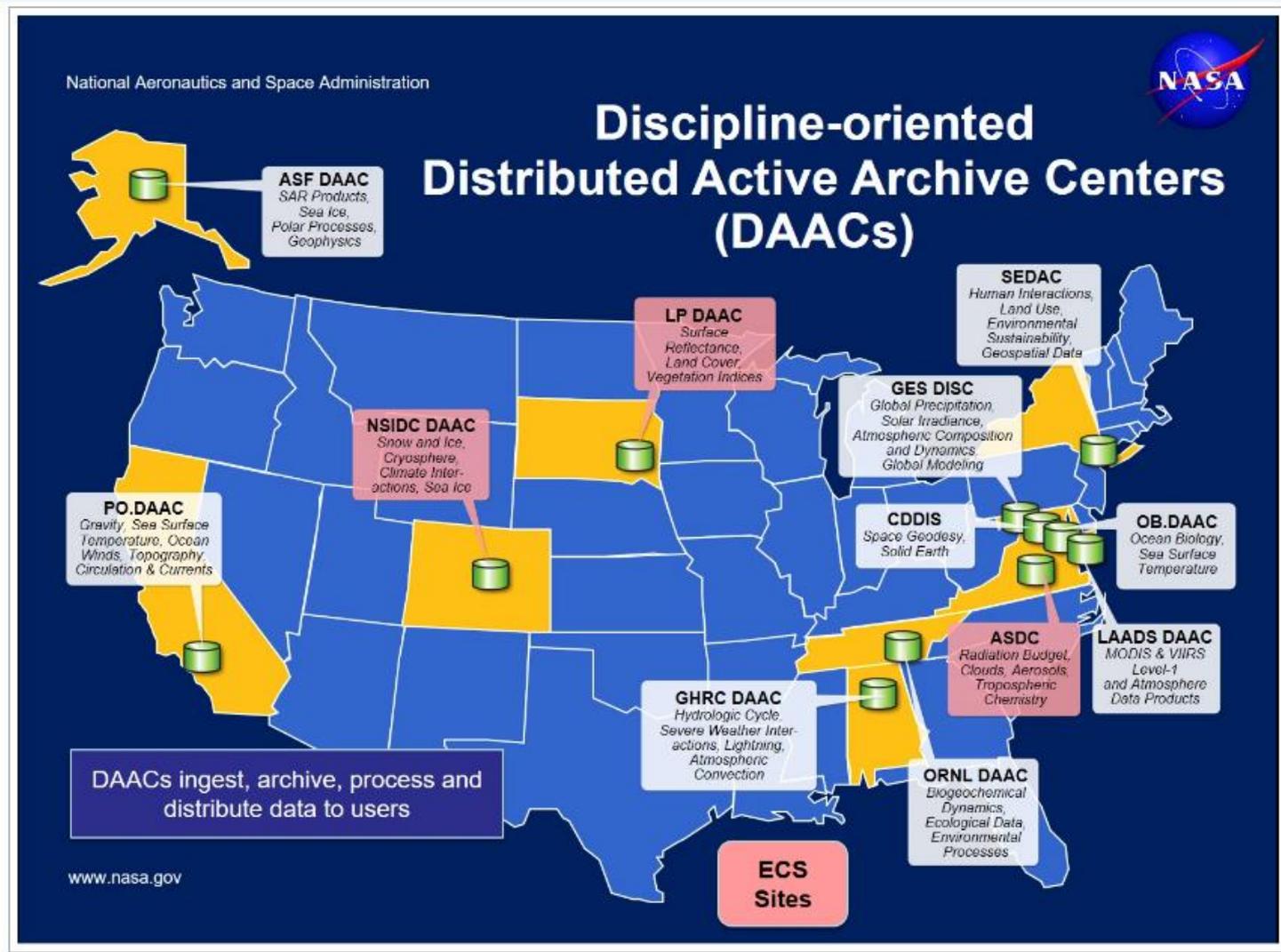


# Western U.S. TEMPO Early Adopters

**NASA Langley Atmospheric Science  
Data Center  
(ASDC)  
Distributed Active Archive Center  
(DAAC)  
Services**

**April 10-11, 2018**

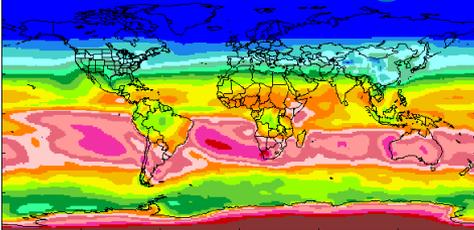
# NASA Langley's ASDC is part of NASA's EOSDIS



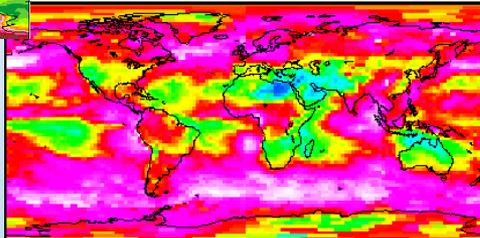
# NASA Langley ASDC at a Glance

- Provides data services for over 44 science projects
- Primary: CALIPSO, CATS, CERES, DSCOVR, MISR, MOPITT, SAGEIII-ISS, TES
- Distributes 400+ unique science products
- In 2017, 1,100 Terabytes of data were distributed to over 160,000 customers in 158 countries with 5.2 Petabytes of data in the archive as of December 2017
- Over 107 million files (3,100 TB) on high-speed disk for quick access

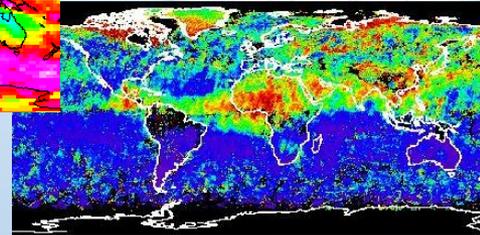
## Radiation Budget



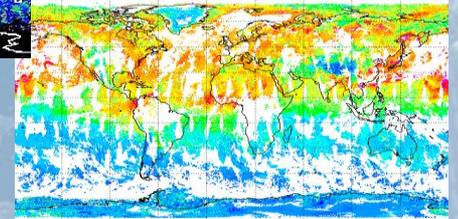
## Clouds



## Aerosols



## Tropospheric Composition



## Primary Functions

Receive (*Ingest*) data from numerous data providers to archive and support science driven requirements

*Archive* data to ensure the long term preservation, provenance, and proper use of the science data

*Process* data in up to date managed environments to create higher level data products for science community

*Distribute* data to as many scientific communities as possible in as many formats and through as many mechanisms as possible

*Provide customer support and outreach* to the science community to support science teams and facilitate use of data products and associated technologies by current and emerging users

