/search>

- “One stop shop” for NASA’s Earth Science datasets
- Filter, subset, download data
- Get data access options
 - Direct download
 - Example scripts
 - AWS S3 bucket
 - Customized download with Harmony service



Earthdata Cloud & Harmony Services

Earthdata Common Metadata Repository

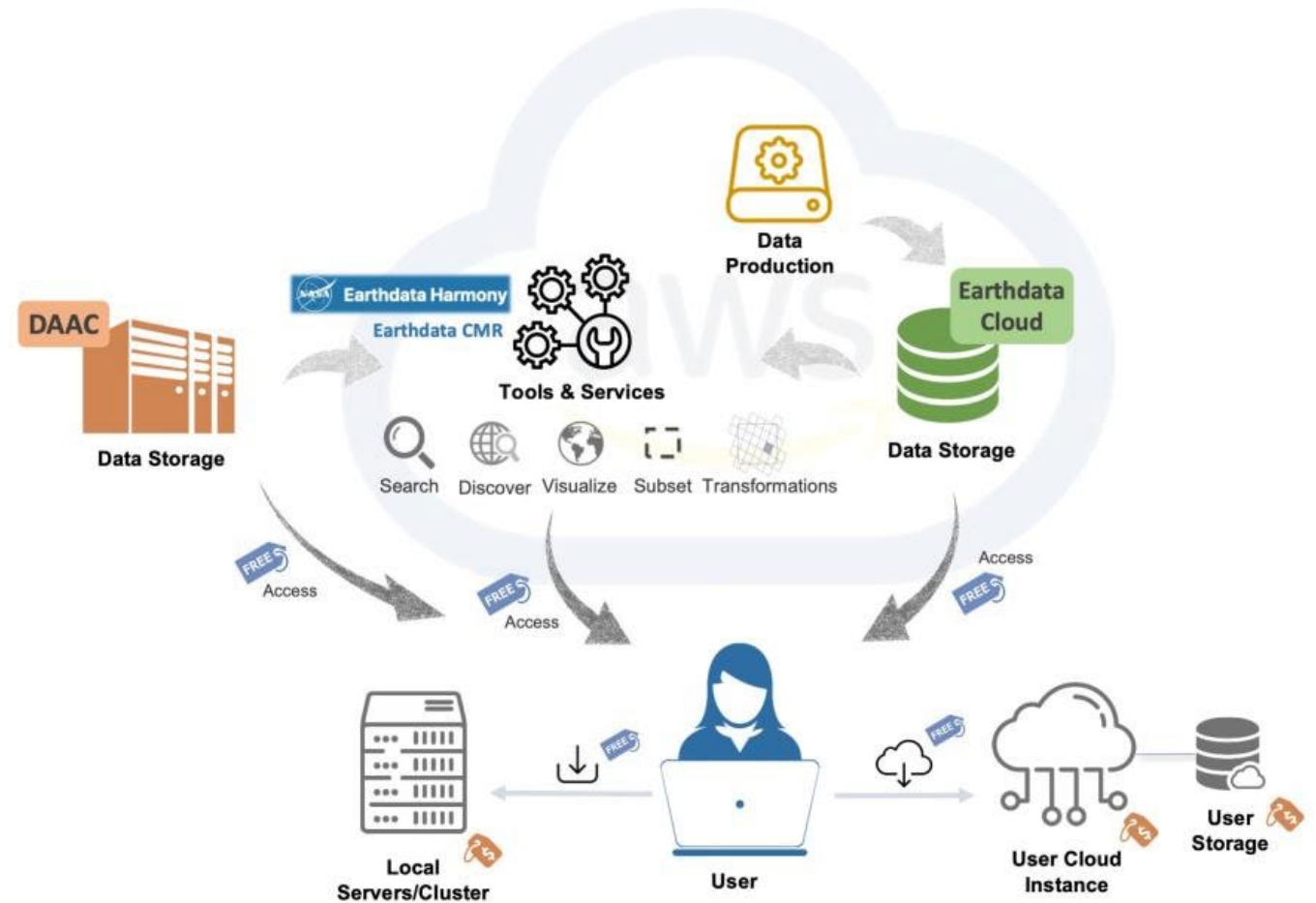
- Enable programmatic search options for automated routine data access

Earthdata Harmony Subsetter

- Filter, subset, and transform data on the cloud prior to download

Example: TEMPO Level 2 NO₂, Colorado, September 2025

- Download all files:
334 files, 160MB Each, **52.2 GB**
- Earthdata Harmony Subsetting:
1 file, **51.6 MB**



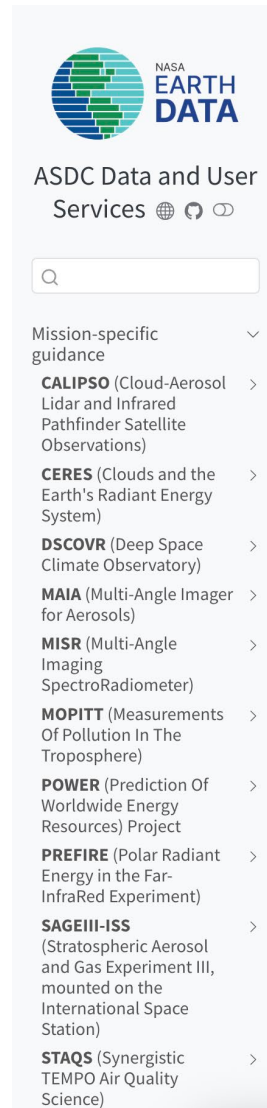
Source: <https://www.earthdata.nasa.gov/news/feature-articles/harmony-subset-regrid-reproject-data-cloud>



ASDC Data and User Services

https://nasa.github.io/ASDC/Data_and_User_Services/

- Resources for data from missions archived and distributed by NASA's Atmospheric Science Data Center (ASDC)
 - TEMPO
 - CALIPSO (lidar)
 - TOLNet
 - ...and many more!
- How-to guides
- Tutorials
- Script examples



Mission-specific guidance > **TEMPO** (Tropospheric Emissions: Monitoring of Pollution)

TEMPO (Tropospheric Emissions: Monitoring of Pollution) resources

AUTHOR
Atmospheric Science Data Center (ASDC)

PUBLISHED
July 1, 2026

Example workflows for a variety of use cases with this mission's data. Have questions or run into problems? Reach out via the [Earthdata Forum](#) or open an [issue](#).

