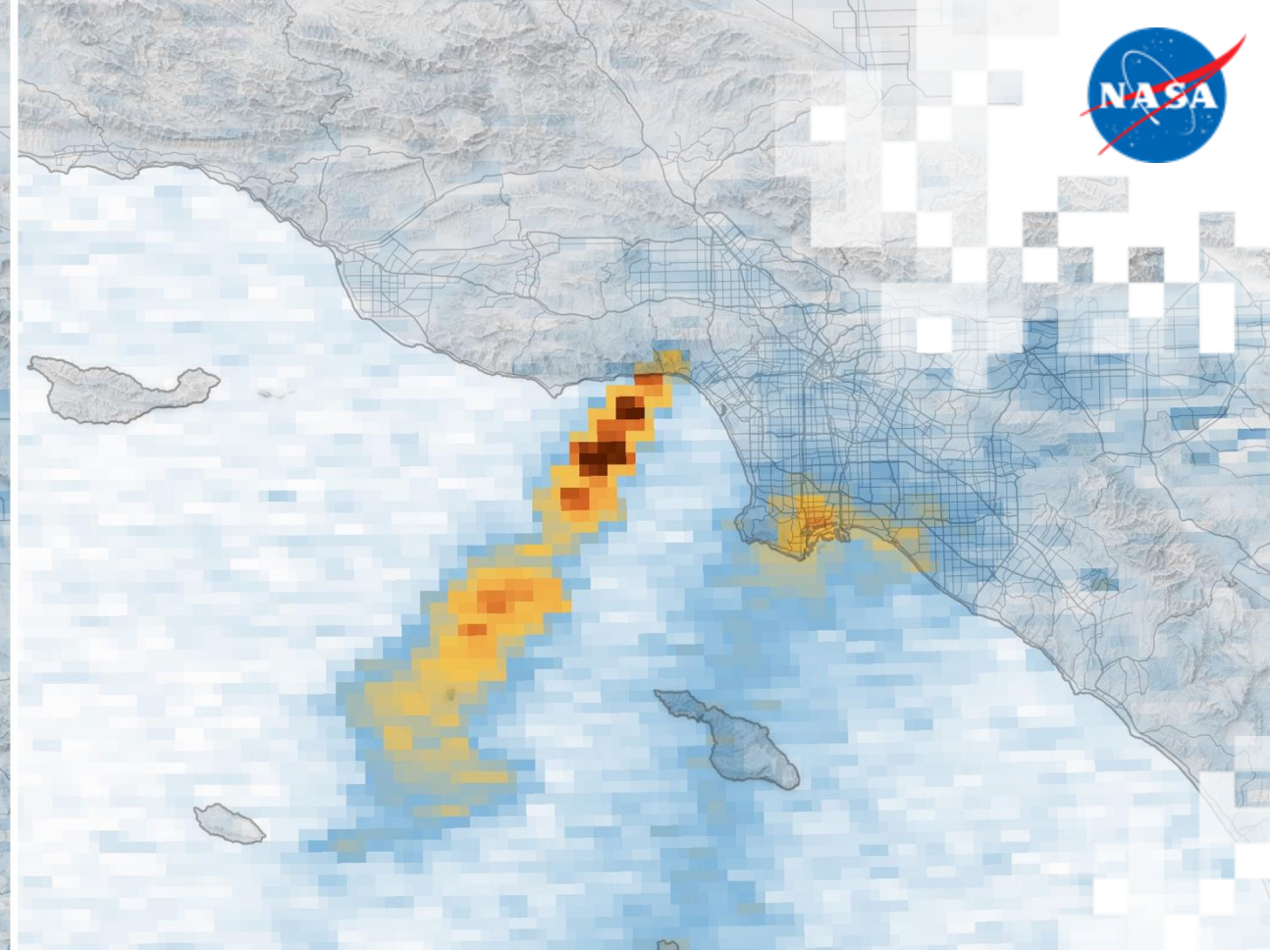
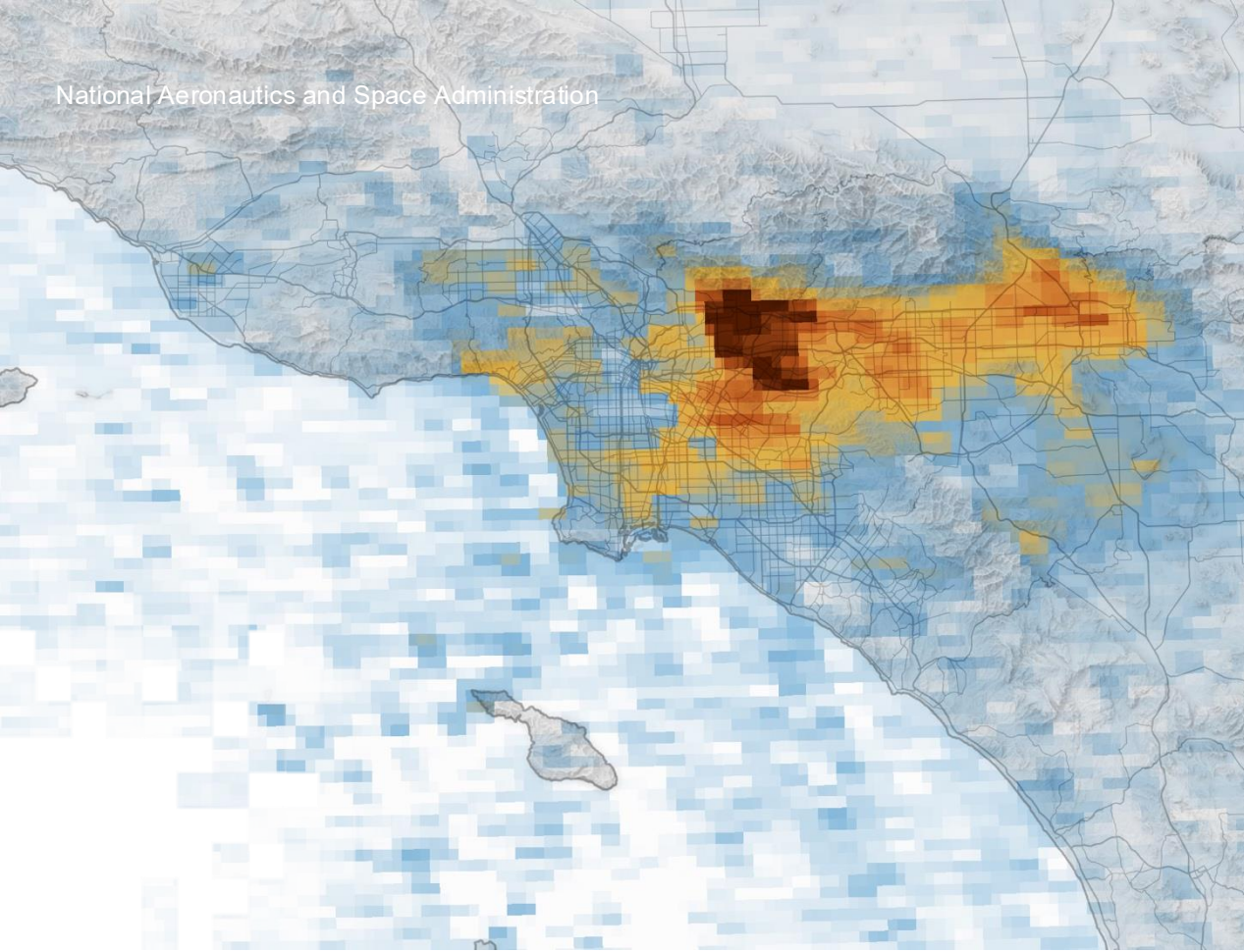