# Services at the ASDC – pre-launch

- Preparation for Ingest
  - Accurate metadata for discovery
  - Well formatted data for maximum interoperability
  - Digital Object Identifiers for each product
- Support Data Flow Testing Prior to Launch
  - Interface confidence tests
  - End-to-end ground system testing with instrument or synthetic data
- Discuss Service Options
  - Customer/Product affinities and technical capacity
  - Data Delivery Cadence

# Services at the ASDC

- Standard curation of archived data
  - Provenance and integrity
  - Up to date documentation
  - Disaster Recovery
- User Services staff to assist customers
  - Maintain FAQs, examples of scripts
  - Perform reach back to science team when necessary
  - Disseminate announcements to user community
  - Use customer feedback from annual third-party ACSI survey, contacts, and ASDC User Working Group to determine changes in services
- Subsetting and ArcGIS capabilities
  - Temporal, spatial and variable slices

# Linkage to EOSDIS Services

- Earthdata Search
- Land, Atmosphere Near real-time Capability for EOS (LANCE)
- Global Imagery Browse Services (GIBS) and Worldview
- Giovanni

# ASDC Home Page

## <https://eosweb.larc.nasa.gov>

Home | Travel Manager | Most Visited | Web IADS | @LaRC | Windows Marketplace | Windows Media | Windows | NASA Watch | News - Langley Atmos... | ASDC Program Backlo... | User Services & Scienc...