How-to...

- [Use earthaccess](#) - to examine TEMPO data details and download files
- [Use harmony-py](#) - to subset and visualize TEMPO data
- [Download TEMPO data as CSV files](#)
- [Use virtual datasets](#) in the cloud via [earthaccess](#) - to work with TEMPO Level-3 data [\[external\]](#)

Tutorials

- [\(ARSET and Science Team trainings\) Working with TEMPO observations of the Madre wildfire, via Harmony-py](#)
- [\(ARSET training\) Working with TEMPO data through ArcGIS Image Services programmatically](#)
- [\(HAQAST training\) Using the Remote Sensing Information Gateway \(RSIG\) to access and analyze TEMPO data](#)

← Python workflow for STAQS GCAS netCDF files in ArcGIS Pro

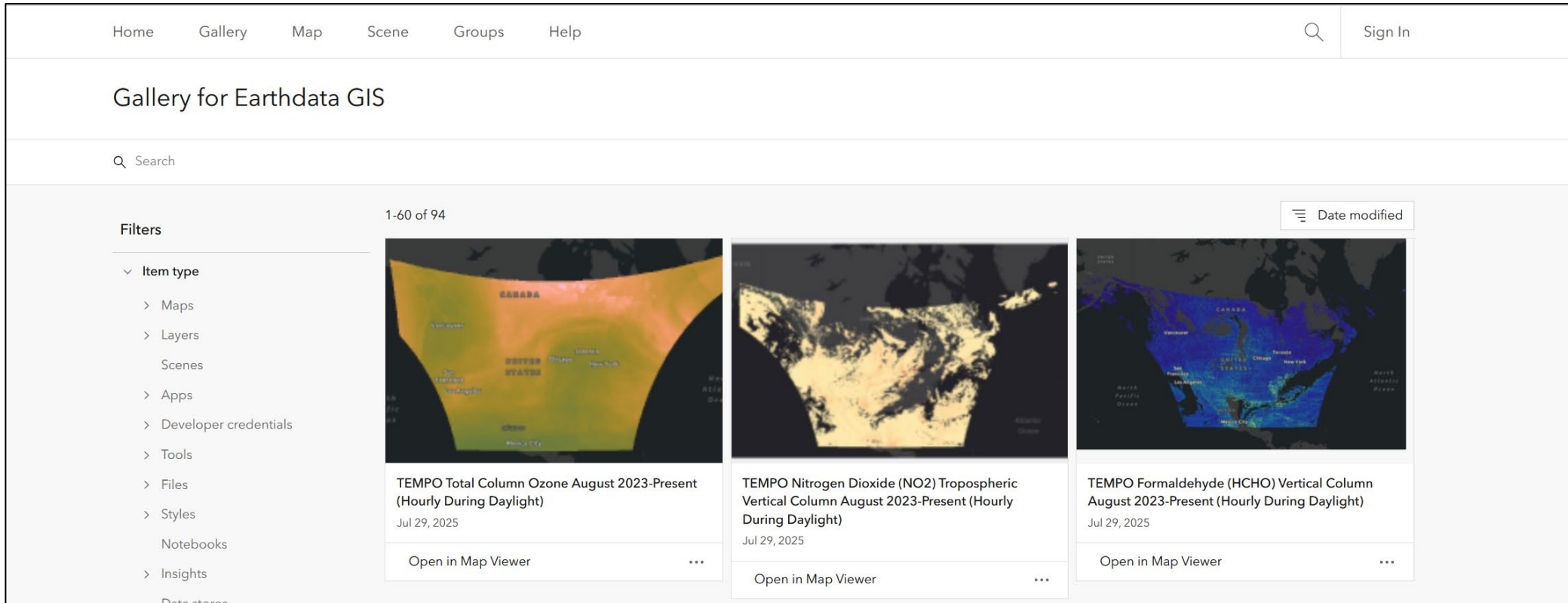
Examine data details and download TEMPO files using [earthaccess](#) →

On this page
[How-to...](#)
Tutorials
[View source](#)
[Report an issue](#)



Earthdata GIS

- TEMPO images can be accessed either through the Esri Living Atlas or the [NASA Earthdata GIS Portal](#)



See a demo by Georgina Hayes-Crepps, ASDC, Wednesday 11:00-12:30 !



<https://giovanni.gsfc.nasa.gov>

- Analyze NASA Gridded data products (Level 3 & 4) online
- No need to download data
- Create common plots
 - Spatial average map
 - Time series
 - Correlation plot
 - ...and many more!
- Download data used to generate the plot for further analysis on your own
 - NetCDF
 - CSV

