Science Directorate

Atmospheric Science Data Center (ASDC)

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ASDC Science Lead

4/24/2024

EXPLORE EARTH

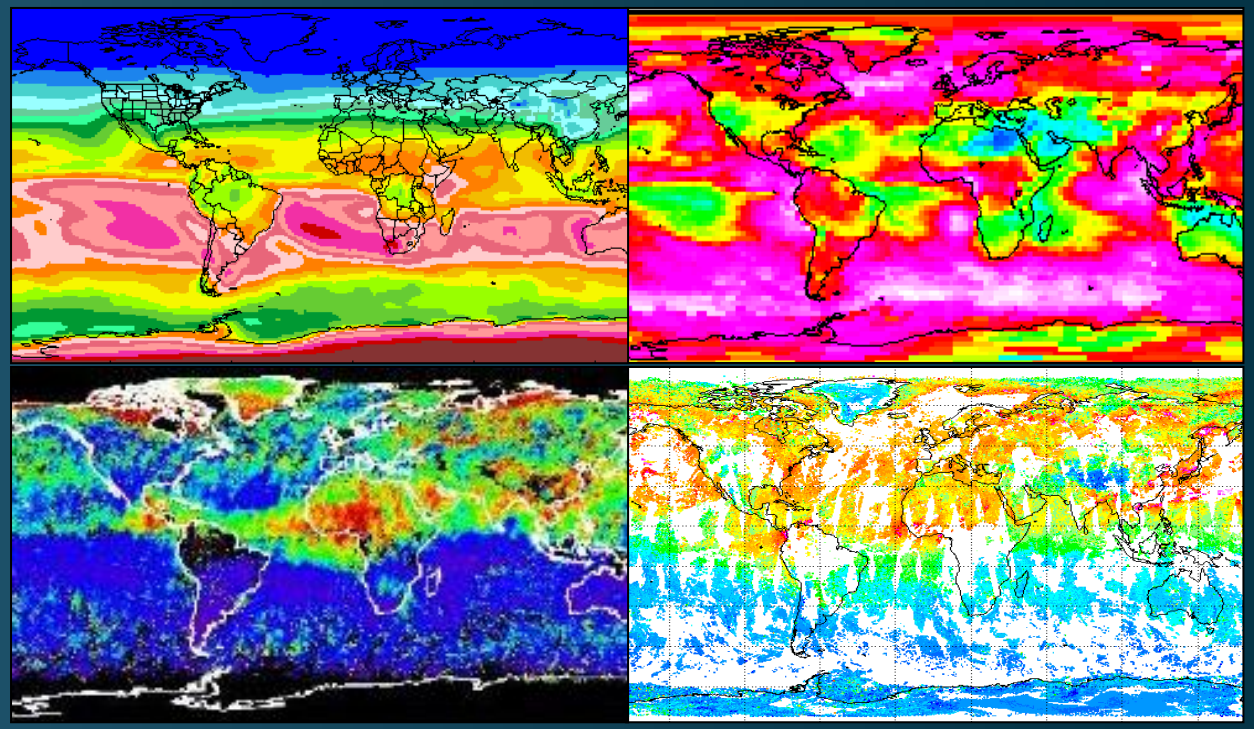
Agenda

ASDC Overview

Health and Air Quality Tools and Services

User Support and Outreach

ASDC at a Glance

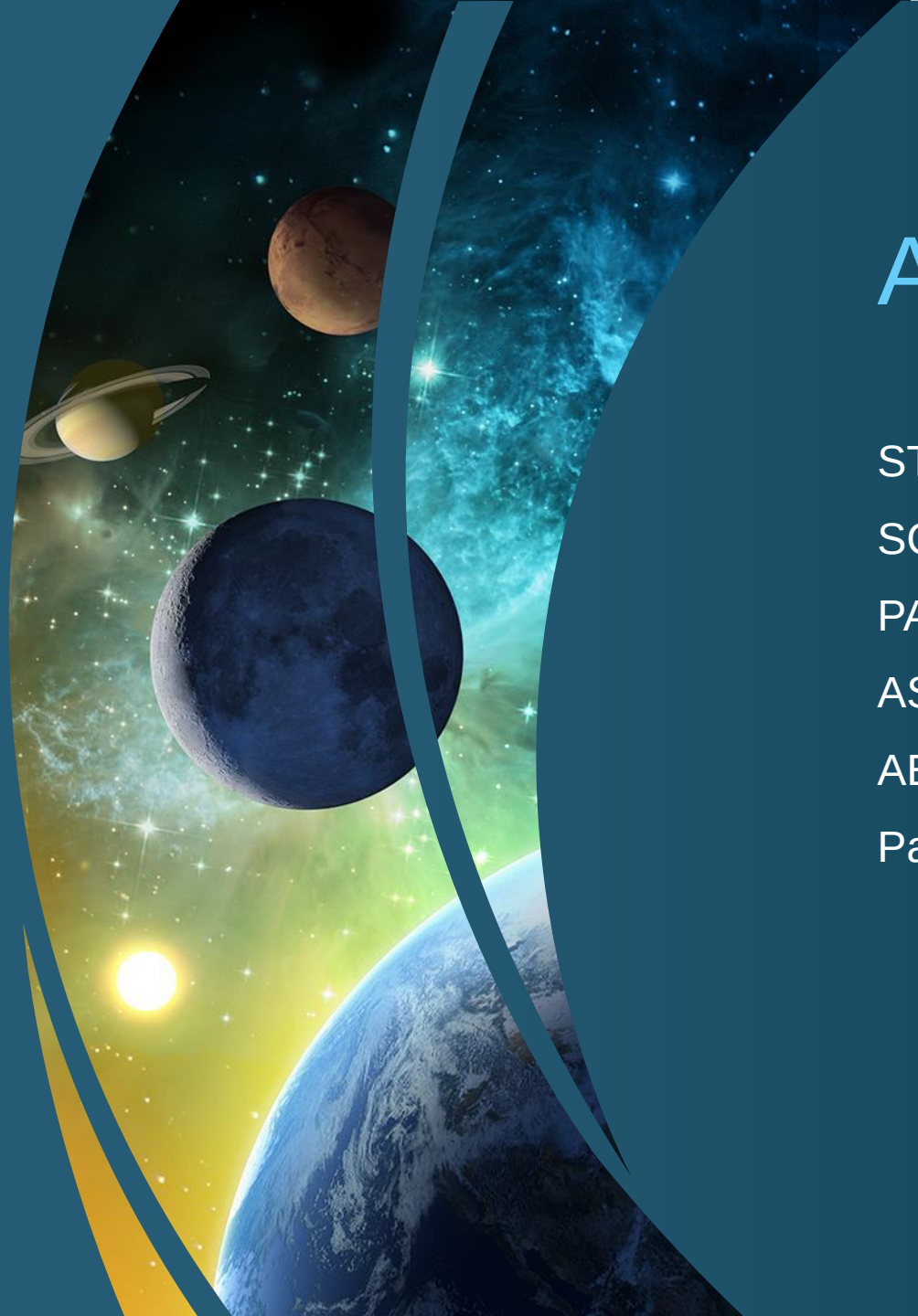


- ✓ 44+ Science projects
  - ∘ MISR ∘ MOPITT ∘ MAIA ∘ TEMPO ∘ CERES
  - ∘ TEMPO & CALIPSO → RSIG (EPA)
  - ∘ Airborne field campaigns (KORUS AQ, DISCOVER AQ, FIREX AQ)
- ✓ 1100+ unique science products
- ✓ Data usage (2022)
  - ∘ 3.5 Petabytes ∘ 160,000 users
  - ∘ 158 countries
- ✓ Data archive (2022)
  - ∘ 6.5 Petabytes ∘ 168 million files (5,500 TB) on high-speed disks
- ✓ Data in cloud (ongoing)
  - ∘ Data and services in the cloud
  - ∘ Scalable infrastructure