EARTHDATA

Other DAACs ▾



### Atmospheric Science Data Center

Processing, archiving and distributing Earth science data  
at the NASA Langley Research Center

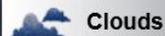
- Home
- Data Descriptions ▾
- Order Data
- Citing ASDC Data
- Help ▾
- Forum

Maintenance Downtime Wed., 03/28

#### Science Disciplines



Aerosols



Clouds



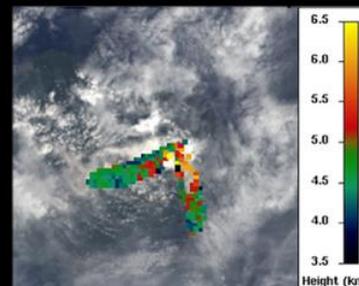
Radiation Budget



Tropospheric Composition



MISR Af Camera  
(26.1° forward viewing from Nadir)



6.5  
6.0  
5.5  
5.0  
4.5  
4.0  
3.5  
Height (km)

**Mt Agung (Bali) eruption plumes seen by MISR November 29, 2017** Volcanic eruptions can generate a significant amount of atmospheric aerosols that have regional to global impacts. Accurate plume heights are needed to determine the influence of volcanic eruptions, but are difficult to obtain due to the hazardous nature of eruptions. Stereo images from NASA's Multi-Angle Imaging Spectroradiometer (MISR) make it possible to retrieve plume heights during eruptions.

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Atmospheric  
Science  
Data Center

Atmospheric Science Data Center  
NASA Langley Research Center  
Hampton, VA

# Earth Data Search

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

The screenshot displays the Earth Data Search interface. At the top left is the NASA EarthData logo. A search bar contains the text "SAGE III ISS". Below the search bar is a map of Africa. A sidebar on the left lists navigation options: "Browse Collections", "Features" (with sub-items: Map Imagery, Near Real Time, Subsetting Services), "Keywords", "Platforms", "Instruments", "Organizations", "Projects", and "Processing levels". Below the map, a section titled "14 Matching Collections" is shown. It includes two checked filters: "Only include collections with granules" and "Include non-EOSDIS collections". A tip suggests adding collections to a project for comparison and download, with a "Learn More" link. Two collection results are visible, both for "SAGE III/ISS L2 Lunar Event Species Profiles" (V005), each with 224 granules and a status of "2017-03-17 ongoing". The first result is in HDF-EOS format, and the second is in Native format. Both have a "No image available" placeholder.

# Land, Atmosphere Near real-time Capability for EOS (LANCE) [https://earthdata.nasa.gov/earth-observation- data/near-real-time](https://earthdata.nasa.gov/earth-observation-data/near-real-time)

## LANCE: NASA NEAR REAL-TIME DATA AND IMAGERY

Search datasets, news, articles, and information



Earth Observation Data **LANCE: NASA Near Real-Time Data and Imagery**



### Land, Atmosphere Near real-time Capability for EOS (LANCE)



The Land, Atmosphere Near real-time Capability for EOS (LANCE) supports users interested in monitoring a wide variety of natural and man-made phenomena. Near Real-Time (NRT) data and imagery from the [AIRS](#), [AMSR2](#), [LIS \(ISS\)](#), [MISR](#), [MLS](#), [MODIS](#), [MOPITT](#), [OMI](#), [OMPS](#), and [VIIRS](#) instruments are available much quicker than routine processing allows. Most data products are available within 3 hours from satellite observation. NRT imagery are generally available 2.5 hours after