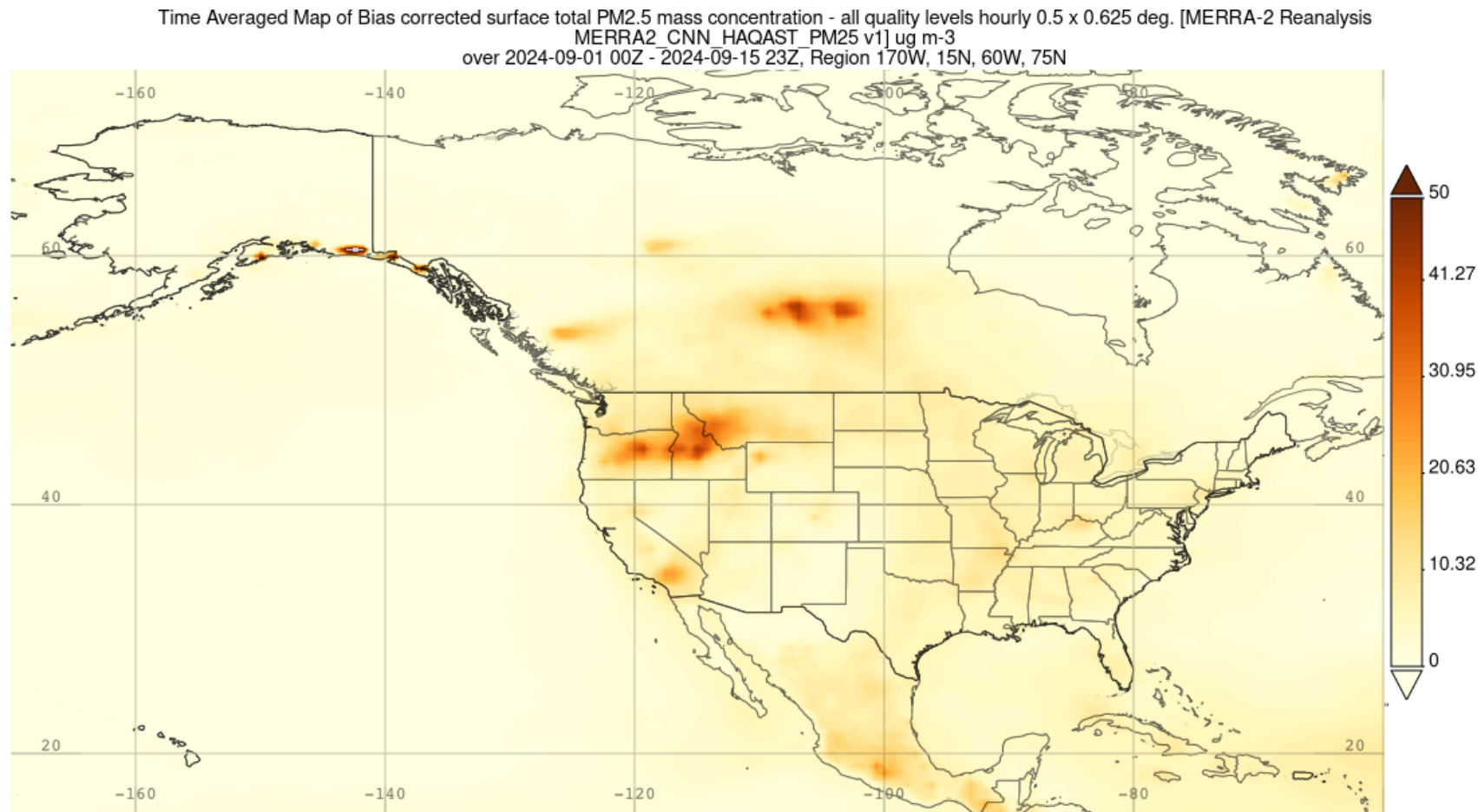


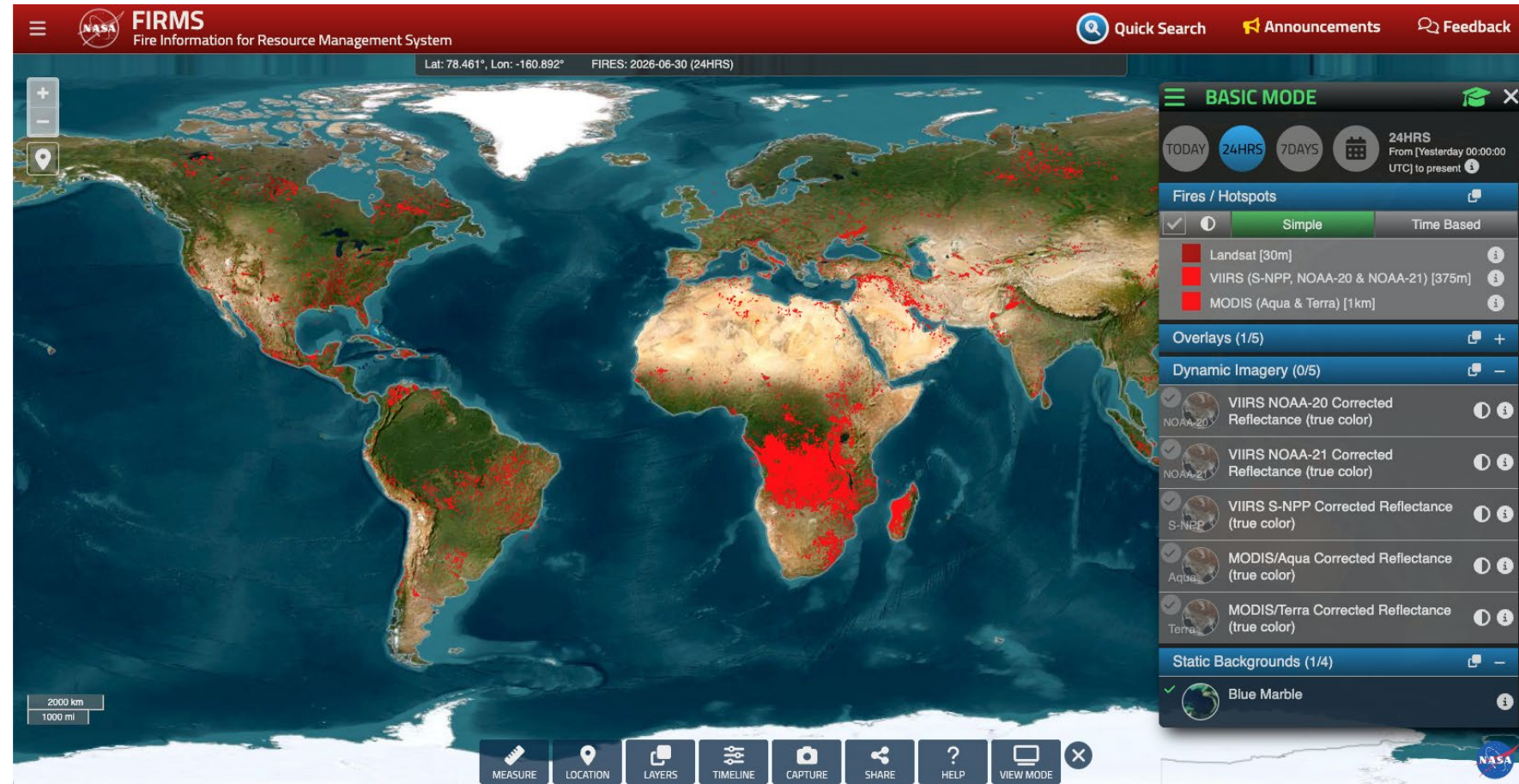
Figure generated with NASA Giovanni tool for MERRA2_CNN_HAQAST_PM25 product