Primary Functions of ASDC

Ingest receive data from data provider
Archive preservation & provenance
Distribute tools and services

Process create higher level products
Outreach & Support research community



ASDC Suborbital Updates

STAQS (TEMPO validation)

SCOAPE-II (second deployment to SCOAPE)

PACE-PAX (PACE validation)

ASIA-AQ

AERONET

Pandora

Health and Air Quality Tools and Services

Earthdata Search

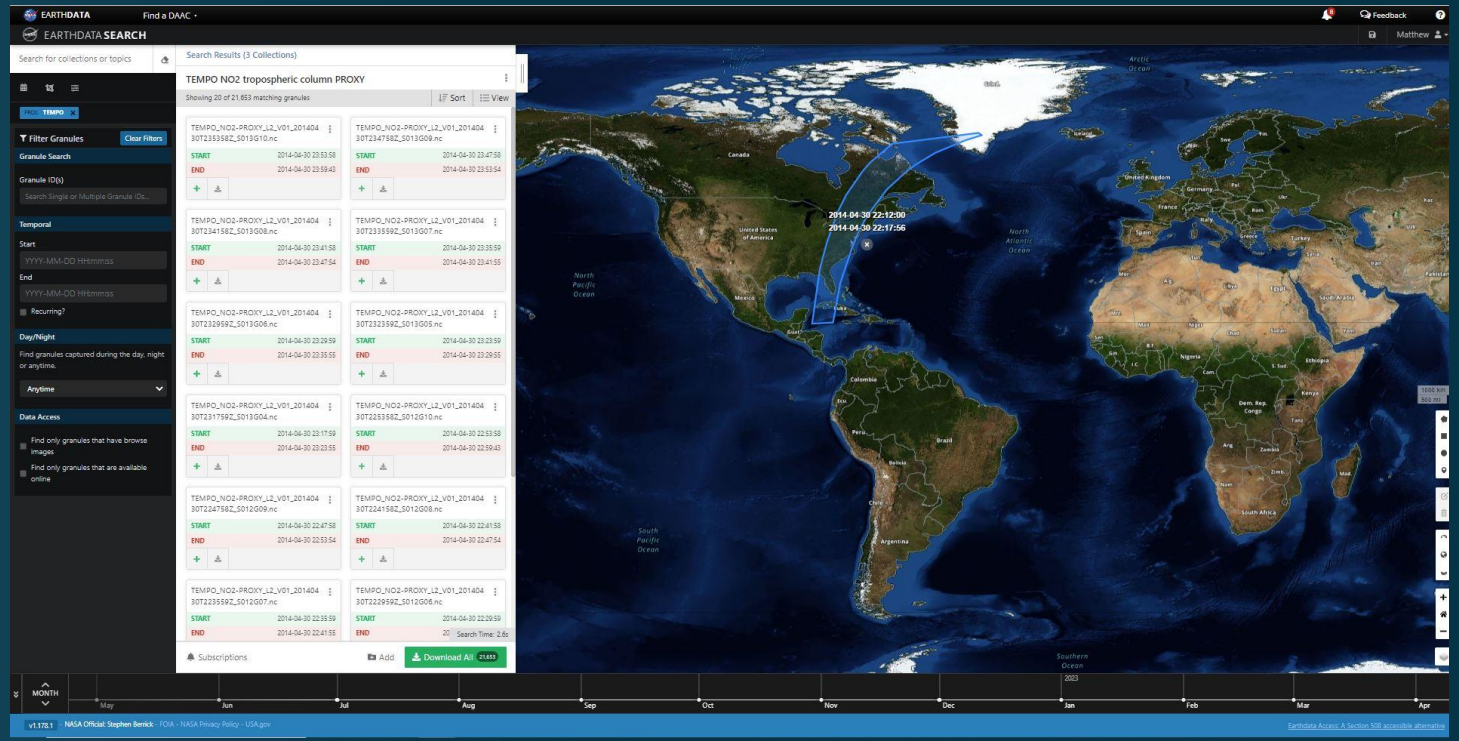
Historical Urban Population: 3700 BC - AD 2000

1 Granule 1700-01-01 to 2000-12-31

The Historical Urban Population, 3700 BC - AD 2000, originally developed by the Yale School of Forestry & Environmental Studies, is the first spatially explicit...

GEOSS • CIESIN_SEDAC_USPAT_HUP v1.00 - SEDAC

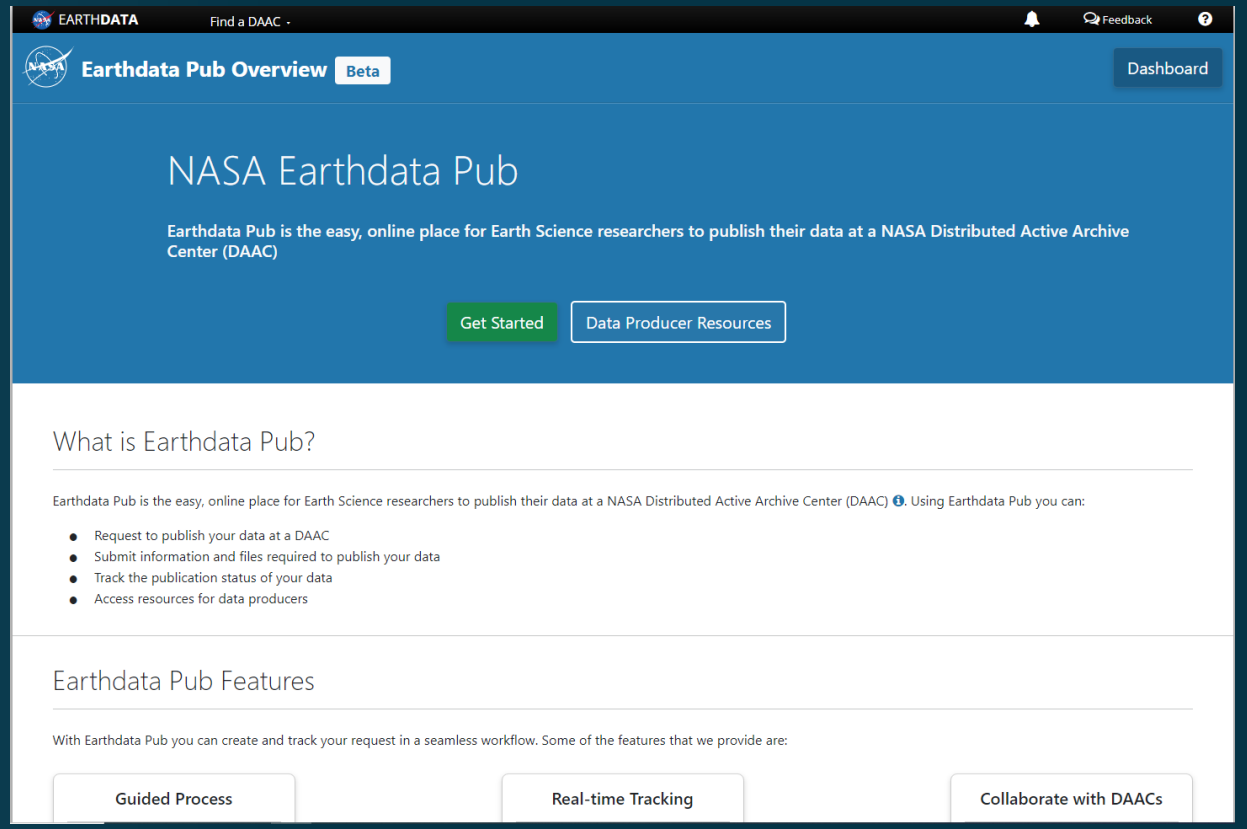
- Search and Order
  - On Premise
  - Amazon Web Services
- Subsetting & Aggregation
- Browse Imagery
- File Conversions
- Application Programming Interface (API) Access