### Not sure what you are looking for?

[Hazards and Disasters](#)

[Data](#)

- [Download Near Real-Time Data](#)
- [Near Real-Time versus Standard Products](#)
- [External Near Real-Time Data](#)
- [FIRMS:Fire/Hotspot data | Email Alerts](#)

# <https://earthdata.nasa.gov/about/science-system-description/eosdis-components/global-imagery-browse-services-gibs>

## More GIBS Resources

[Available Imagery Products](#)

[GIBS API for Developers](#)

[Map Library Usage](#)

[GIS Usage](#)

[Blog](#)

[Mailing List](#)

## GIBS Related Links

[Worldview](#)

[Land, Atmosphere Near real-time Capability for EOS](#)

[Earthdata Search](#)

## Global Imagery Browse Services (GIBS)



**Visually explore the past and present of our dynamic planet through the Global Imagery Browse Services (GIBS).** GIBS provides quick access to over 600 satellite imagery products, covering every part of the world. Most imagery is available within a few hours after satellite overpass, some products span almost 30 years, and the imagery can be rendered in your own web client or GIS application.

### NASA EOSDIS Global, Full Resolution Imagery

NASA EOSDIS GIBS provides full resolution visual representations of NASA Earth science data in a free, open, and interoperable manner. Through responsive and highly available web services, it enables interactive exploration of data to support a wide range of applications including scientific research, applied sciences, natural hazard monitoring, and outreach.

### Quick and Easy Access to Imagery

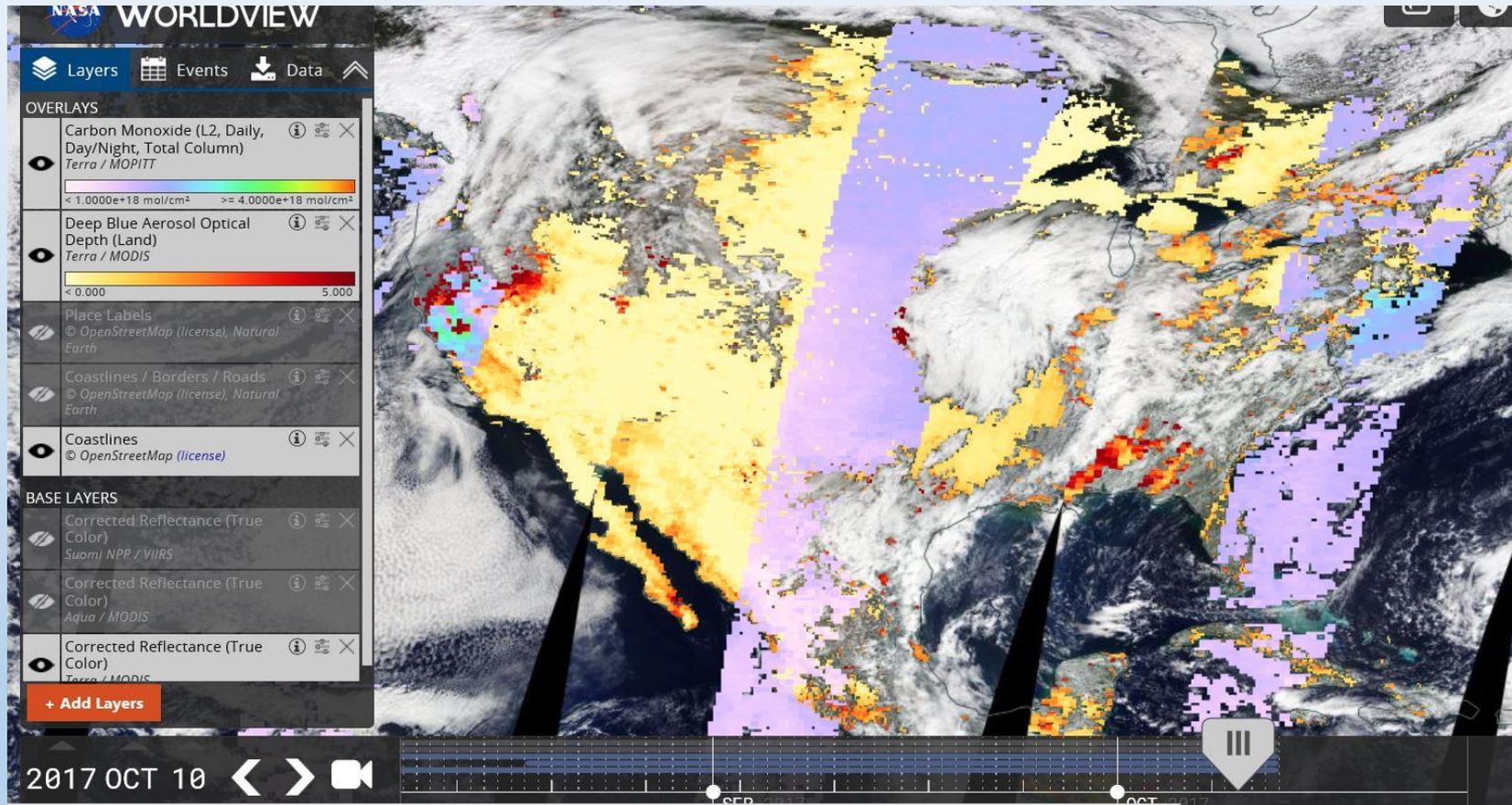
Quickly access satellite imagery of every part of the world in near real-time. Many products are [available within 3-5 hours of being observed](#). The imagery archive is also being expanded to include more historical products along with those from newly-launched sensors. Visit



