



Goddard Earth Sciences Data and Information Services Center (GES DISC)

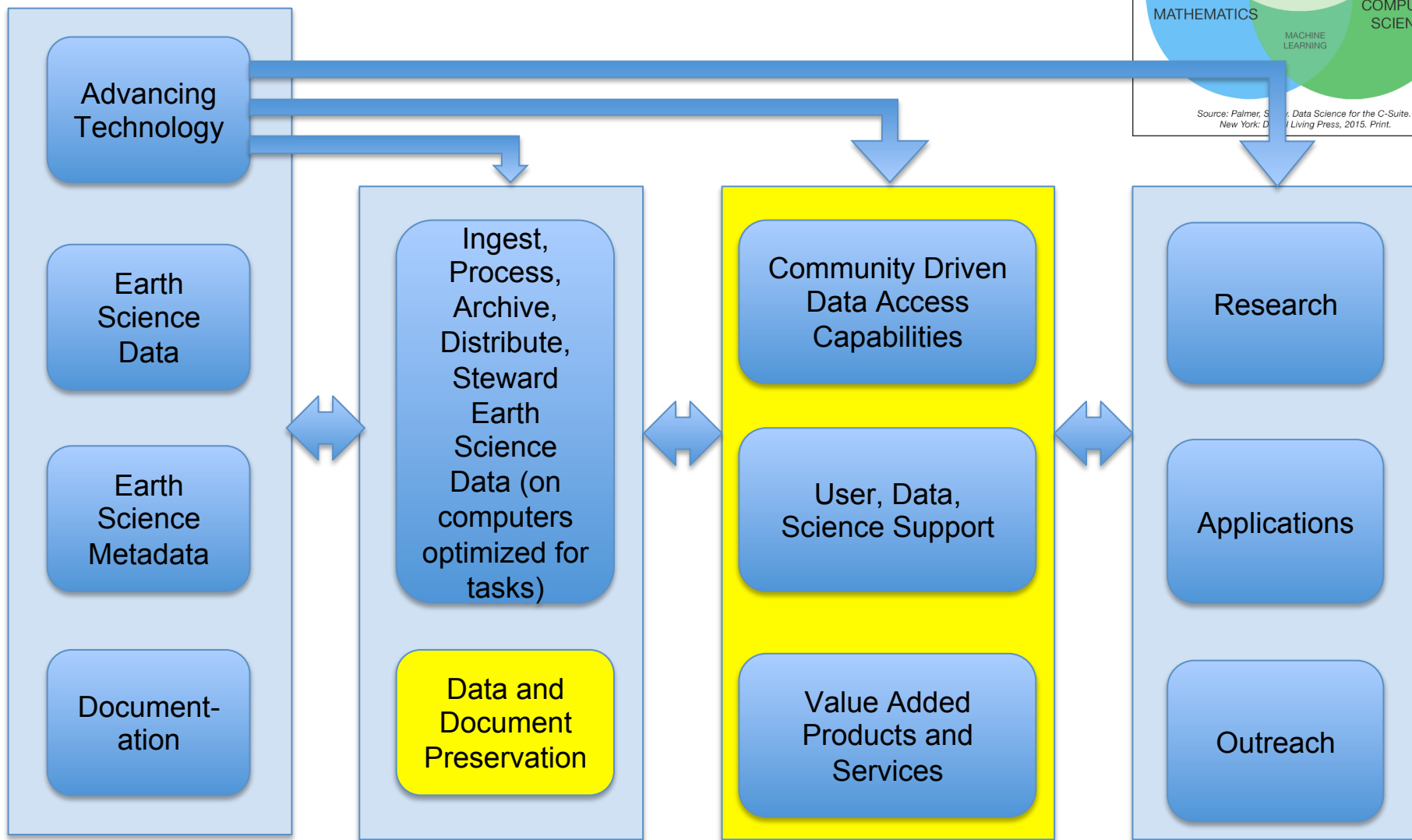
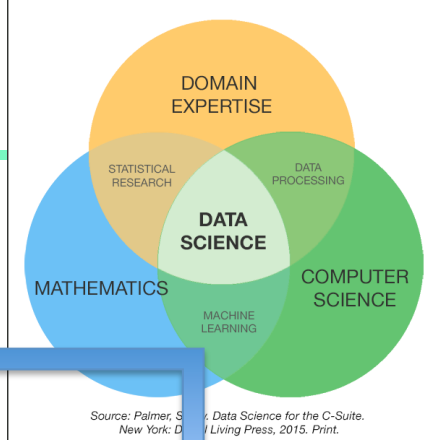
*NASA GES DISC **NEW** data service and data
management for the Air Quality community*