National Aeronautics and Space Administration



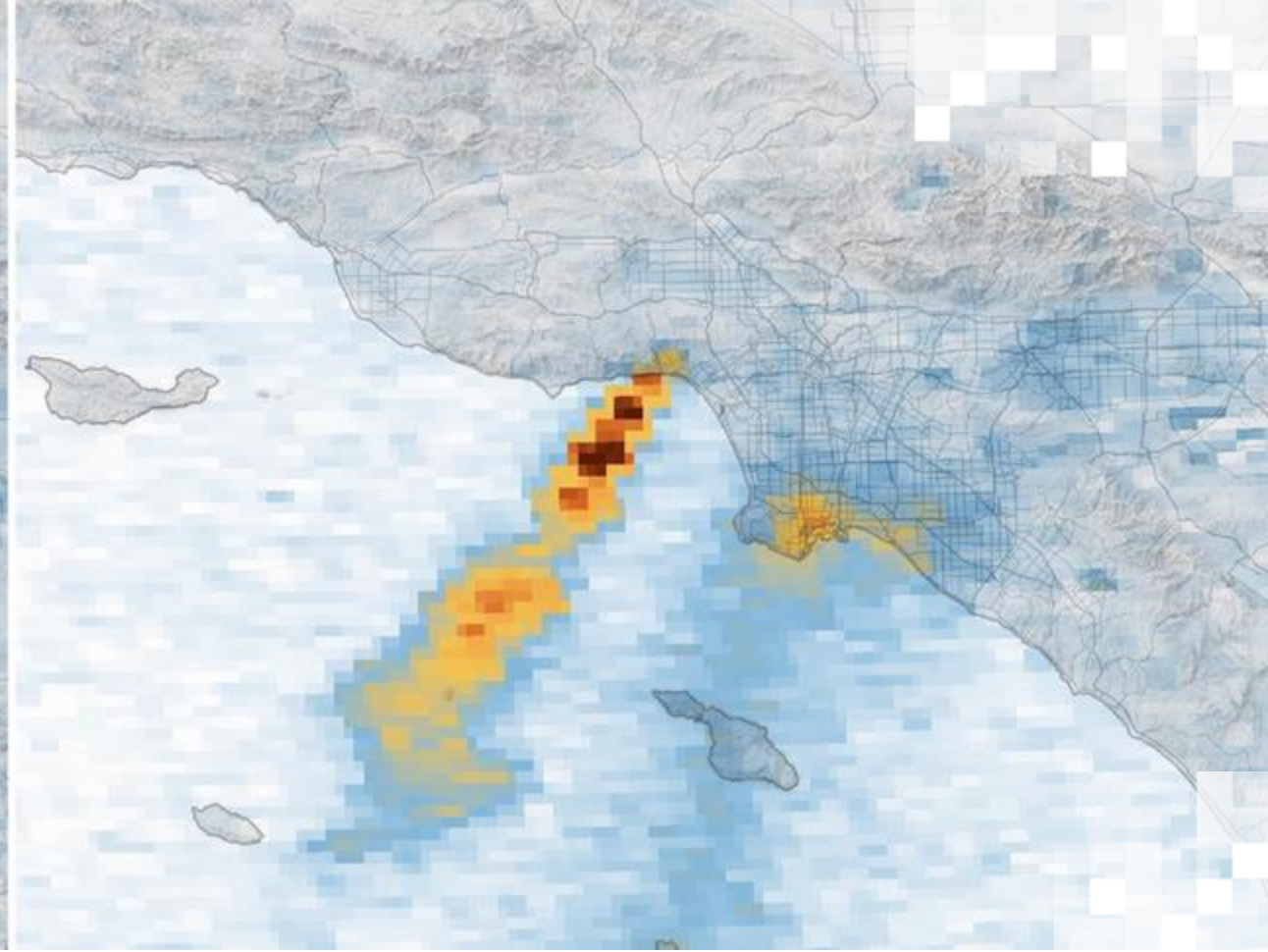
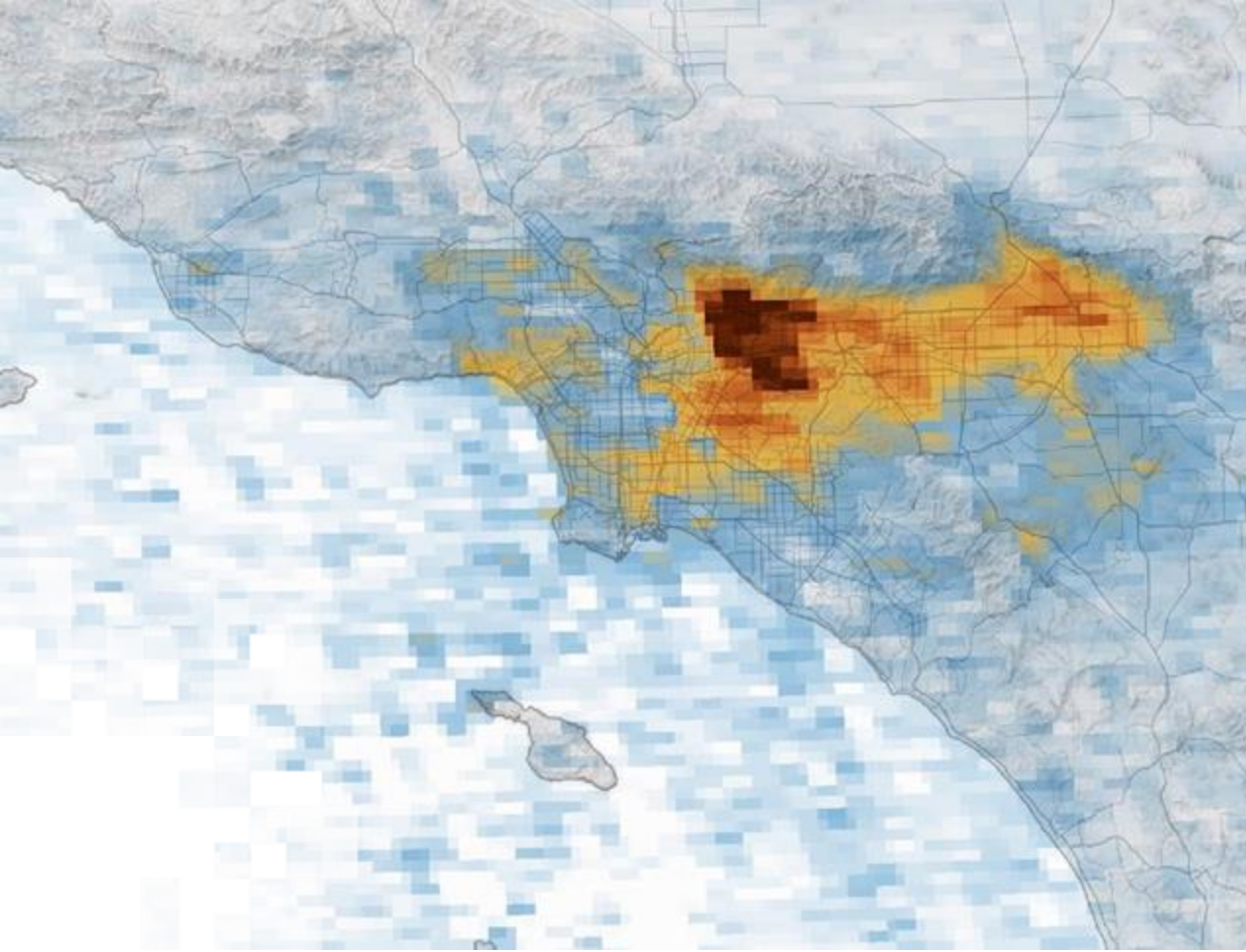
Introduction to Geostationary Observations for Air Quality Applications in the Western US

Day 2, Part 1: Interfaces for Accessing TEMPO Data

Hazem Mahmoud, Ph.D. (ASDC)