https://search.earthdata.nasa.gov

Earthdata Pub

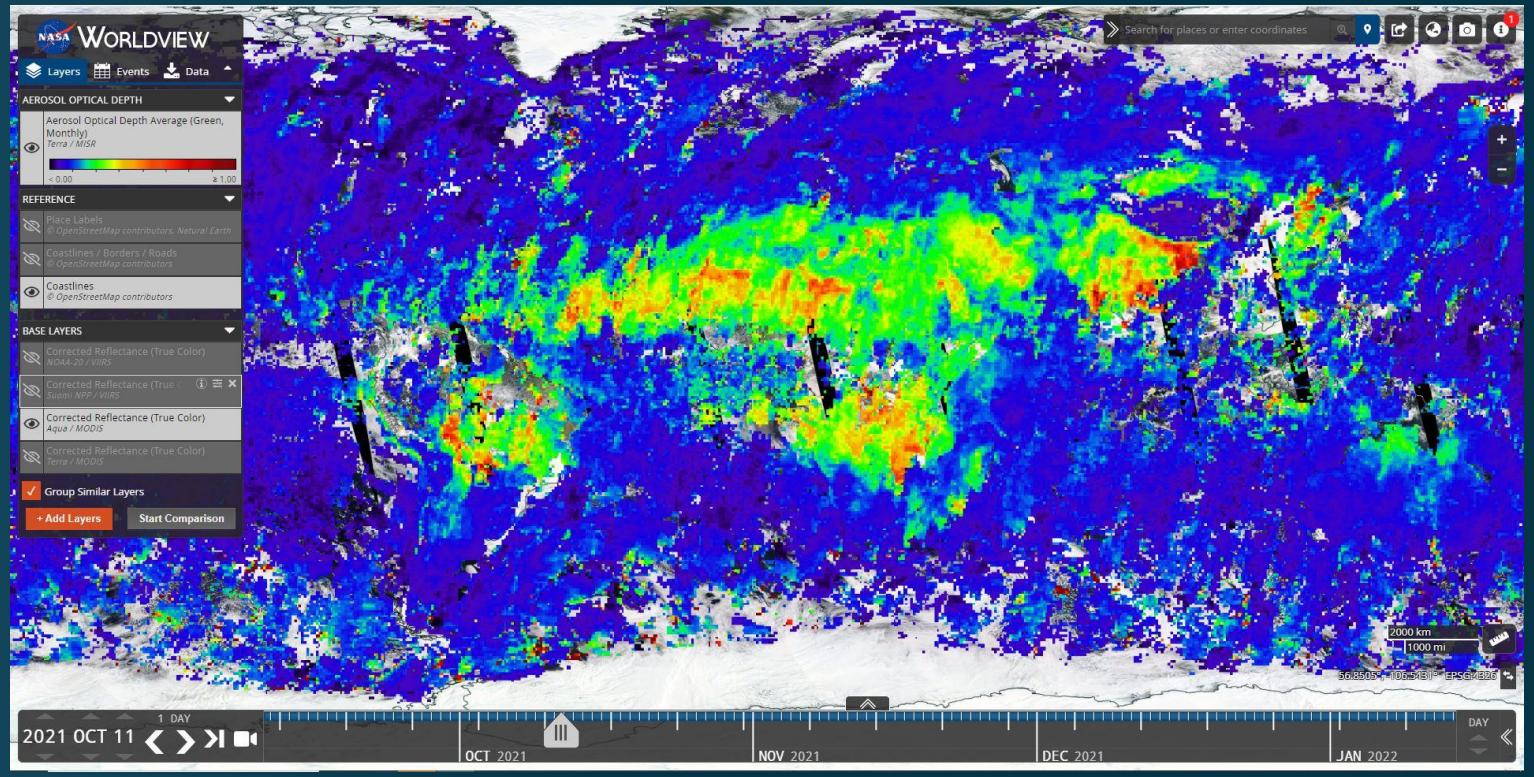
- Request to publish your data at a DAAC
- Submit information and files required to publish your data
- Track the publication status of your data
- Access resources for data producers



https://pub.earthdata.nasa.gov/

Worldview / Global Imagery Browse Service (GIBS)

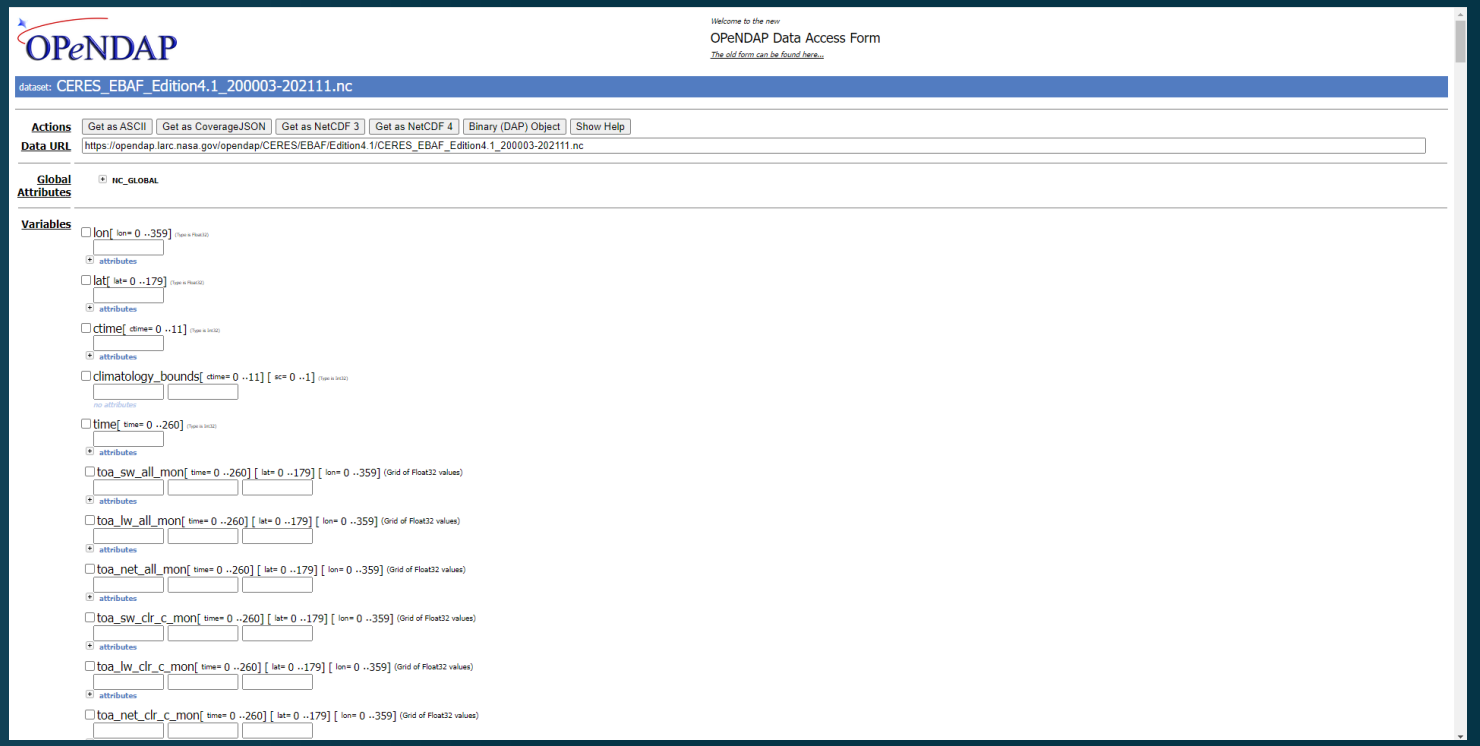
- Browse Imagery
- Animations
- Event Information
- GIBS API