Fire Information for Resource Management System (FIRMS)

<https://earthdata.nasa.gov/data/tools/firms>

- Enables access to global near real-time satellite imagery, active fire detections and other data from multiple satellites
- Detect and monitor the location, extent and intensity/severity of fire activity
- Map burned area extent
- Support event response
- [ARSET FIRMS Training](#)



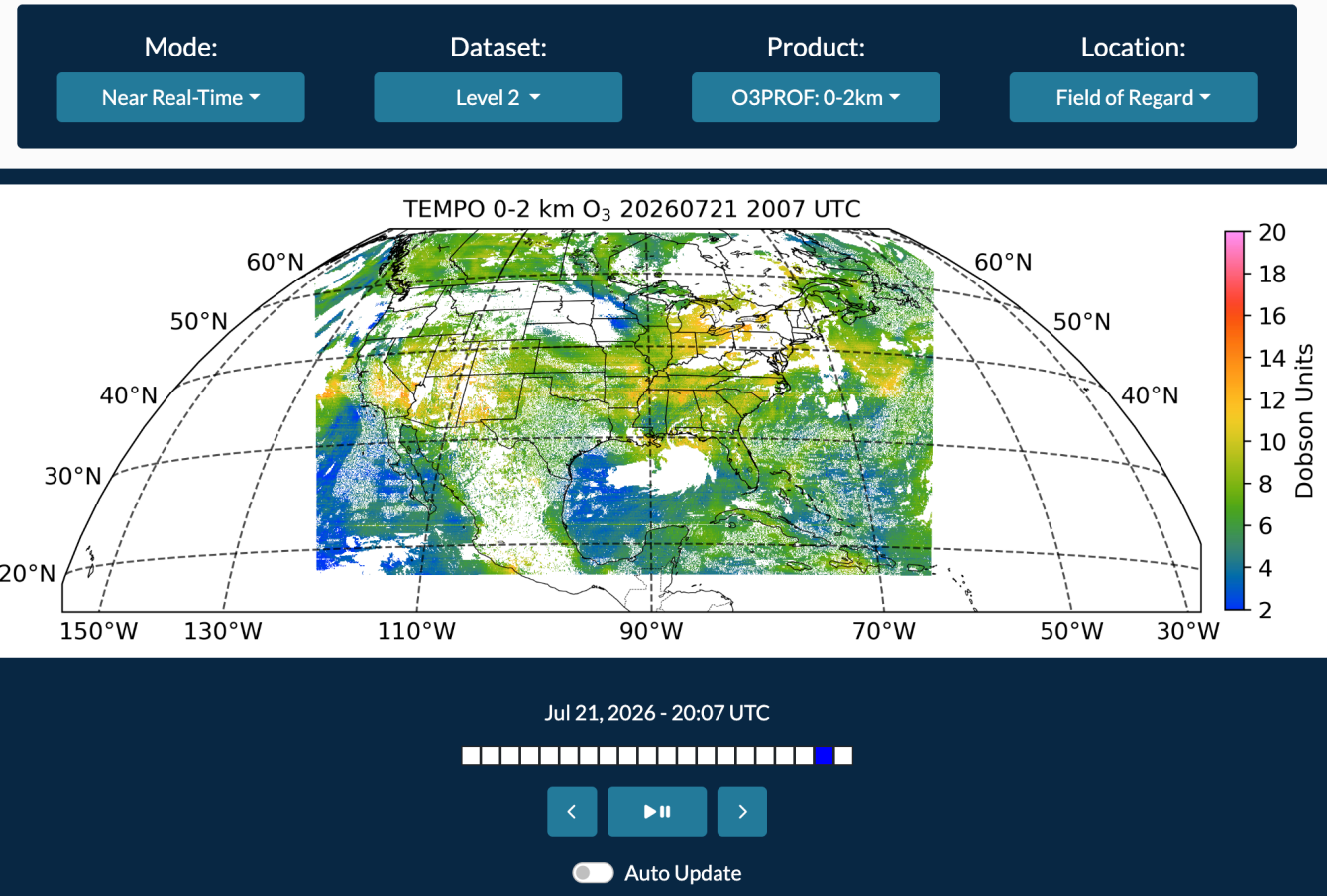
SPoRT Viewer

<https://weather.ndc.nasa.gov/sport/viewer/>

- Near-real-time (NRT) data viewer for TEMPO and other datasets
- TEMPO Level 2 NRT products
 - NO₂
 - HCHO
 - Total Column O₃
 - Tropospheric O₃
 - 0-2km O₃
- TEMPO Level 3 NRT products
 - NO₂
 - HCHO
- TEMPO RGB Products
 - True Color Imagery
 - NO₂-HCHO Tracker