Atmospheric Science Data Center  
NASA Langley Research Center  
Hampton, VA

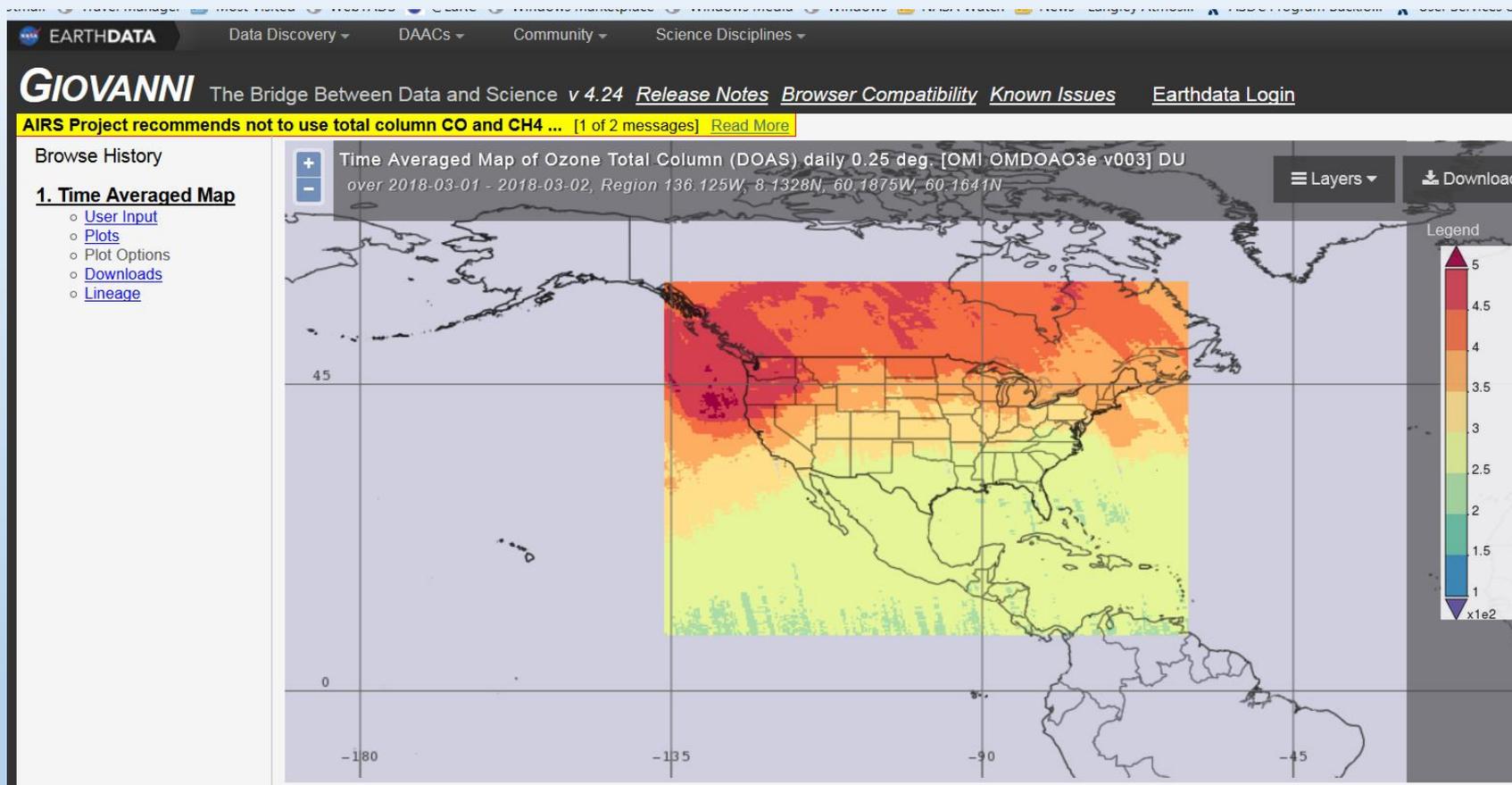
# MOPITT Imagery in Worldview

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



# OMI Data at Giovanni

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



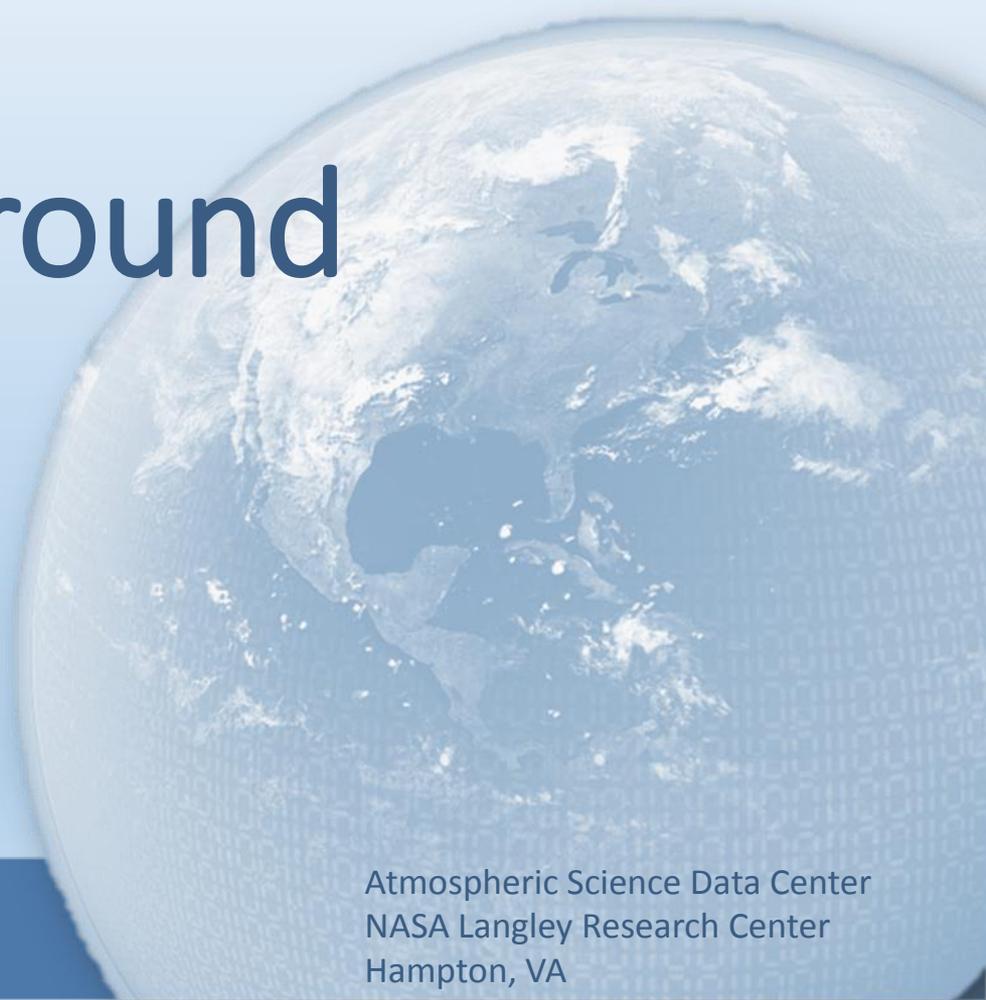
# Linkage to OGA Services

- Remote Sensing Information Gateway (RSIG)
  - Coordinate with EPA partners and host custom code
- WMO/Global Telecommunication System
  - Coordinate with NOAA partners

# The DAAC is a Partner and Resource

- Work with DAAC staff up front to create complete metadata and compliant data files
  - Metadata enables discovery
  - Compliant formats make products easy to use
- Discuss customer needs to determine best match-ups with existing services and customer bases
- End-to-end data delivery path and cadence impacts how products are best served

# Background



# Acronyms

- ASDC Atmospheric Science Data Center
- DAAC Distributed Active Archive Center
- EOSDIS Earth Observing System Data and Information System