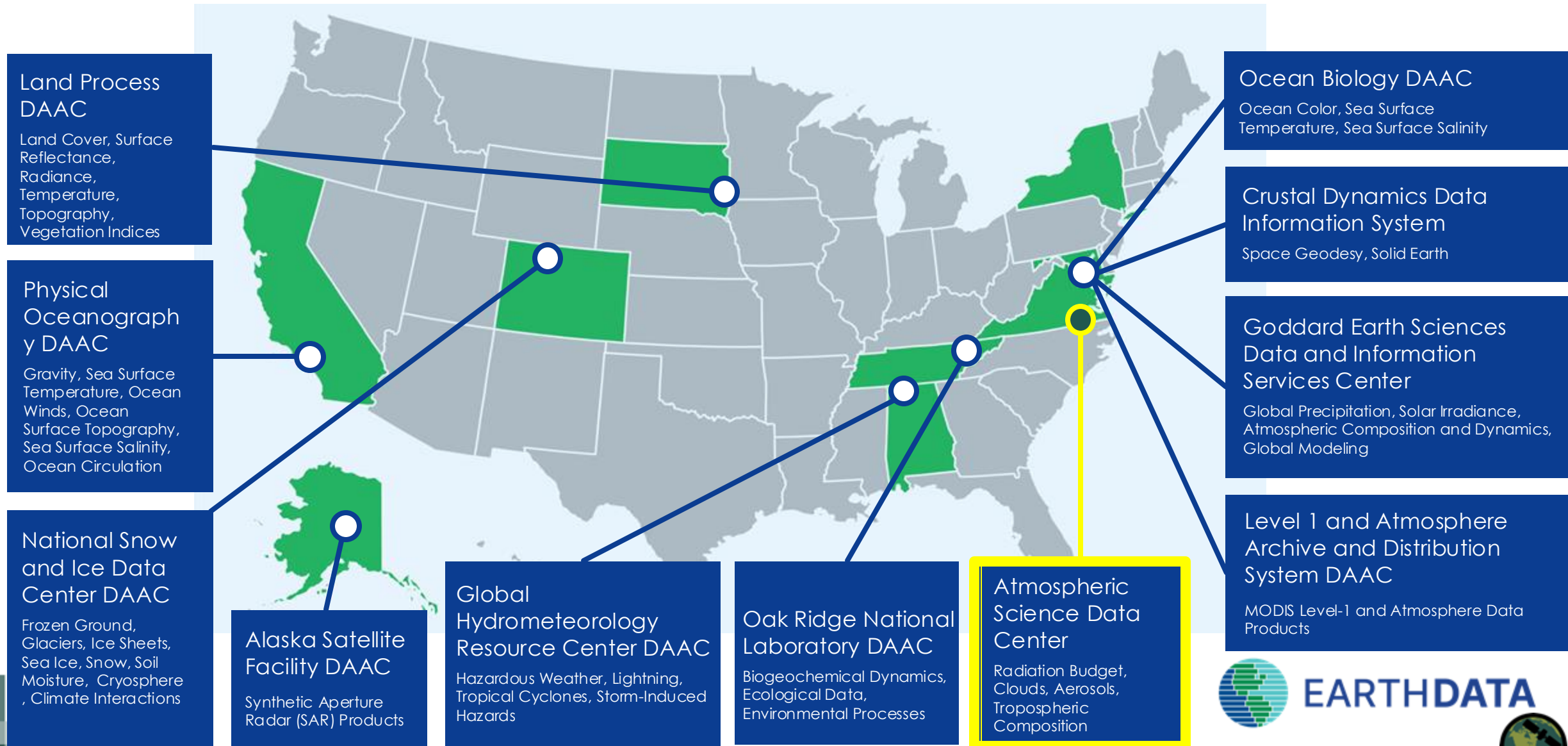
August 6, 2025





Interfaces for Accessing TEMPO Data
Hazem Mahmoud, Ph.D.
ASDC ADNET-Systems

NASA's Distributed Active Archive Centers (DAACs)