SPoRT Viewer - Near Real-Time

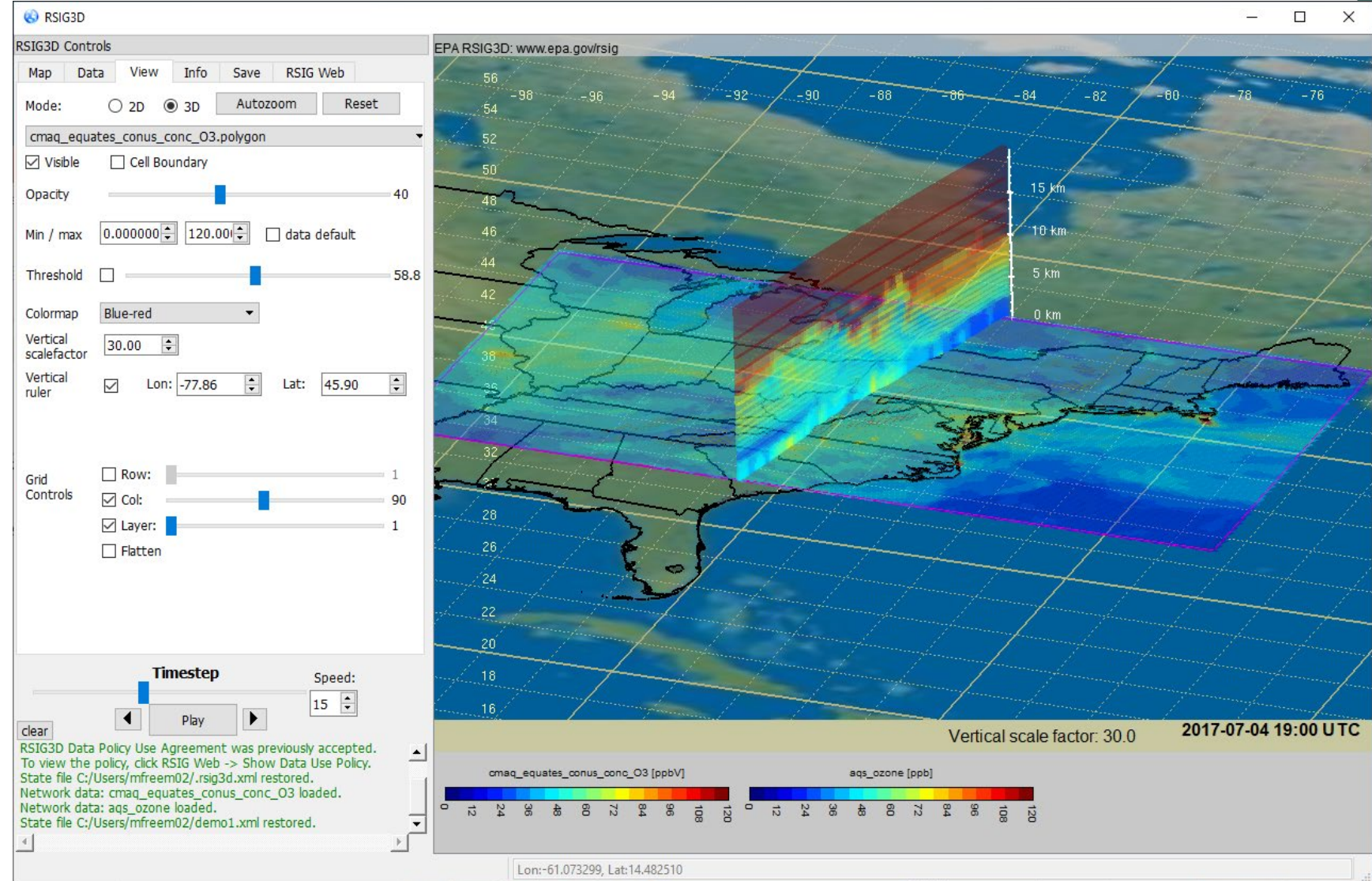
TEMPO: Level 2



Remote Sensing Information Gateway (RSIG)

<https://www.epa.gov/rsig>

- EPA & ASDC service
- Diverse air quality datasets
 - ground monitors
 - low-cost sensors
 - CMAQ
 - HRRR
 - TEMPO
 - MODIS
 - pandora
 - ...and many more!
- Stream data as needed
- RSIG3D desktop tool
- pyrsig Python package