**Jennifer Wei
NASA GES DISC/Adnet System Inc.**

HAQAST2



The *NEW* GES DISC World



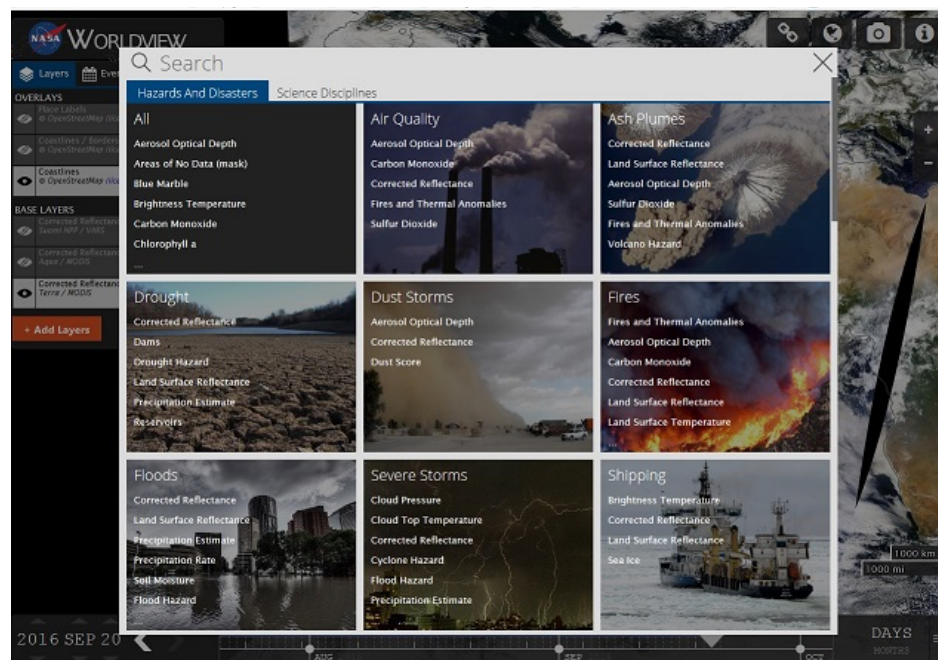


Big Earth Data Initiative (BEDI) set up Data Management standards

Origin: President Obama's "Big Data Research and Development Initiative" seeks to improve our ability to acquire knowledge and discover insights into large and complex collections of digital data.

Outcome: The Big Earth Data Initiative (BEDI) invests in standardizing and optimizing the collection, management and delivery of U.S. Government's civil Earth observation data.

- **Discover:** improve metadata in archives to make datasets more discoverable by popular search engines (e.g., Google or Bing)
- **Access:** Develop better web accessible APIs by improving geospatial coordinate handling and response formats
- **Use:** enhance data usability is the organization of data collections into 12 Societal Benefit Areas, or SBA.



Source: <https://earthdata.nasa.gov/eosdis-role-in-bedi>



Easy to Discover – GES DISC Way

GES DISC

Atmospheric Composition, Water & Energy Cycles and Climate Variability

Explore...

Data Collections

Related Documentation

Enter search (e.g., rainfall, GPM, TRMM_3B42)

Browse Data by Category ▾

Feedback

Help ▾

Login

What else can you find here?

Projects & Missions

GPM
Global Precipitation Measurement (GPM) is an international satellite mission to provide next-generation observations of rain and snow worldw...