- ESDIS Earth Science Data and Information System
- GIBS Global Imagery Browse Services
- Giovanni GES-DISC Interactive Online Visualization ANd aNalysis Infrastructure
- LANCE Land, Atmosphere Near real-time Capability for EOS (LANCE)
- NRT Near Real-Time
- RSIG Remote Sensing Information Gateway

# TES Subsetter

<https://subset.larc.nasa.gov/tes/login.php>



NATIONAL AERONAUTICS  
and SPACE ADMINISTRATION

TES Search and Subsetting Web Application    Set Search Criteria    nasamom    Logout

### Step 1: Select a TES data product and parameter(s)

The data subset options include being able to select data product types and choose a down-selection of parameters to extract. The subset request generated by this interface will only process one data product at a time. Data parameters have been grouped together based on type and are listed in the left most window.

If you choose not to select parameters, then a default package (time, position, and other ancillary information) is put into the resulting output file. The selected parameter grouping(s) are added to the center window. The far right window displays the complete listing of the data parameters that will be included in your output file.

Users wanting all data variables in the file must select all parameter groupings.

Choose Data Product:

Choose Parameter Group(s):		Selected Parameter Group(s):	Data variables included in the output file:
Atmospheric Conditions	<input type="button" value="Add"/> <input type="button" value="Add all"/>	Ozone Data	<b>Default</b>
Cloud Data			
TES Data Identifiers			
Matrices			
Metadata Specification	<input type="button" value="Remove"/> <input type="button" value="Remove all"/>		<b>Ozone Data</b>
Quality Assurance			
Surface Conditions			
System Specifications			
Ozone Data			

### Step 2: Select a temporal range (optional)

Use the temporal options to narrow your search to a specific temporal domain. If you do not make a temporal selection, the default is to search the complete range of time in which the satellite has acquired data. If you limit your search to a specific time domain, the search will return all available data that intersect with your selected time range.