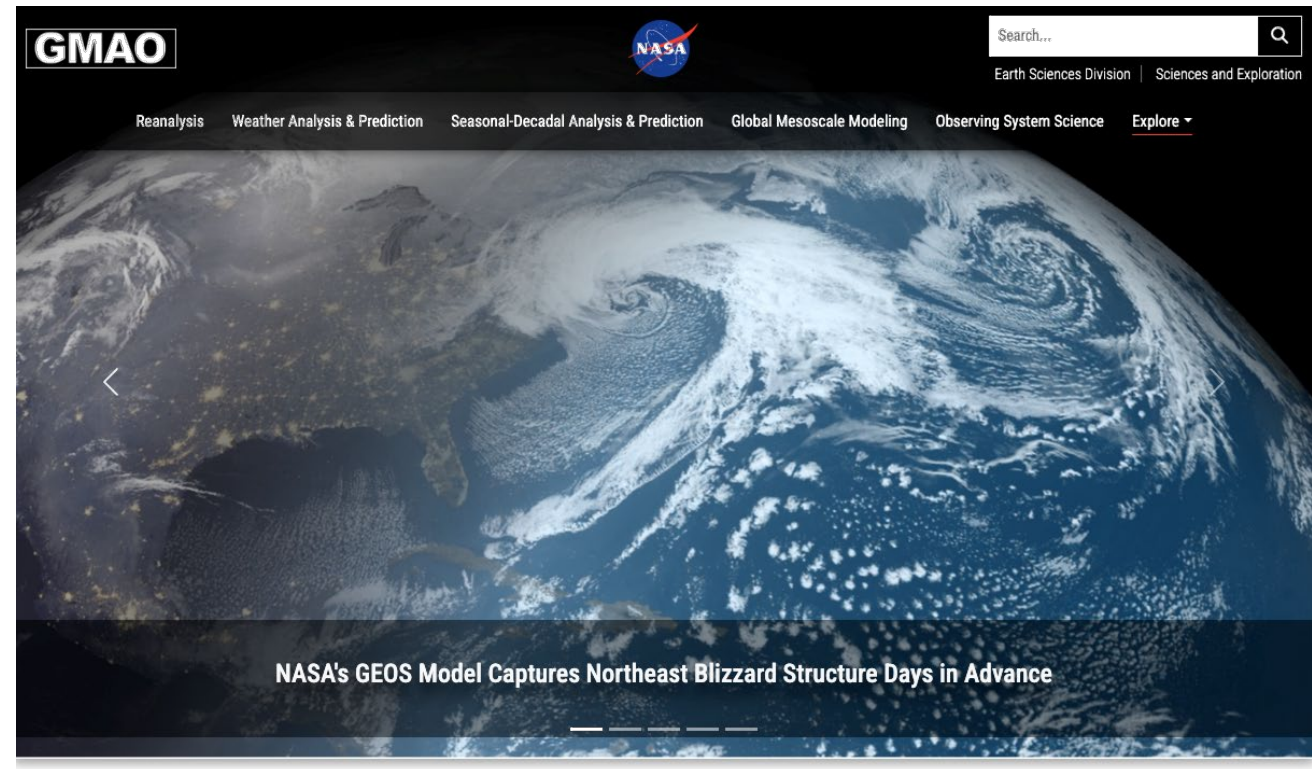


Global Modeling and Assimilation Office

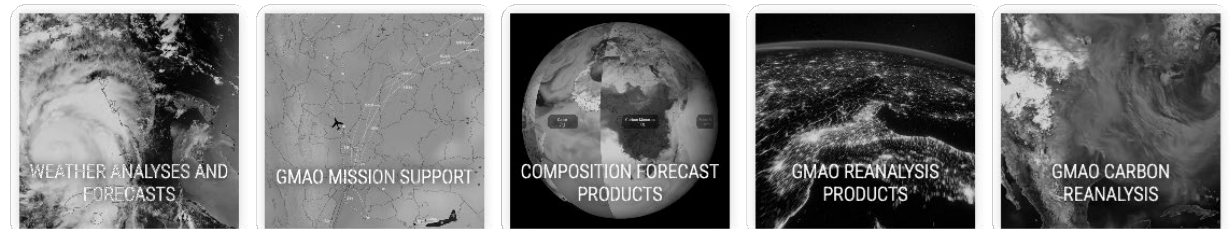
<https://gmao.gsfc.nasa.gov/>

GMAO performs research, develops models and assimilation systems, and produces quasi-operational products in support of NASA's Earth science missions & applications.

- Reanalysis
- Forecasting
 - Weather
 - Composition
 - Sub-seasonal to Seasonal
- Data visualization (FLUID)
fluid.nccs.nasa.gov/
- Data access (NCCS)
portal.nccs.nasa.gov/datashare/



FLUID Imagery and Data Access



Goddard Earth Observing System Composition Forecast (GEOS-CF)

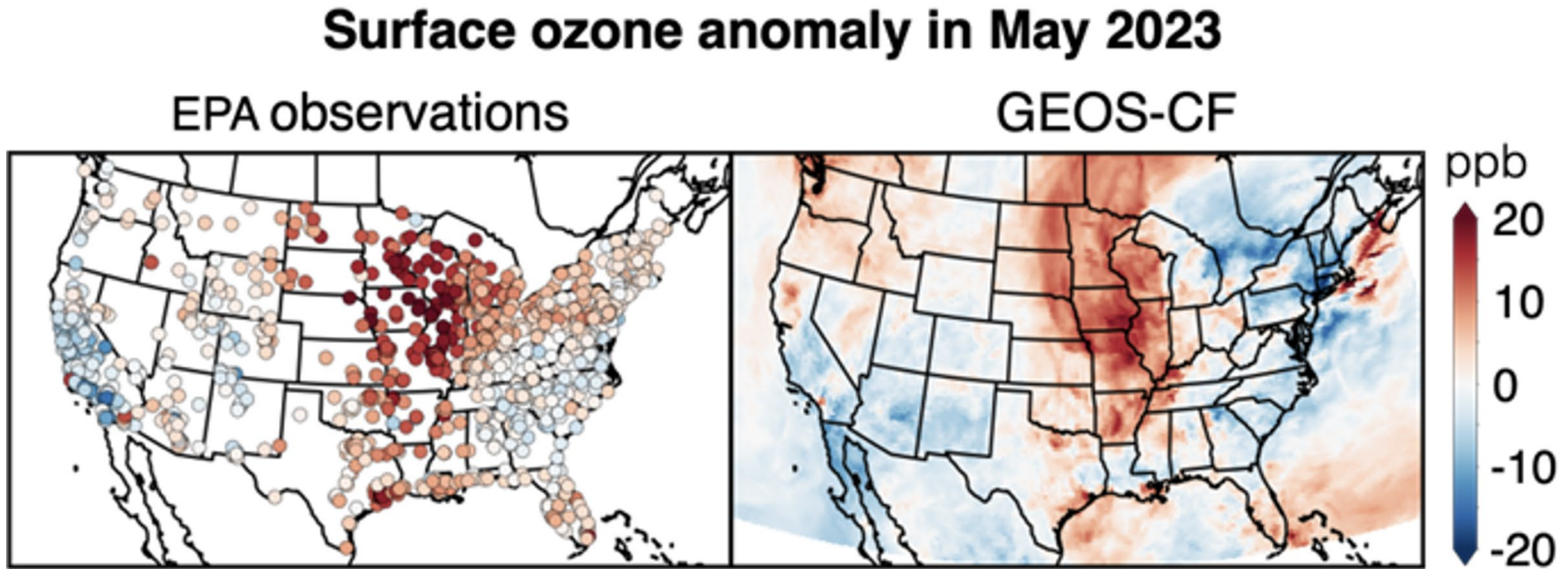
- Combines GEOS numerical weather prediction with GEOS-Chem chemistry simulation
- Generates 3D gridded continuous datasets of atmospheric constituents for research & applications
- Run daily
- 5 day forecast
- 0.25° (~25km) grid resolution
- Supports NASA missions (TEMPO, TOLNet, suborbital)
- Applications to human & environmental health