https://worldview.nasa.gov

OPeNDAP

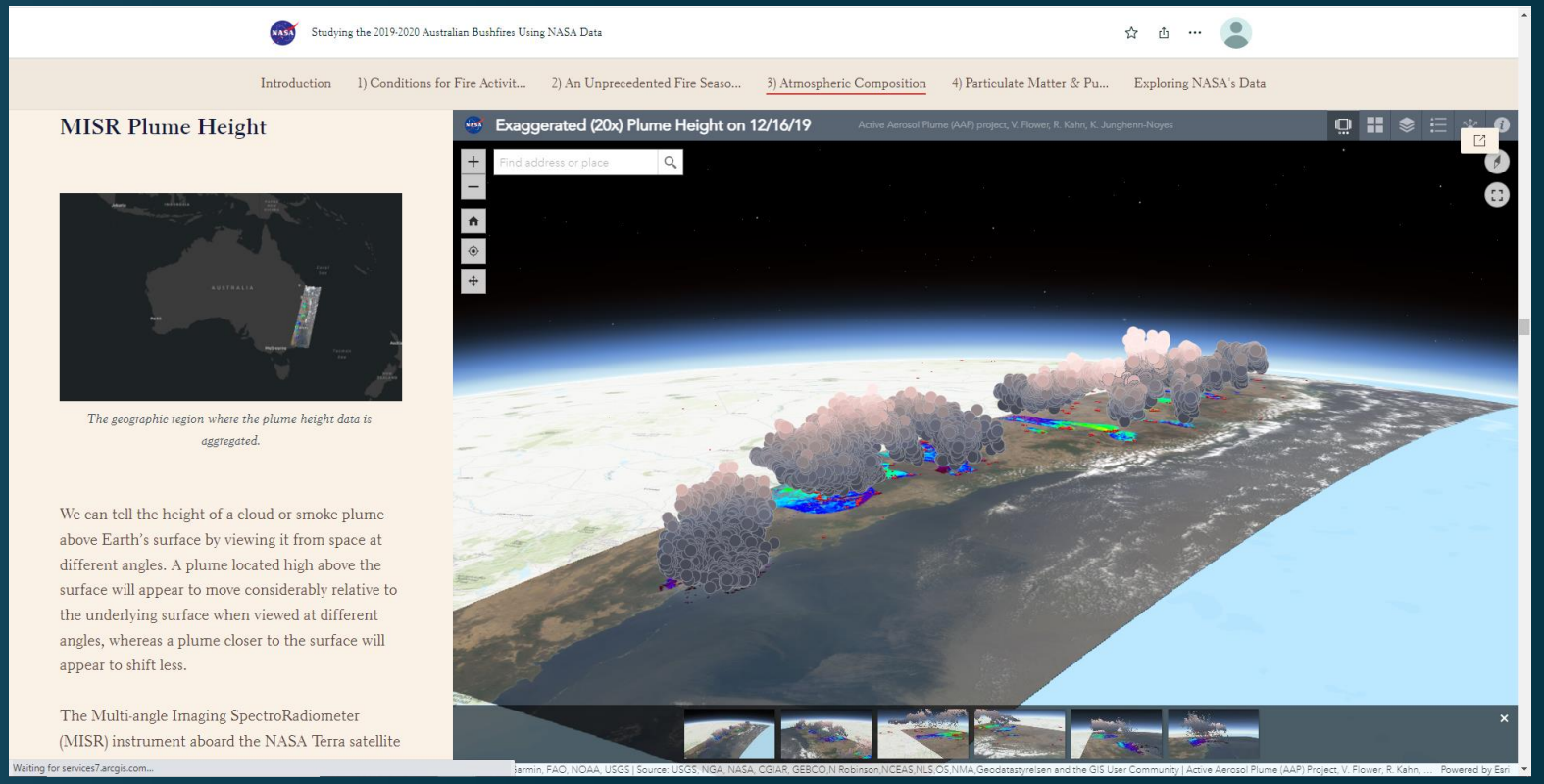
- API Access
- Subsetting & Aggregation
- File Conversions



https://opendap.earthdata.nasa.gov

ArcGIS Enterprise in the Earthdata Cloud

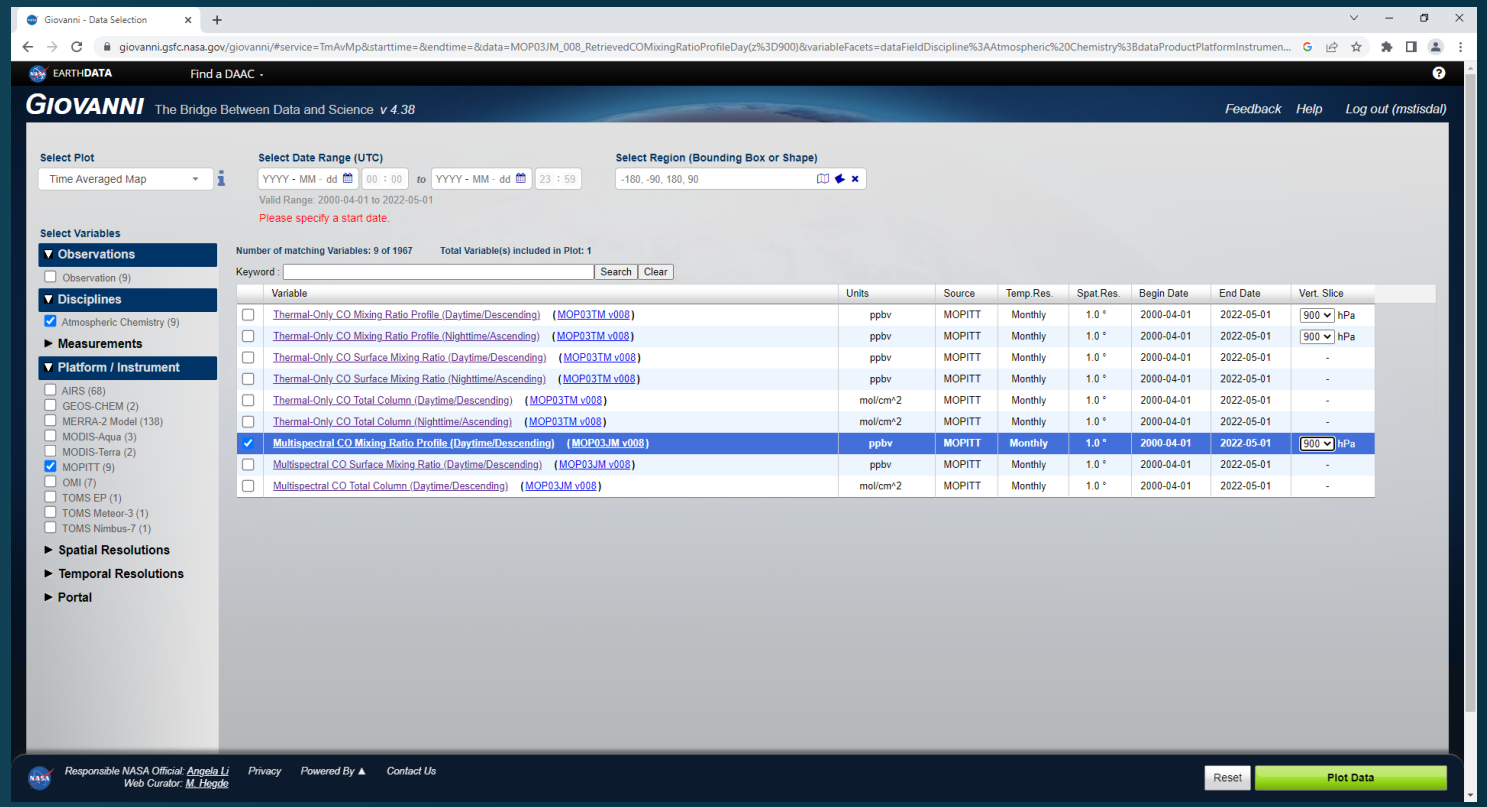
- Geospatial Services
- Maps
- StoryMaps
- Applications