TRMM
The Tropical Rainfall Measuring Mission (TRMM) is a joint mission between NASA and the Japan Aerospace Exploration (JAXA) Agency to study ra...

[More Projects & Missions ...](#)

Related Images

mole fraction of carbon dioxide in free troposphere

AIRX3C28.2004.08.05.png

CO2 (ppm)

News

NASA GES DISC at the 2016 AGU Fall Meeting
Dec 12, 2016

NCA-LDAS Noah data product released by NASA GES DISC
Dec 8, 2016

The Giovanni News, December 2016 Special AGU Issue, is online
Dec 7, 2016

0:0

History

<https://disc-beta.gsfc.nasa.gov/uui/>

GES – DISC
Goddard Earth Sciences
Data Information Services Center



Easy to Discover – ESDIS Way

 EARTHDATA
Search

[Feedback](#) [Earthdata Login](#)

Discover Earth Science Data

Search NASA Earth Science data by keyword and filter by  **time** or  **space**.

 Temporal ▾

 Spatial ▾

[Q Browse All Data](#)  Use categories to narrow your results.

Welcome to Earthdata Search

Enter your search terms or click **Next** to take an introductory tour.

[End Tour](#) [Next !\[\]\(096a146ef66dd05372c2c492e511d47e_img.jpg\)](#)

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



Increase Access

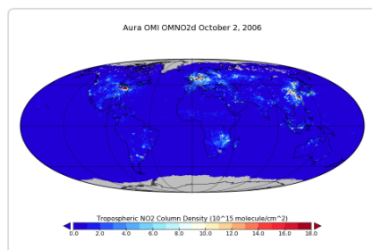
GES DISC

[Feedback](#) [Help ▾](#)

Atmospheric Composition , Water and Energy Cycle , and Climate Variability Data

◀ Go to Search Results

OMNO2d: OMI/Aura NO2 Cloud-Screened Total and Tropospheric Column L3 Global Gridded 0.25 degree x 0.25 degree V3



This is Level-3 daily global gridded (0.25x0.25 deg) Nitrogen Dioxide Product (OMNO2d). OMNO2d data product is a Level-3 Gridded Product where pixel level data of good quality are binned and "averaged" into 0.25x0.25 degree global grids. This product contains Total column NO2 and Total Tropospheric Column NO2, for all atmospheric conditions, and for sky conditions where cloud fraction is less than 30 percent. Nitrogen dioxide is an important chemical species in both, the stratosphere where it plays a key role in ozone

production. In the troposphere, it is produced in various combustion processes and in lightning and is an indicator of poor air quality. OMNO2d data are stored in EOS Hierarchical Data Format (HDF-EOS). Each file contains data from the day lit portion [More ...](#)

Data Access

[Online Archive](#)[Search ▾](#)[Simple Subset Wizard](#)[Web Services ▾](#)

OPENDAP DATA

Web Map Service (WMS)

Web Coverage Service (WCS)

Web Coverage Service (WCS)

[Product Summary](#)[Data Citation](#)[Documentation](#)

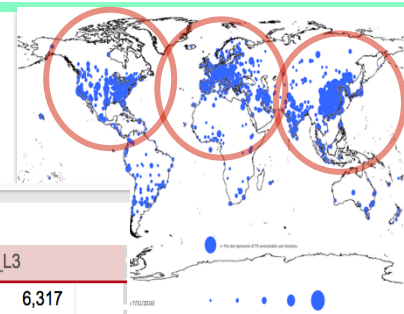
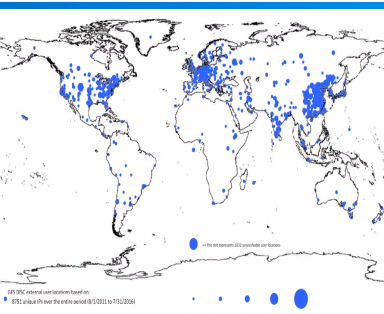
Shortname: OMNO2d