Source: [NASA SVS](#)



GEOS-CF Surface Ozone Anomalies



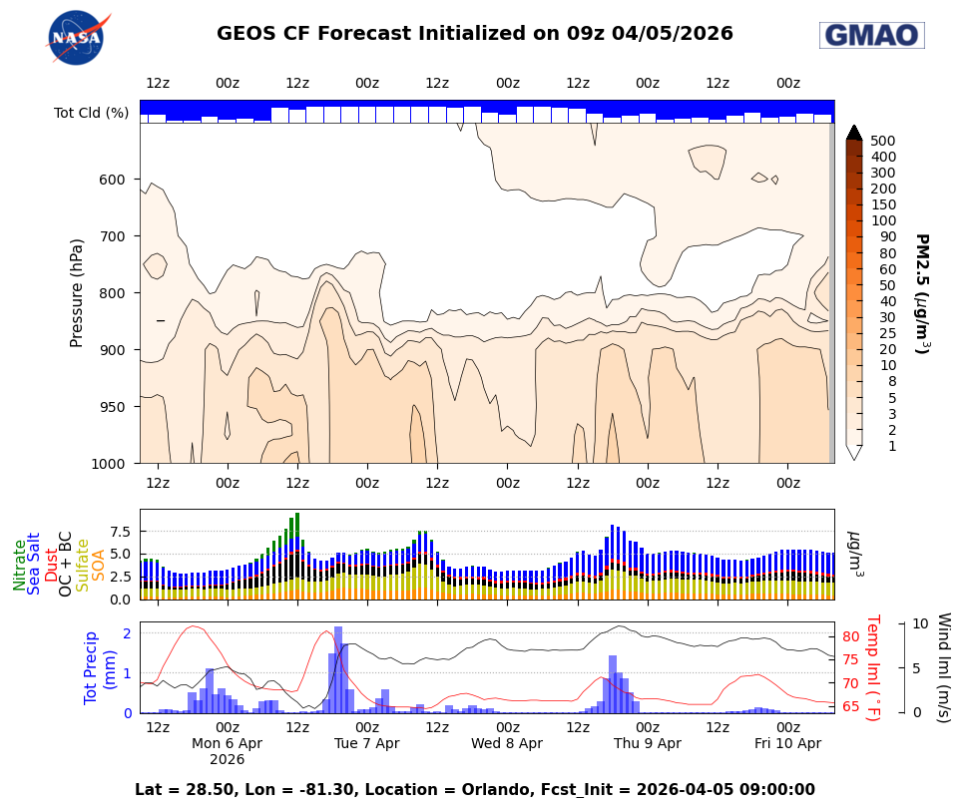
Source: Shah, V., et al. (2023) "Ozone extremes over the U.S. tracked by NASA's composition forecasting system," *GMAO Science Snapshot*. https://gmao.gsfc.nasa.gov/research/science_snapshots/2023/ozone-2023.php



GEOS-CF Data Access

Direct File Access

<https://portal.nccs.nasa.gov/datashare/gmao/geos-cf/>



Remote File Access (OPENDAP)

<https://opendap.nccs.nasa.gov/dods/gmao/geos-cf>

Interactive Maps

<https://fluid.nccs.nasa.gov/cf/>

Available Products

☐ NO₂

☒ O₃

☐ PM2.5

Geotiff Forecast Selection

Forecast Date
20260405 09:30z

Forecast Lead Time
000h 05Apr2026 09z

Colormap Options
viridis

Update Map

Quick Stations

NATIONAL
Select a Station

WORLD
Select a Station

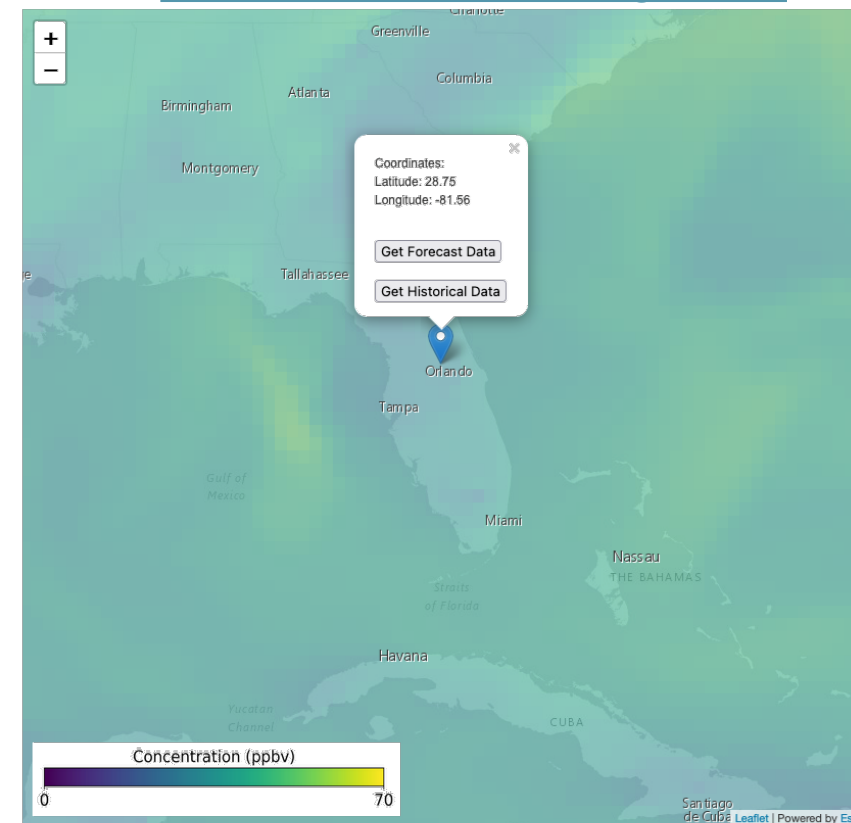
AERONET
Select an Option

MEGACITIES
Select a Station

ACTIVE CAMPAIGNS
Select an Option

TCCON
Select a Station

NOAA OBSPACK
Select a Station



CFAPI & Python Tools

<https://fluid.nccs.nasa.gov/cf/api/>



Health and Air Quality Applied Sciences Team

<https://haqast.org/>

Our goal is to use NASA's data and satellites to pursue cutting edge applied research in order to keep you healthy and safe.