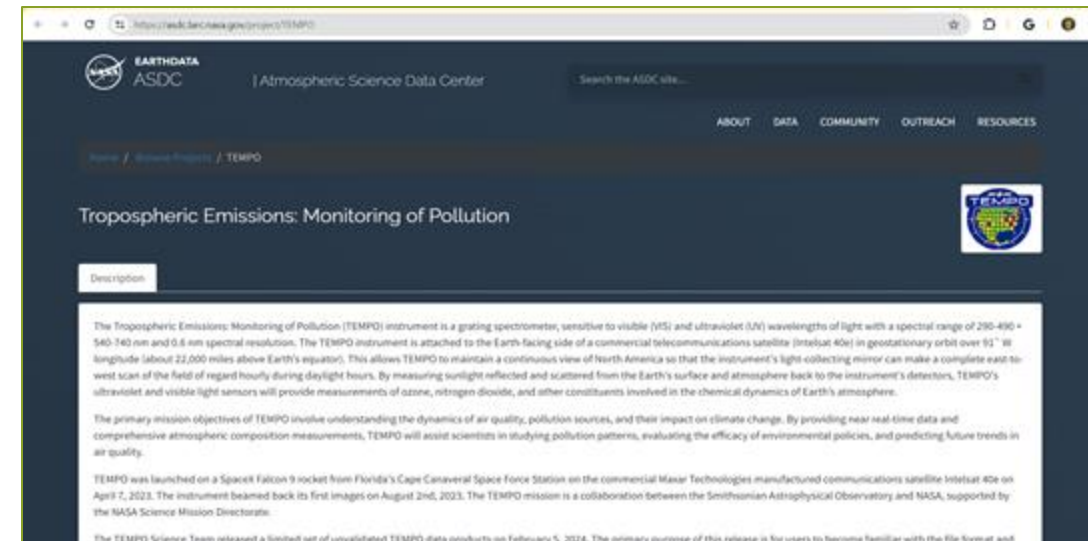
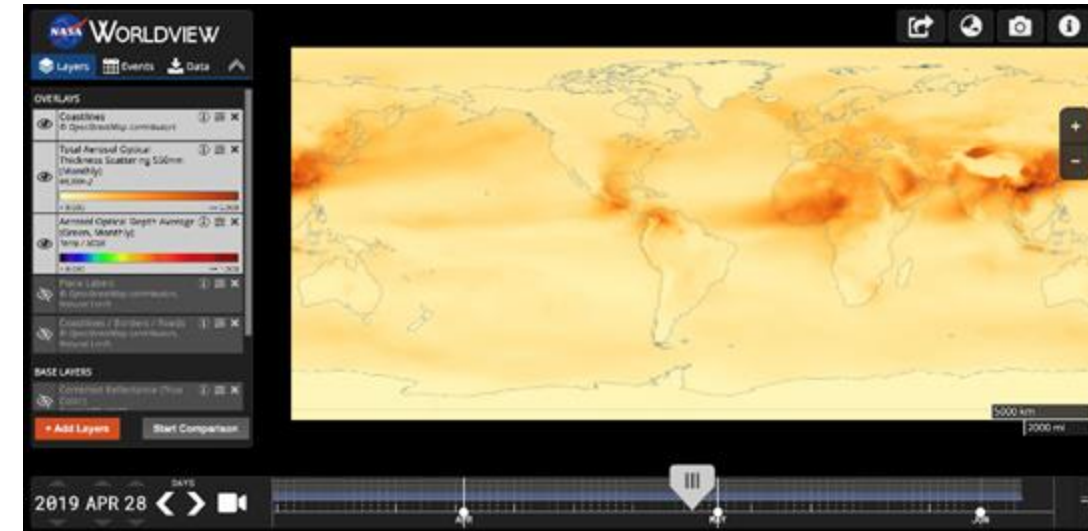
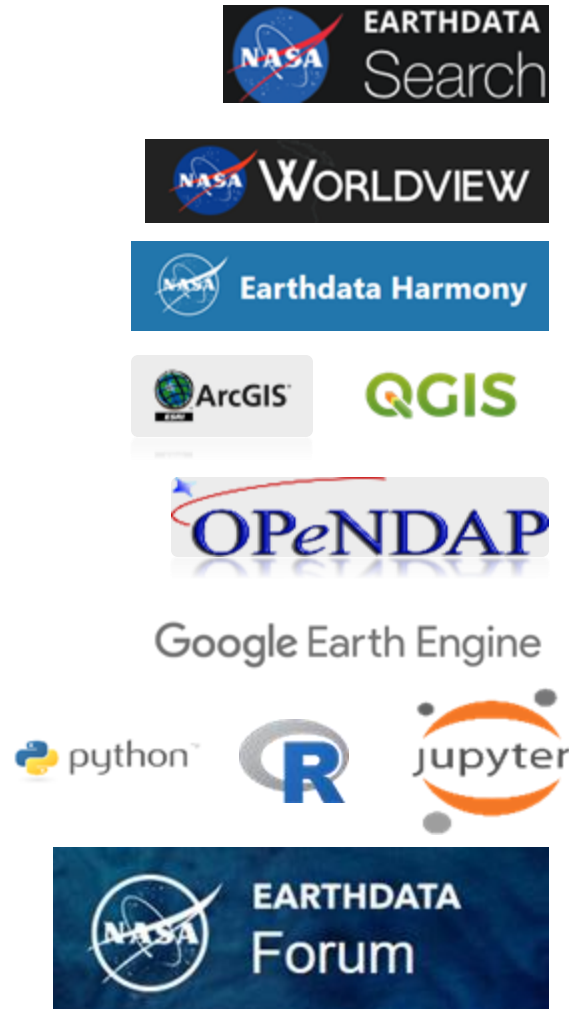


TEMPO Data Distribution: Tools and Services

- Earthdata Search **
- Worldview *
- Harmony *
- Earthdata GIS *
- OPeNDAP
- Google Earth Engine
- Jupyter Notebooks *
- Earthdata Forum