https://gis.earthdata.nasa.gov

Giovanni

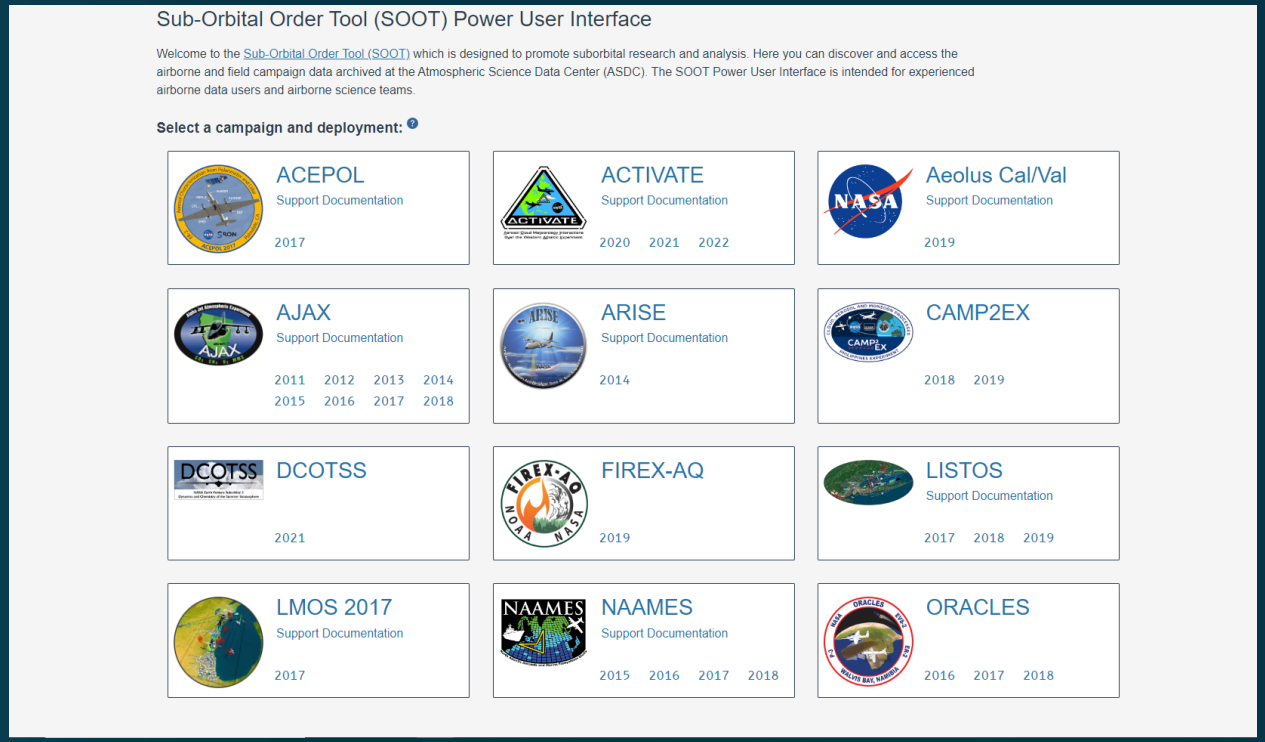
- Time Series
- Time Averaged Maps
- Comparisons
- Vertical Cross Sections



https://giovanni.earthdata.nasa.gov

Sub-Orbital Order Tool (SOOT)

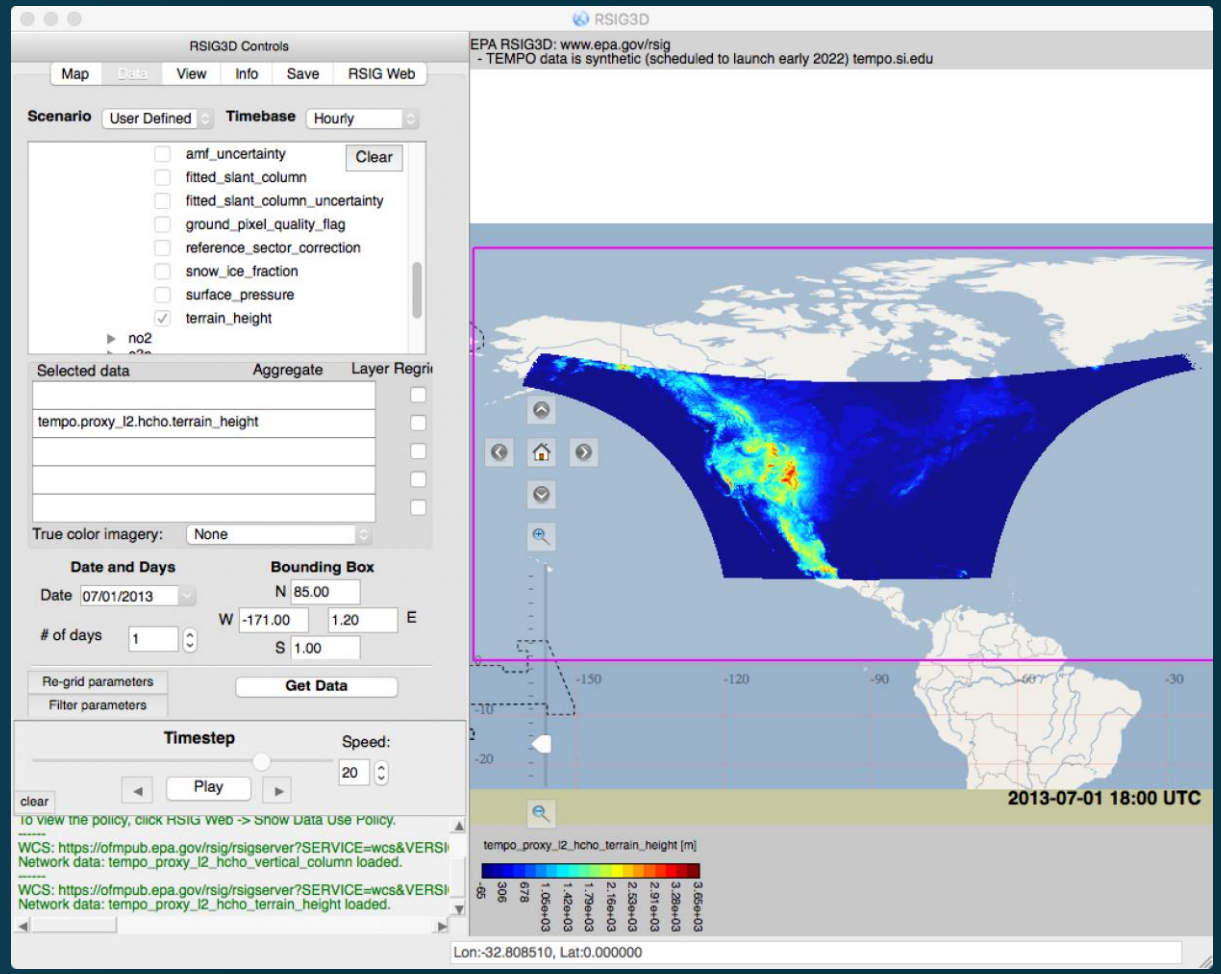
- Search and Access Sub-Orbital Data
- Merge to Common Time Scale



https://asdc.larc.nasa.gov/soot/power-user

EPA Remote Sensing Information Gateway (RSIG)