Longname: OMI/Aura NO2 Cloud-Screened Total and Tropospheric Column L3 Global Gridded 0.25



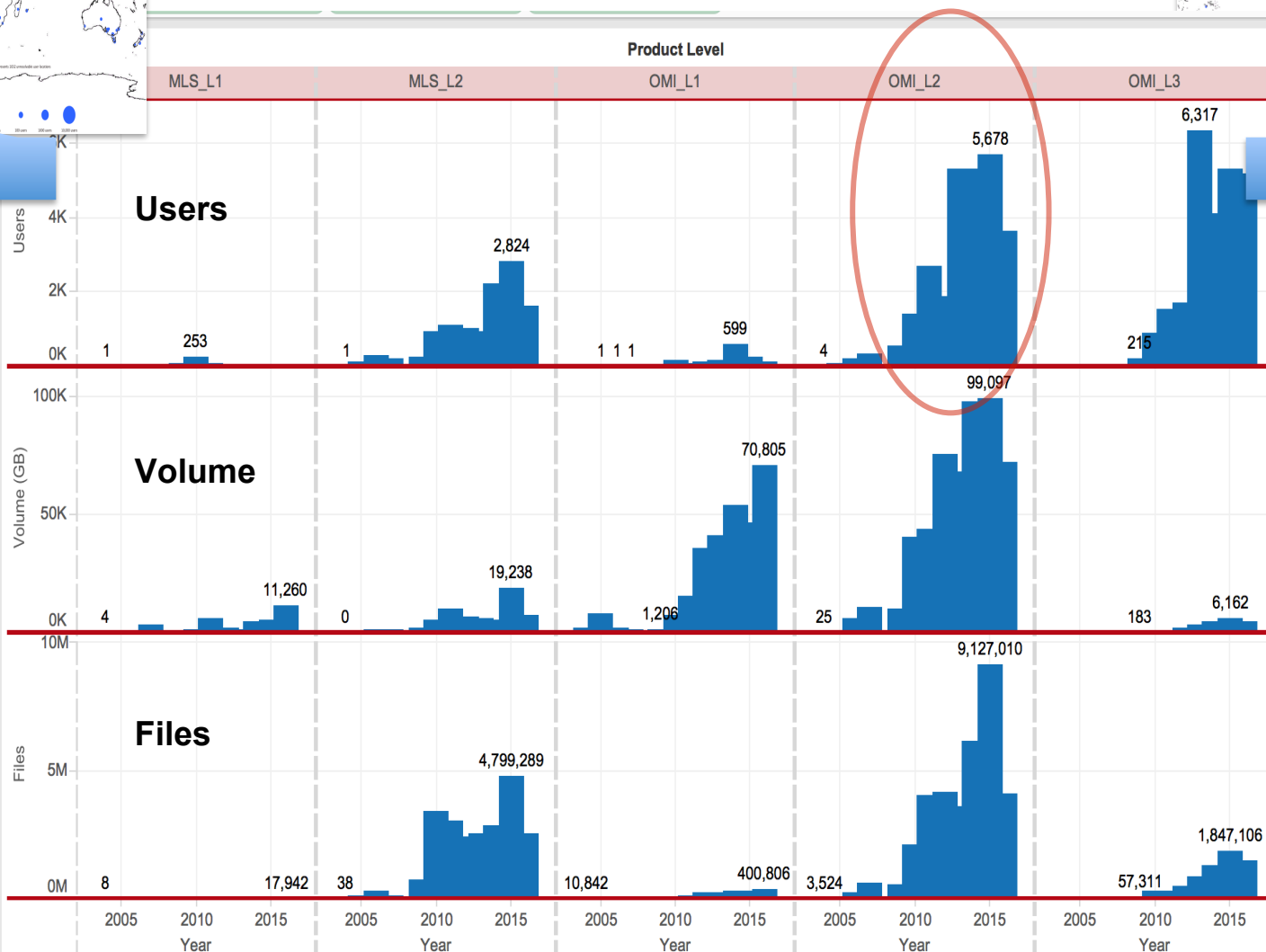
Improve Usability – User Needs Based Data Usage Metrics