** Covered in this part

* Other parts of the training



TEMPO Operations Mode

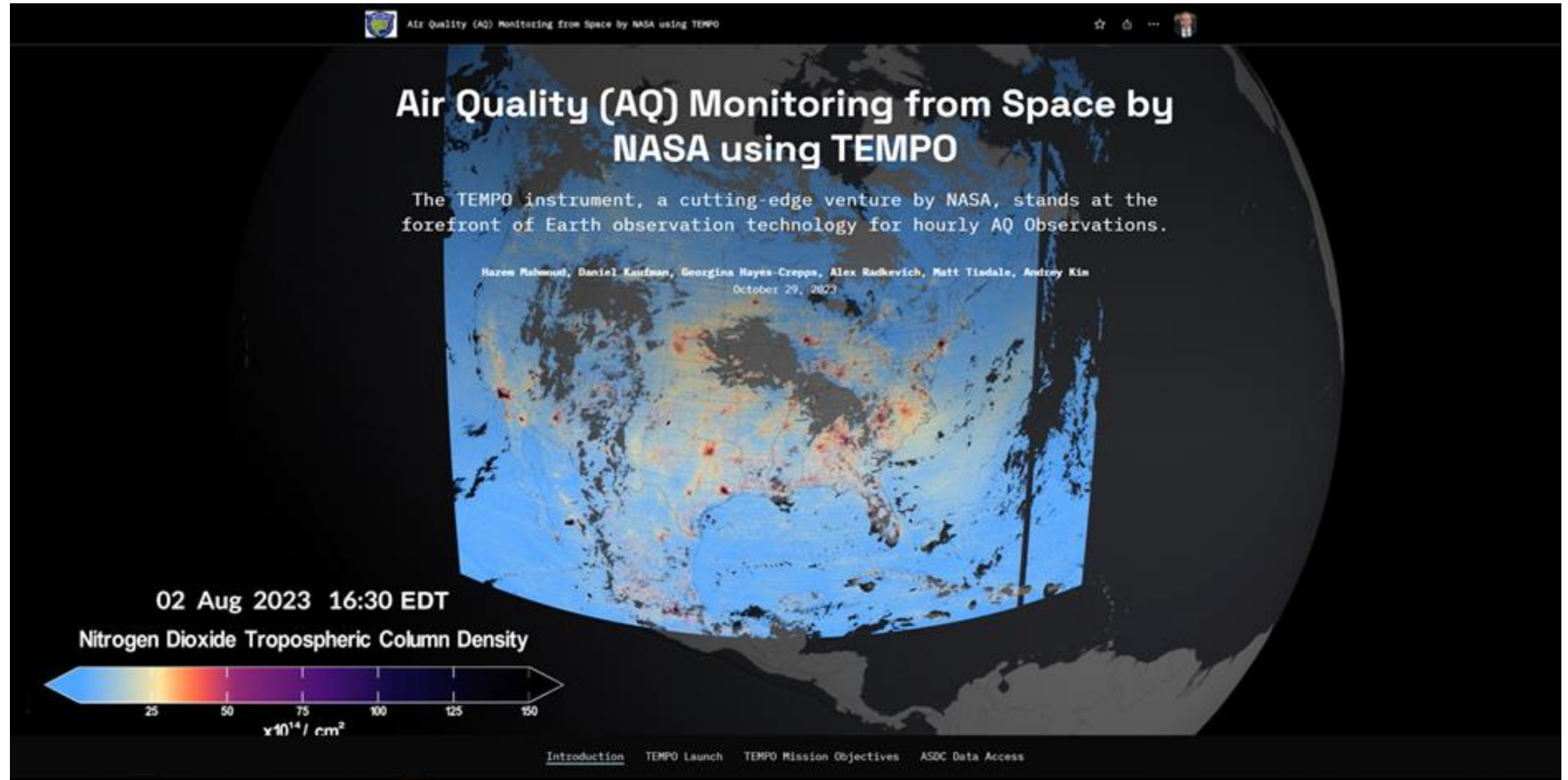
- Nominal Operations
- Twilight Scans
- Research Requests (e.g., Wildfires)
- Regularly Scheduled Maintenance (Usually Tuesdays & Saturdays)
- Unplanned Outages



[Check the TEMPO Operations Log Here](#)