- Visualization (2D/3D) & Animations
- Subsetting to CMAQ Modeling Grids
- File Conversions
- API Access



https://www.epa.gov/hesc/remote-sensing-information-gateway

Earthdata Website

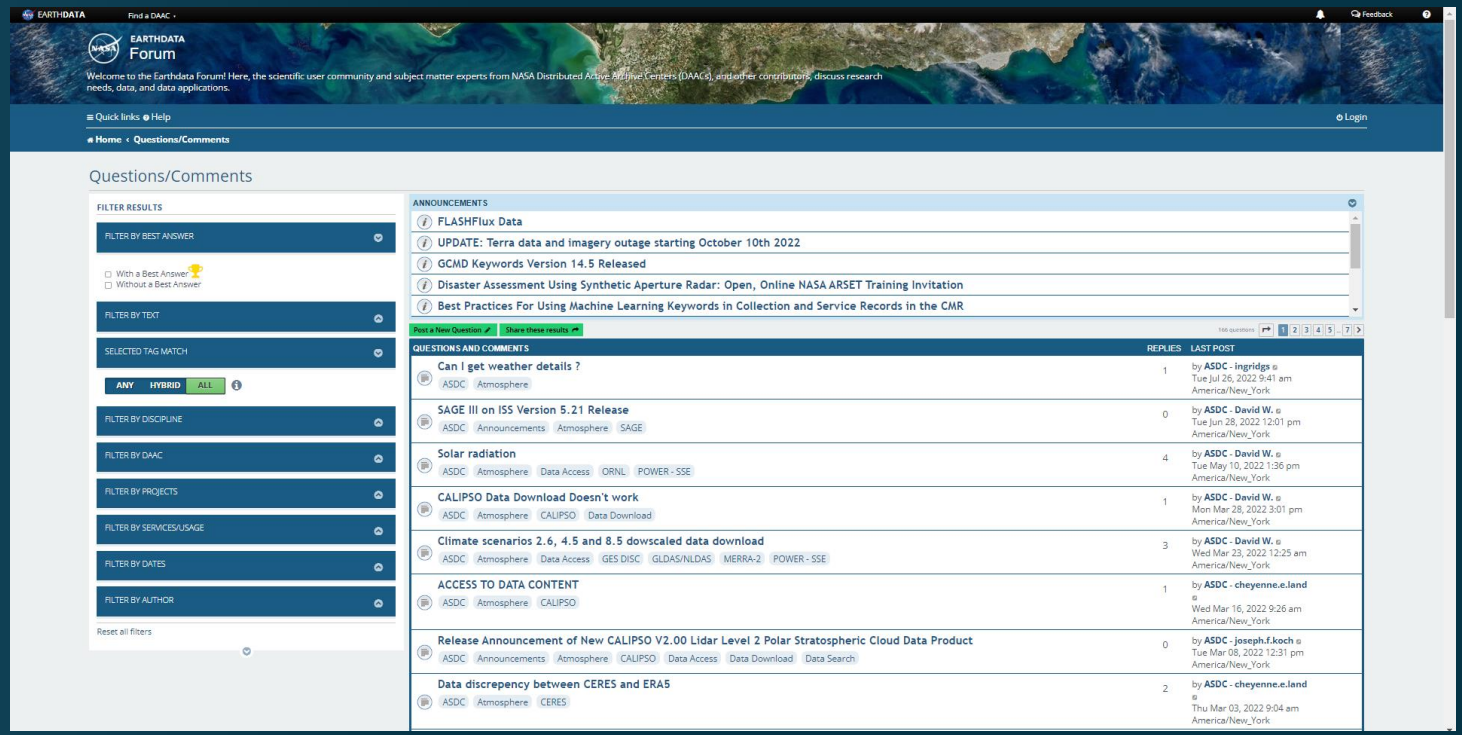
- Data Tools
- Data Recipes
- Data Pathfinders
- Webinars and Tutorials

https://www.earthdata.nasa.gov/

User Support and Outreach

Earthdata Forum

- View Existing Questions/Answers
- Ask New Questions to Subject Matter Experts
- Science and Technical Support



https://forum.earthdata.nasa.gov

Example question

Hello – I'm a lung doctor and researcher. I was trying to find out if TEMPO collects particulate matter air pollution (PM2.5) data but couldn't find this on your website. Are you able to answer the question and point me to the right data source. I know the data are new and in beta testing. Many thanks!

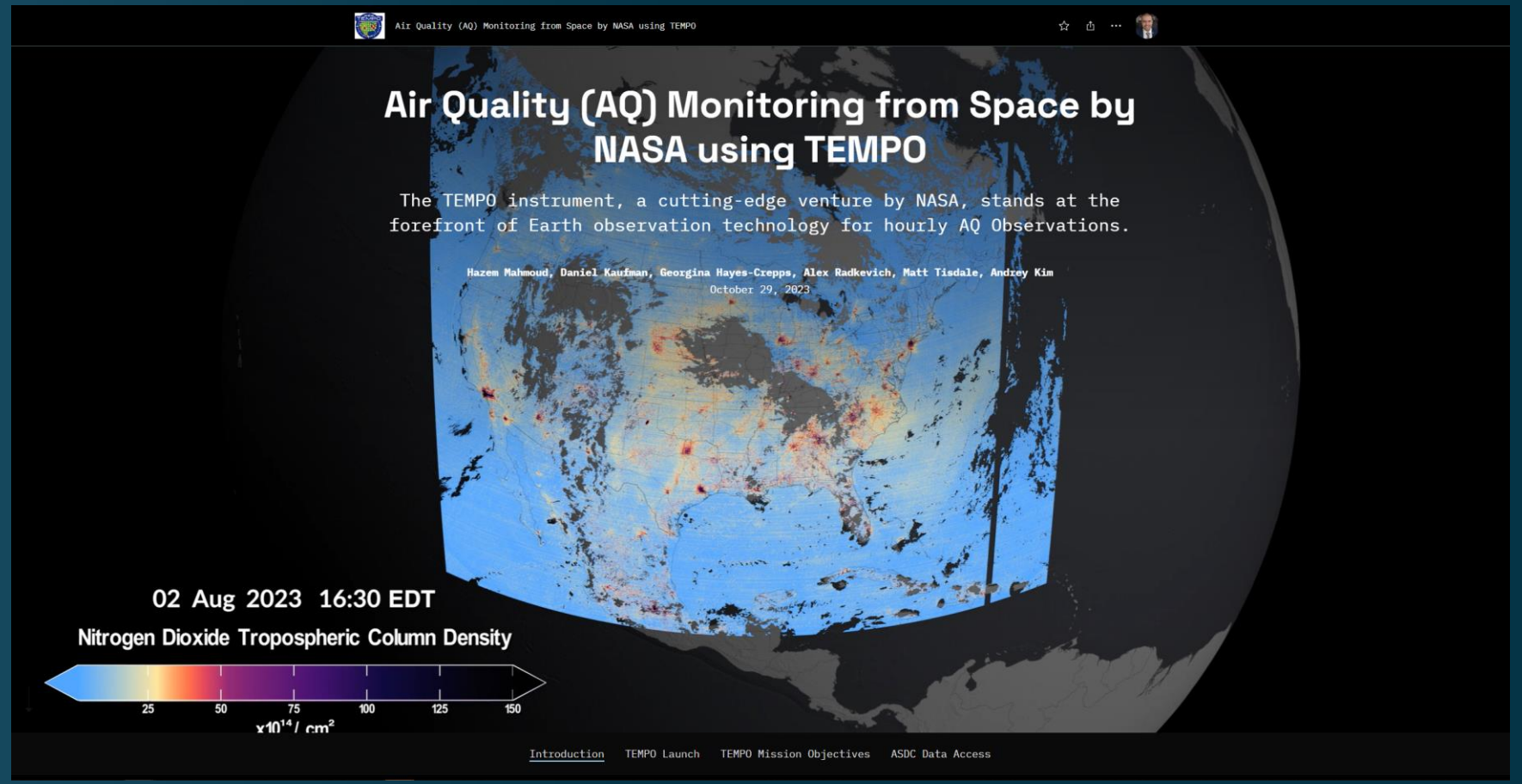
Best
Laura

Laura C. Myers, MD MPH CPPS
Research Scientist I, Division of Research, Kaiser Permanente Northern California
Pulmonary Intensivist, Diablo Service Area