Metrics: MLS/OMI Data Distribution



MLS

OMI





Improve Usability – User Needs Based Help Desk Requests Metrics/Google Scholar Metrics

❑ User Complaints

Q: Fail to Find/Access/Download Data, data formats

Cause: broken URL links, deprecating old tools, workflow failure, HDF4/5 (why not ascii)

❑ Application

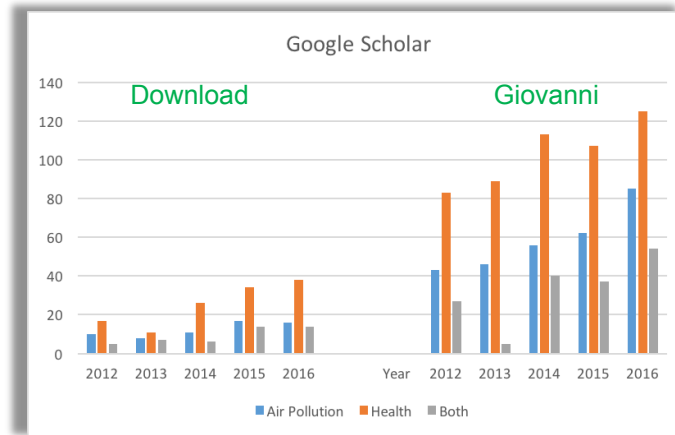
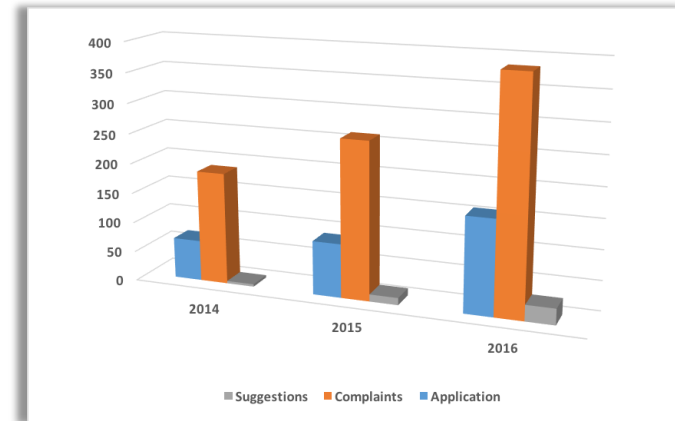
Q: Data Inquiry, Service Inquiry

Cause: Diff. temporal/spatial data inquired, interoperability other tools (Matlab/IDL/Python, WCS/WMS, R/ArcGIS...)

❑ Suggestion

Q: Subsetting/visualization service, data transformation

Cause: Software not compatible, non-conventional users



Improve Usability – User Needs Based Satellite Level 2 Services - MAPSS

The Multi-sensor Aerosol Products Sampling System (MAPSS) has been established as a consensus data framework for multi-sensor aerosol validation, intercomparison, and joint analysis. MAPSS provides statistics of spatial and temporal subsets of Level-2 aerosol scientific data sets (SDS) from a range of sensors that currently includes AERONET, MODIS, MISR, OMI, SWDB, VIIRS, POLDER, and CALIOP.

MAPSS

MAPSS: Multi-sensor Aerosol Products Sampling System

This user interface is used to obtain selected parameter statistics from the [MAPSS](#) database for a chosen location and time period. Time Series Plot is the available service. Plot output is rendered as a graph and is also available in ASCII format.