TEMPO Storymap



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

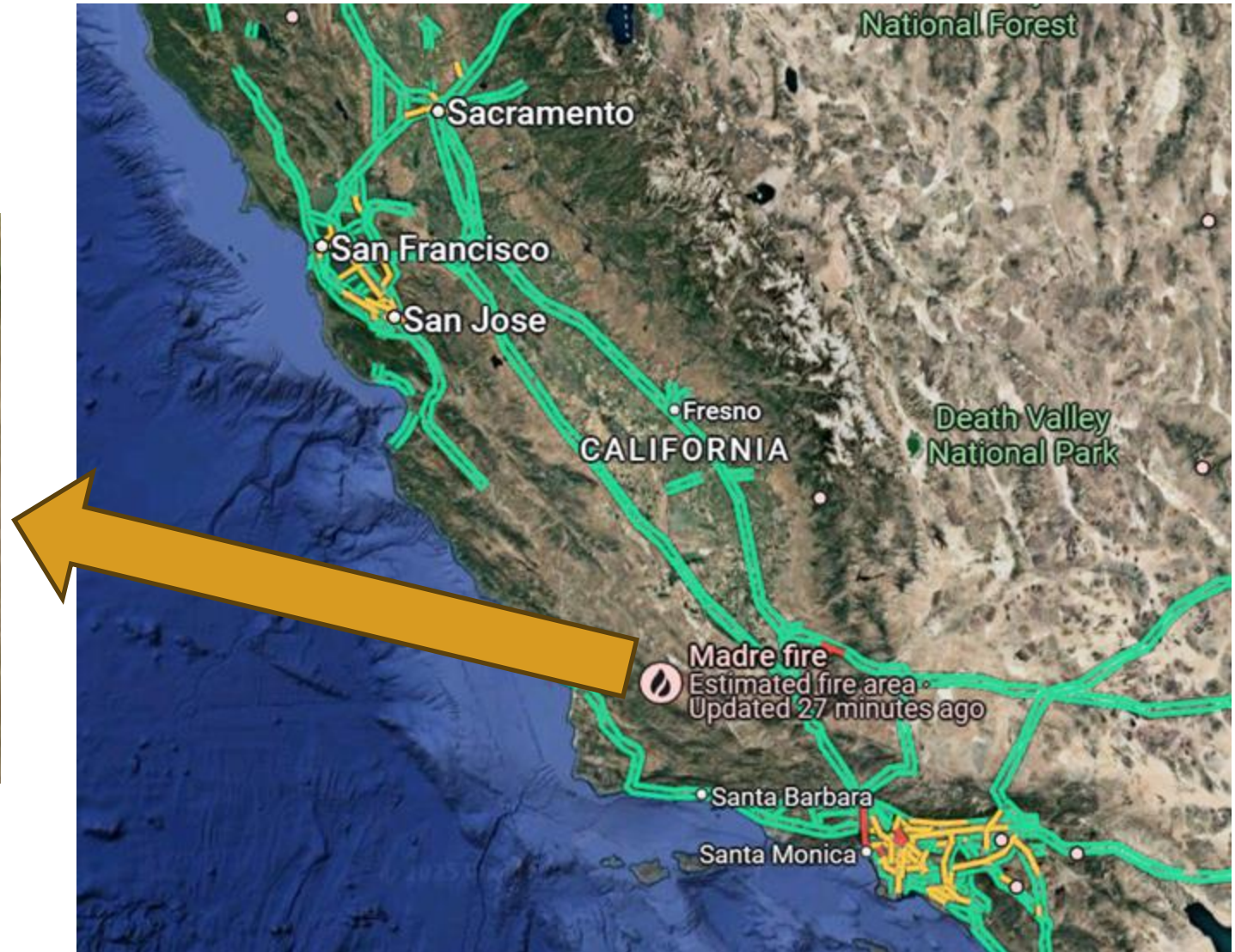


Madre Wildfire, California

- Started July 2nd
- Burned more than 80K acres



RGB image of TERRA/MODIS using
Worldview including Thermal Anomalies



Source: Google Maps



Earthdata Search Demo



Use myHDF5 to Visualize the File Structure

<https://myhdf5.hdfgroup.org/>





Thank You!



TEMPO Resources

- **ASDC TEMPO Project Page:** <https://asdc.larc.nasa.gov/project/TEMPO>
- **TEMPO L3 NO₂ ArcGIS Image Service:**
<https://www.arcgis.com/home/item.html?id=6a1bdd0c076d499da69e867732ed2ab7>
- **Finding Your TEMPO: An Introduction to the Mission, Products, and Data Services for Air Quality Observations over North America**
[https://www.nasa.gov/content/finding-your-tempo-an-introduction-to-the-mission-products-and-data-services-for-air-quality-observations-over-north-america](#)
- **ASDC Github:** https://github.com/nasa/ASDC_Data_and_User_Services
- **Subsetter And Multi-dimensional Batched Aggregation in Harmony (SAMBAH):**
https://stitchee.readthedocs.io/en/latest/sambah_readme/
- **Panoply:** <https://www.giss.nasa.gov/tools/panoply/>
- **NASA Earthdata Cloud Information:** <https://www.earthdata.nasa.gov/eosdis/cloud-evolution>
- **Earthaccess:** <https://github.com/nsidc/earthaccess>
- Two TEMPO ESRI Blog Posts for TEMPO GIS Analysis:
 - [Visualizing & Accessing TEMPO NO₂ Data: Building an Application with ArcGIS Living Atlas and ArcGIS Experience Builder Visualizing TEMPO NO₂ Data in ArcGIS \(esri.com\)](#)
 - [Performing Multidimensional Analysis with TEMPO Nitrogen Dioxide Data TEMPO Analysis in ArcGIS Pro: Multidimensional Insights \(esri.com\)](#)



Earthdata Forum

- **Science Data Users** can seamlessly search for information even if they do not know which DAAC the data belongs to.
- **Scientists & Data Providers** can effectively assist their user community in more accurately using their products.
- **DAACs & Subject Matter Experts (SMEs)** can quickly link users to existing resources.
- **DAAC User Services** can swiftly provide inquirers with an authoritative source related to DAAC data products & services.
- **Tag** posts with “ASDC” or “TEMPO”

The screenshot shows the Earthdata Forum website. At the top, there's a header with the NASA logo, 'EARTHDATA', and 'Find a DAAC'. Below this is a banner with the text: 'Welcome to the Earthdata User Forum! Here, subject matter experts from several NASA Distributed Active Archive Centers (DAAC) can discuss general questions, research needs and data applications. Users can query how to access, view and interpret the data.' Navigation links include 'Quick links', 'FAQ', 'Data Recipes', and a 'Login' button. A 'Home' link is also present. A green button says 'Post a New Question'. Below this is a 'SEARCH' section with a text input field 'Search for keywords, tags...' and a magnifying glass icon. An 'Advanced Search' link is to the right. Below the search bar is an 'OR' separator. The 'SEARCH BY TAGS' section features four dropdown menus: 'Discipline', 'DAAC', 'Major Projects', and 'Services/Usage', each with a 'Select' option and an information icon. A green 'Submit' button is below these. A link 'What do these tags mean?' is at the bottom right of this section. Another 'OR' separator follows. The 'FORUM' section is a table with columns: 'FORUM', 'QUESTIONS', 'POSTS', and 'LAST POST'. The first row shows 'All Questions/Comments' with 215 questions and 452 posts. The last post is titled 'Where can I find more FAQs fr...' by 'GES DISC - zliu' on 'Fri Feb 21, 2020 10:18 am America/New_York'.