Outreach

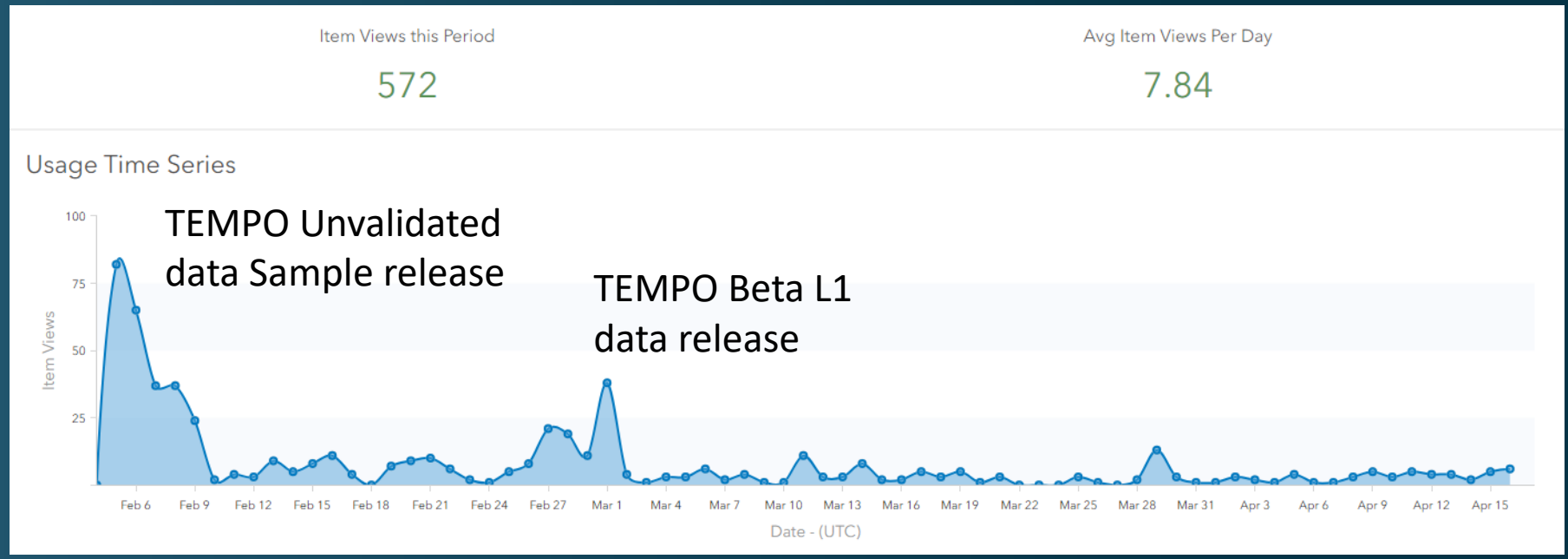
- Local in-person Bootcamp with coordination with VA Space Grant.
- Participation and attendance at various science team meetings.
- Openscapes workshops, Tutorials and Cookbooks.
- Airborne and Field Data Workshop.
- HAQAST
- AGU
- EGU
- AMS
- ESIP