Data Selection
Results
NEW Try out the MAPSS Statistical Explorer

Plot Data
Reset
Clear
Send Us Feedback!
Help

Select Station

Click 'Browse' button or type in comma separated names
Browse

Select Plot

Satellite Colocated with AERONET

☒ Time Series
☐ Scatter Plot

Select Measurements

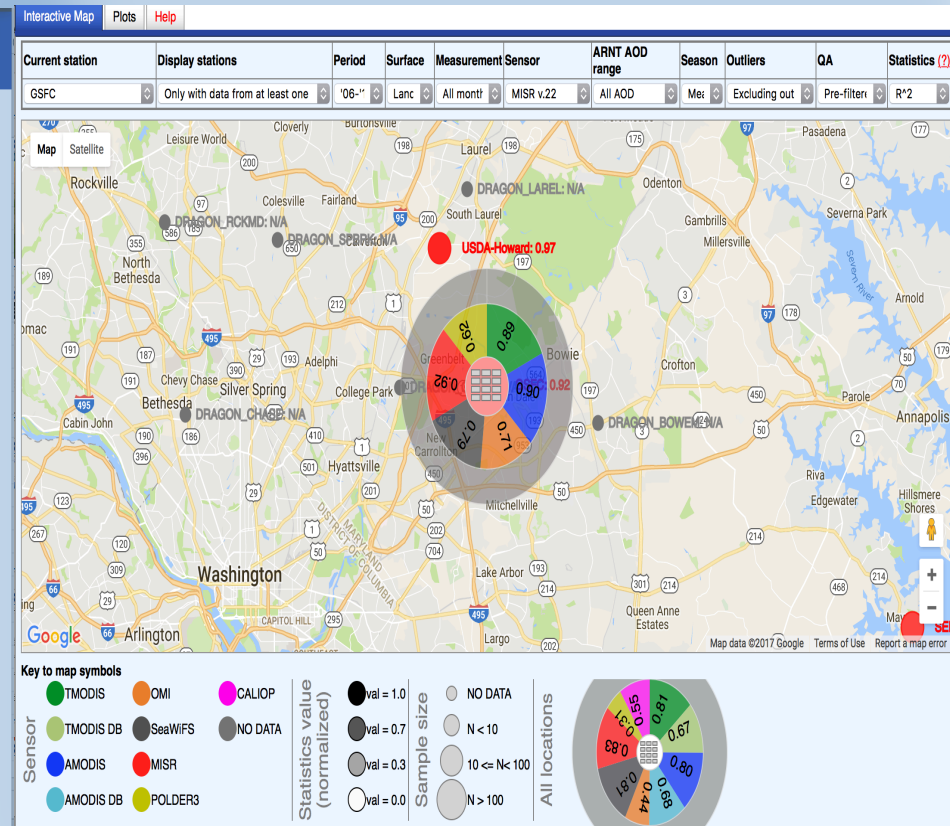
Click each list below (beginning with the left-most list) to show the set of fully qualified measurements. Select a measurement and then click 'Add'. Repeat for additional measurements.

☒ Basic
☐ Advanced

Product	Parameter	Layer	Measurement	
AERONET aerosols L2, ver. 2				
AERONET deconvolution L2, ver. 41				
AERONET inversions L1.5, ver. 2				
AERONET inversions L2, ver. 2				
CALIPSO column and layer aerosols L2				
More...				Add