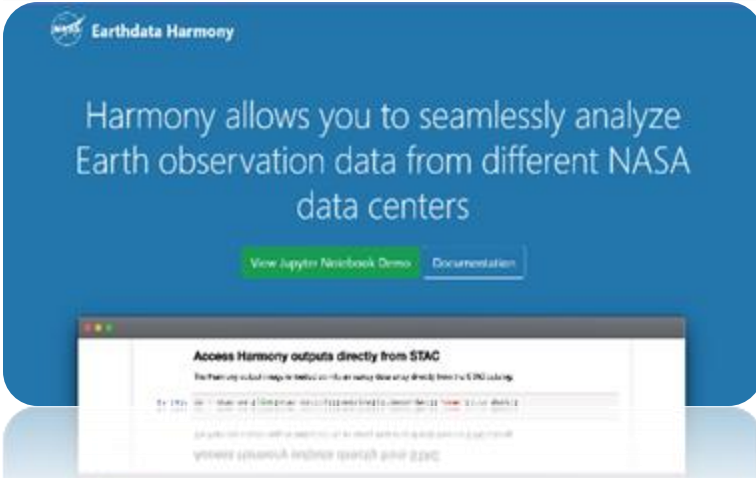
FORUM	QUESTIONS	POSTS	LAST POST
All Questions/Comments Please enter here to ask a question about any NASA Science related topics!	215	452	Where can I find more FAQs fr... by GES DISC - zliu Fri Feb 21, 2020 10:18 am America/New_York



TEMPO Additional Resources

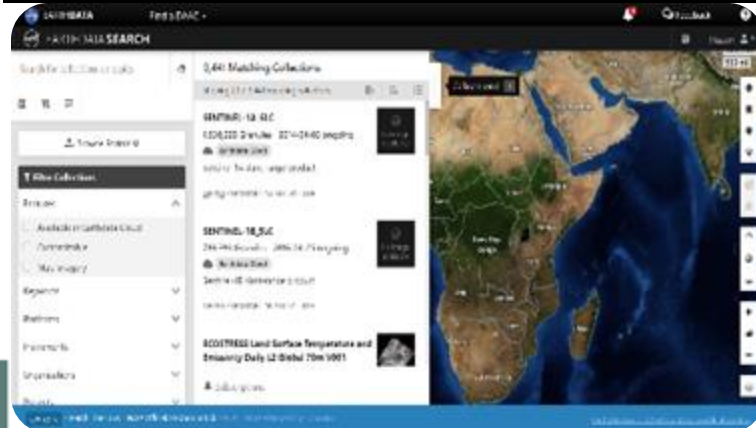
Harmony Services

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



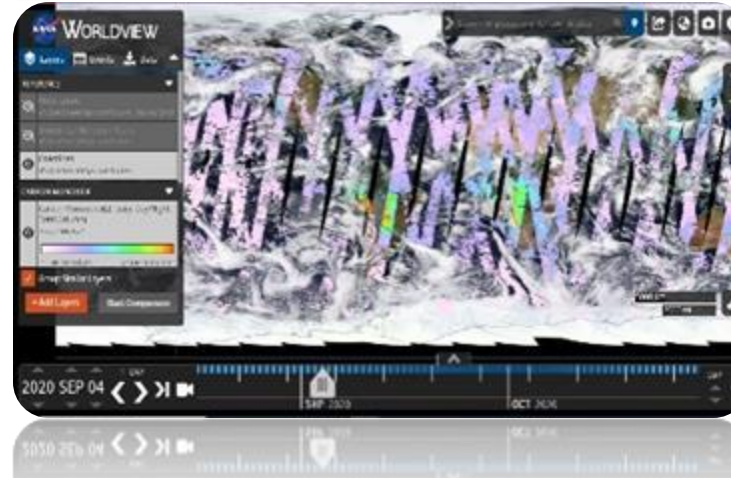
Earthdata Search

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



Worldview

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



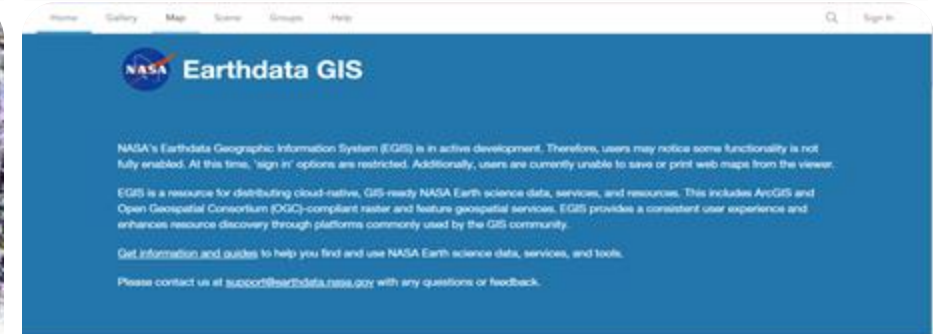
OPeNDAP

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



Earthdata GIS EGIS

<https://gis.earthdata.nasa.gov/portal/>



Featured Layers

Featured Layers

Remote Sensing Information Gateway

<https://www.epa.gov/hesc/rsig3d-data-inventory>