TEMPO Storymap

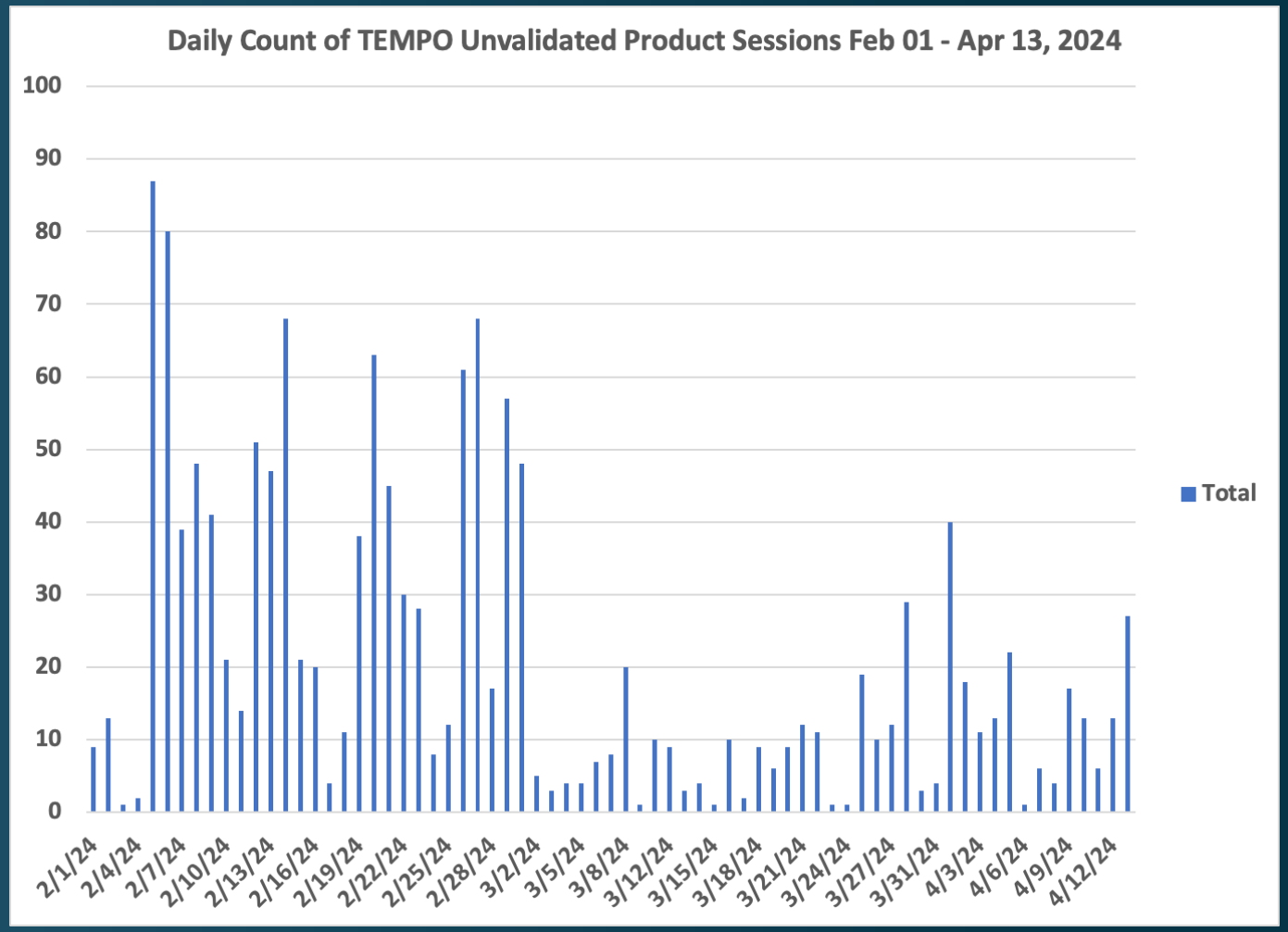


https://storymaps.arcgis.com/stories/01e82aefbc8b4d7a951fe089c818bc0c

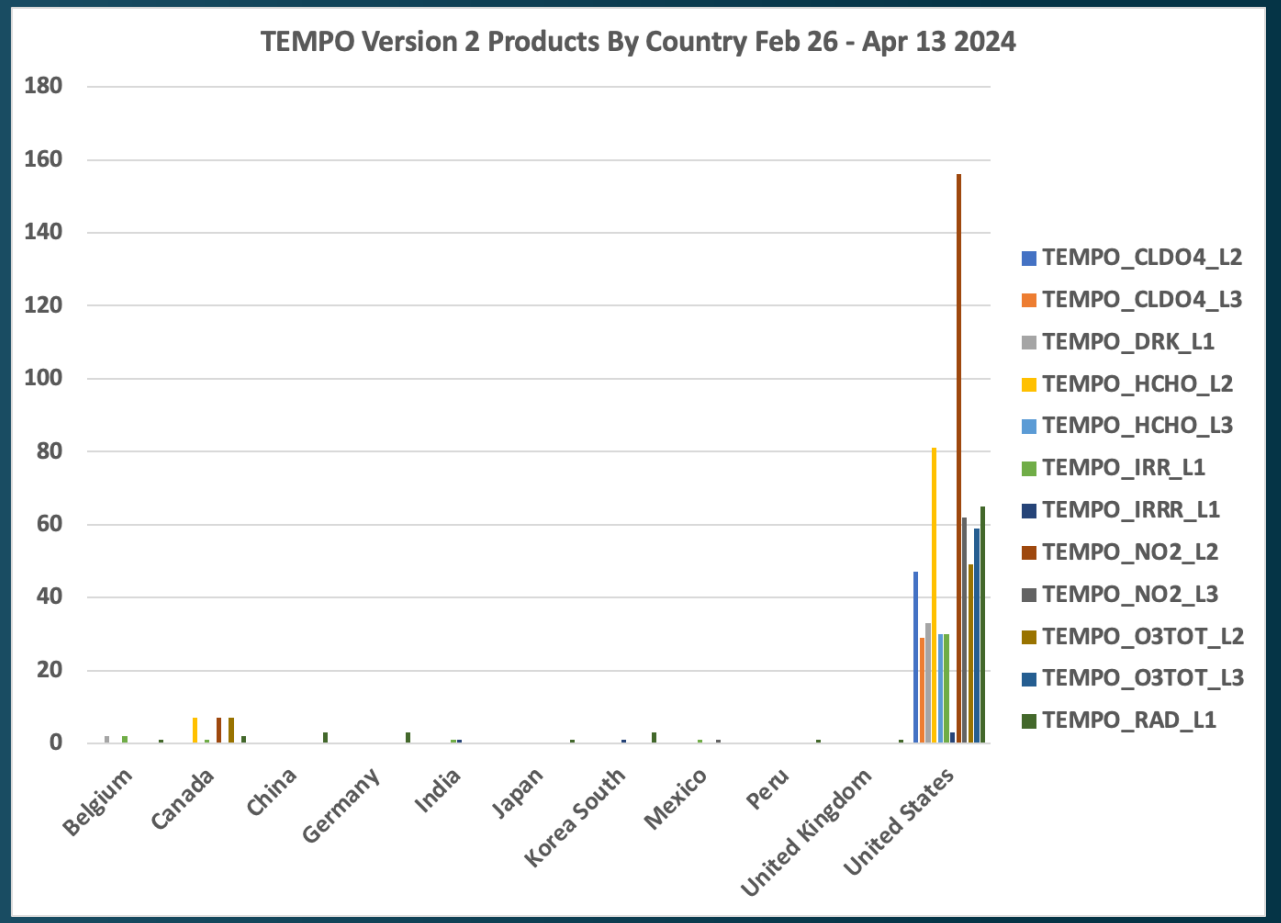
TEMPO Storymap metrics



Unvalidated TEMPO data



TEMPO Products per Country



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New Suborbital DAAC Assignments

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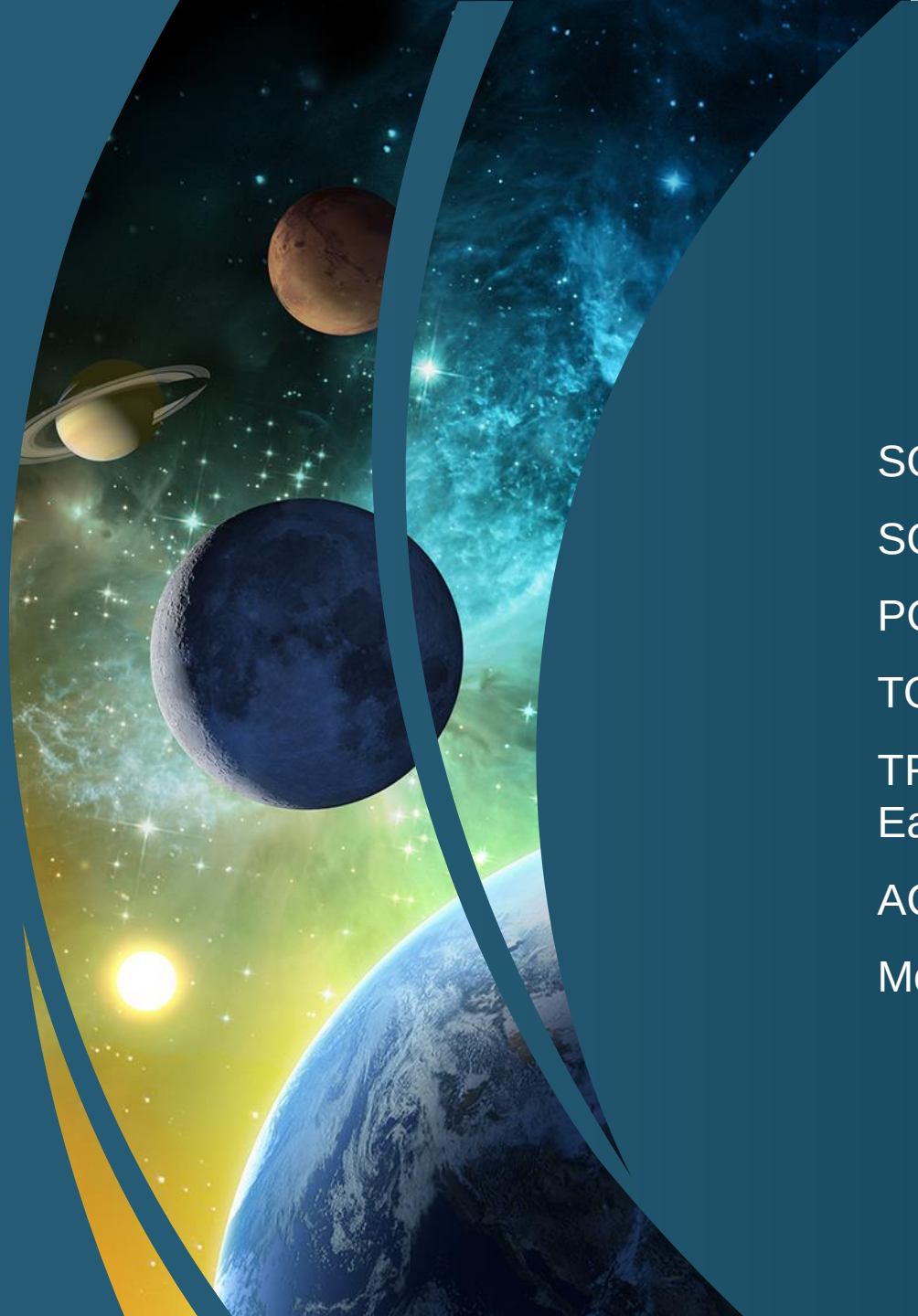

Recent Public Data Releases

SOLVE (legacy mission, 1999-2003)

SONEX (legacy mission, 1997)

POLARIS (legacy mission, 1997)

TOTE-VOTE (legacy mission, 1995-1996)

TRACE-A (part of GTE/TRACE, 1992) – released in the Earthdata Cloud

ACCLIP (2022)

More legacy missions are scheduled to be archived!

Suborbital Preservation

Completed suborbital preservation activities for NAAMES

Contributed to discussions at ESDSWG suborbital preservation breakout sessions (will continue to participate in any ongoing conversations/work surrounding this topic)

Worldview

ASDC Suborbital team has begun the process of adding suborbital datasets to Worldview (per feedback from our User Working Group)

Goal is to help promote suborbital data findability and accessibility

Currently undergoing testing for QA/QC

Outreach Efforts

3 presentations at the AMS Annual Meeting

Assisted with planning the Second Airborne and Field Data Workshop

Published StoryMaps highlighting AJAX, TOLNet Stratospheric Intrusion Event, and a user guide for AJAX

Participation and attendance at various science team meetings