Selected Measurements

MAPSS Explorer



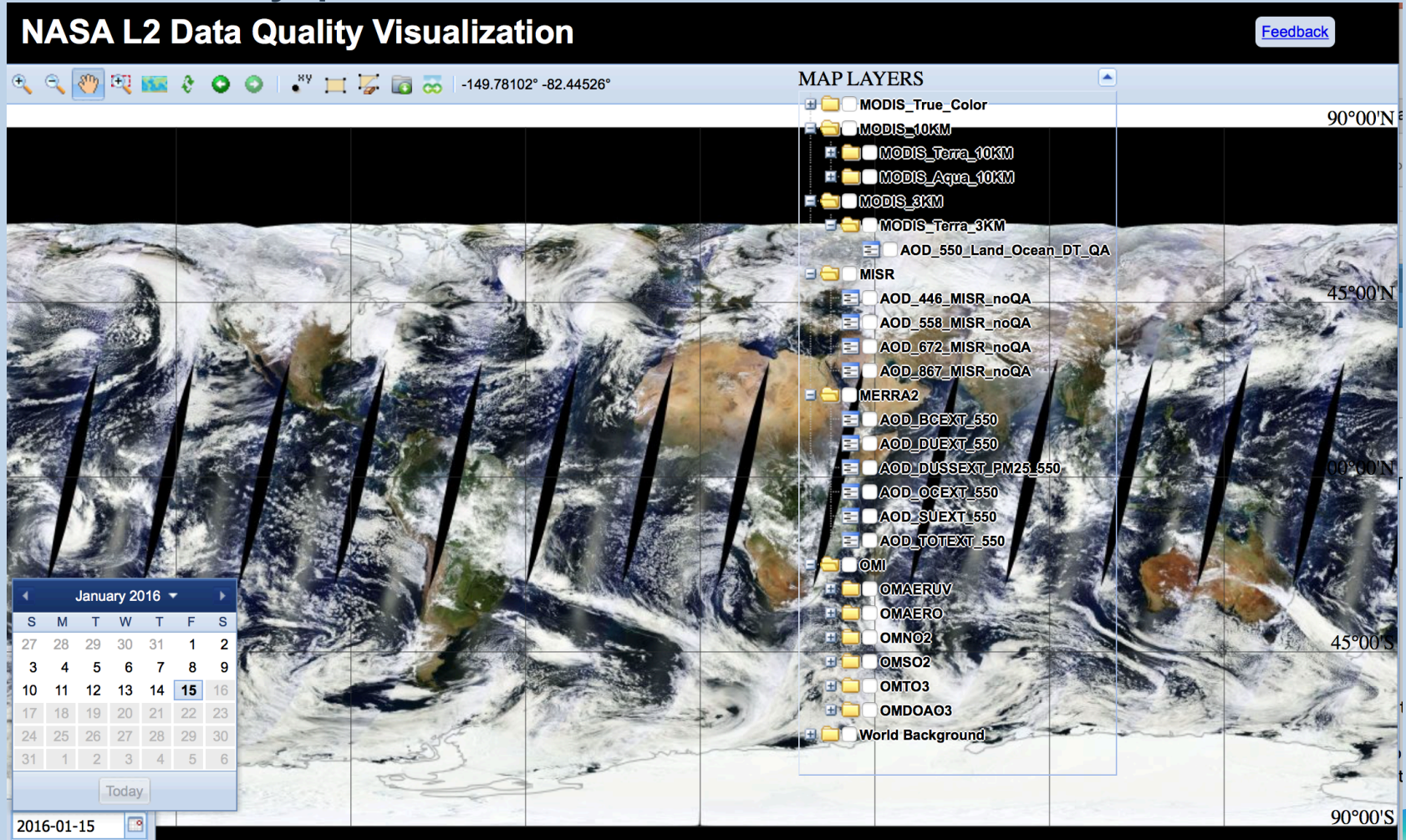
<https://giovanni.sci.gsfc.nasa.gov/mapss/>

https://giovanni.gsfc.nasa.gov/mapss_explorer/ **GES – DISC**
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Improve Usability – User Needs Based Satellite Level 2 + Model Services - DQViz

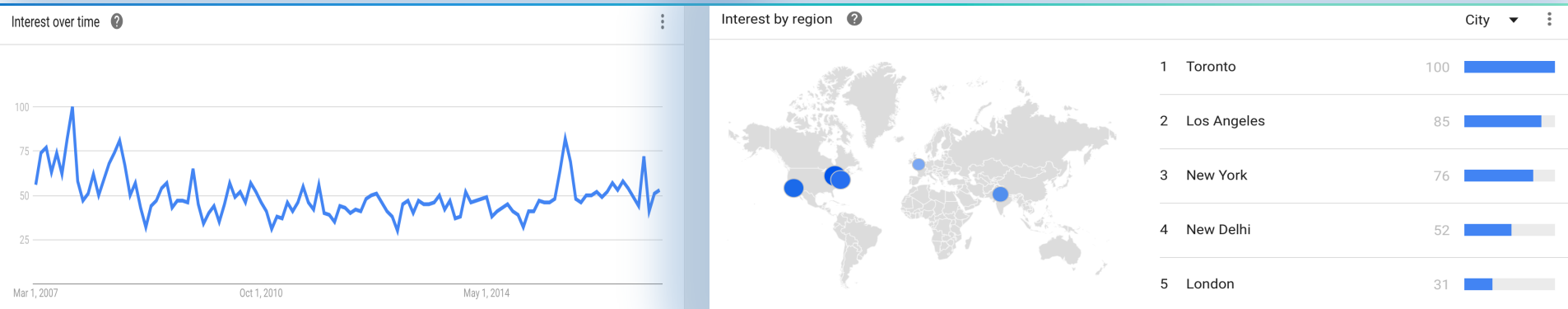
- Use visual to demonstrate satellite Level 2 physical quantity
- Use visual to differentiate observations made by different platforms
- Caveat: Only qualitative