- Use NASA satellite & other data to help solve real-world public health and air quality problems.
- Work around the world on diverse issues related to health and air quality.
- Collaborate with public stakeholders to help guide long-term research.
- “Tiger Teams” pursue short-term, high-impact projects in small groups.



Getting started with NASA satellite data for health and air quality:
<https://haqast.org/getting-started/>



Applied Remote Sensing Training Program

ARSET provides accessible, relevant, and cost-free training on remote sensing satellites, sensors, methods, and tools.

Our trainings are:

- Online and in-person
- Open to everyone
- Live, instructor-led, or self-guided
- Provided at no cost, with materials and recordings available from our website
- Often multi-lingual
- Tailored to those with a range of experience in remote sensing, from **introductory** to **advanced**

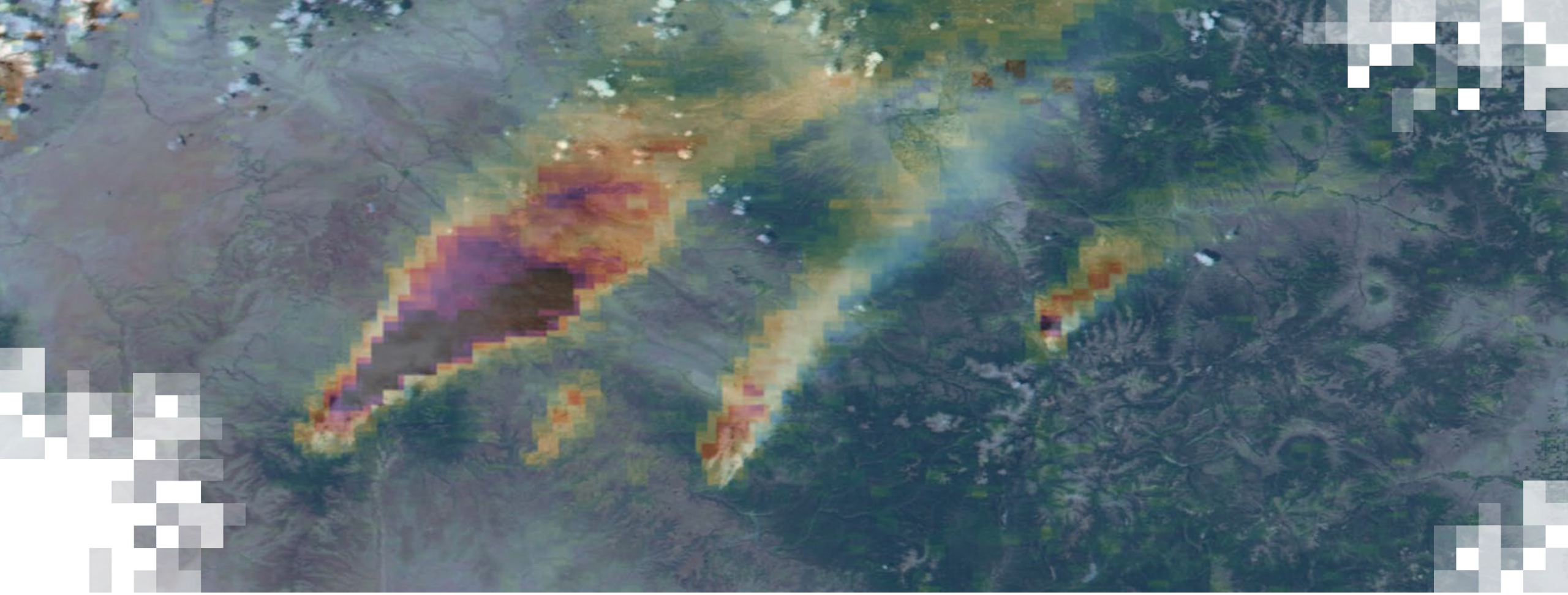
Training Themes

-  AGRICULTURE
-  CLIMATE & RESILIENCE
-  DISASTERS
-  ECOLOGICAL CONSERVATION
-  HEALTH & AIR QUALITY
-  WATER RESOURCES



[www.earthdata.nasa.gov
/data/projects/arset](http://www.earthdata.nasa.gov/data/projects/arset)





NASA Satellite Observations and Tools for Air Quality Management Summary

Contact Information

Trainers:

- Carl Malings
 - carl.a.malings@nasa.gov
- Aaron Naeger
 - aaron.naeger@nasa.gov
- Caterina Mogno
 - caterina.mogno@nasa.gov

- [ARSET Website](#)
- [ARSET YouTube](#)

For questions, comments, or to share how you have applied our trainings to your work or studies, email nasa.arset@gmail.com.

Join our mailing list to stay up-to-date on our latest trainings. Visit our [contact](#) page to subscribe.



Share Your Thoughts!

Within a day or two, we will send you an invitation to complete a short online survey.* **Your feedback helps us improve the ARSET program.**

- Participation is optional, and all responses are confidential.
- **Survey data are crucial to helping us understand how to better meet your needs. We want to help you use Earth observation data more effectively.**
- We read every survey comment – so please share your thoughts!

*The survey will come from noreply@alchemer.com. This is not spam.





Thank You!