https://disc1.gesdisc.eosdis.nasa.gov/dqviz/l2portal_transparent/index.htm



Improve Usability – User Needs Based Knowledge advances by Citizen Science



<https://trends.google.com/trends/explore?cat=45&date=2007-02-24%202017-02-24&q=air%20quality>

- Internet is enriched with information
- Recognize citizen scientists are both data producers and users
- Federal Crowdsourcing and Citizen Science Catalog
 - <https://citizenscience.gov>
 - <https://ccsinventory.wilsoncenter.org>
- GES DISC's perspective: How can we better utilize crowdsourcing apps to help the community?

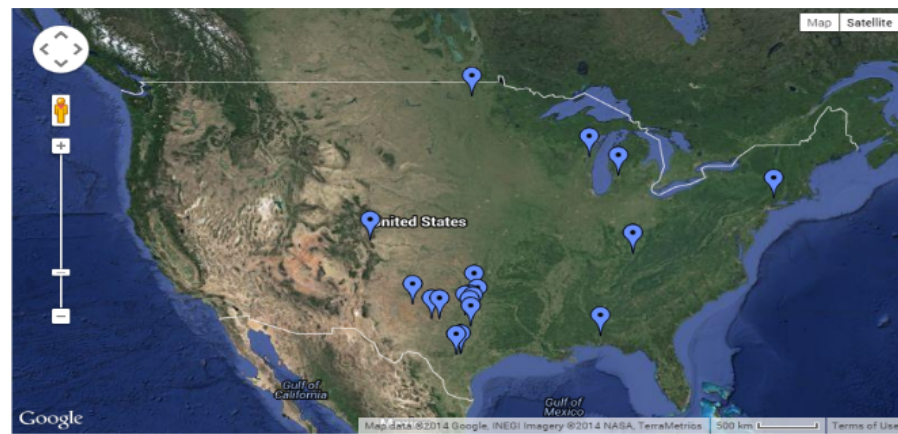
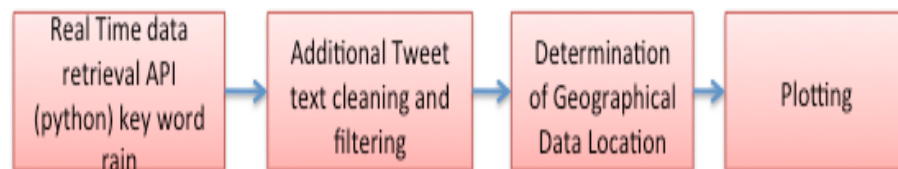


Using Twitter to Validate Satellite Obs.

Objective: Develop a general infrastructure for processing social media

Use Case: Precipitation

- Listen to Twitter stream in real-time for “precipitation” and related tweets.
- Apply basic filters for exact phrases.
- Extract location information.
- Map resulting tweet distributions.



From Dr. William Teng (william.l.teng@nasa.gov)

Data Mining Twitter for Augmenting NASA Precipitation Research and Applications,
funded by NASA “Citizen Science for Earth Systems Program NNH16ZDA001N-CSESP



How can we help?

gsfc-help-disc@lists.nasa.gov

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