



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

**NASA GES DISC's customized
services for climatology and
meteorology**

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Long Pham and Dave Meyer**

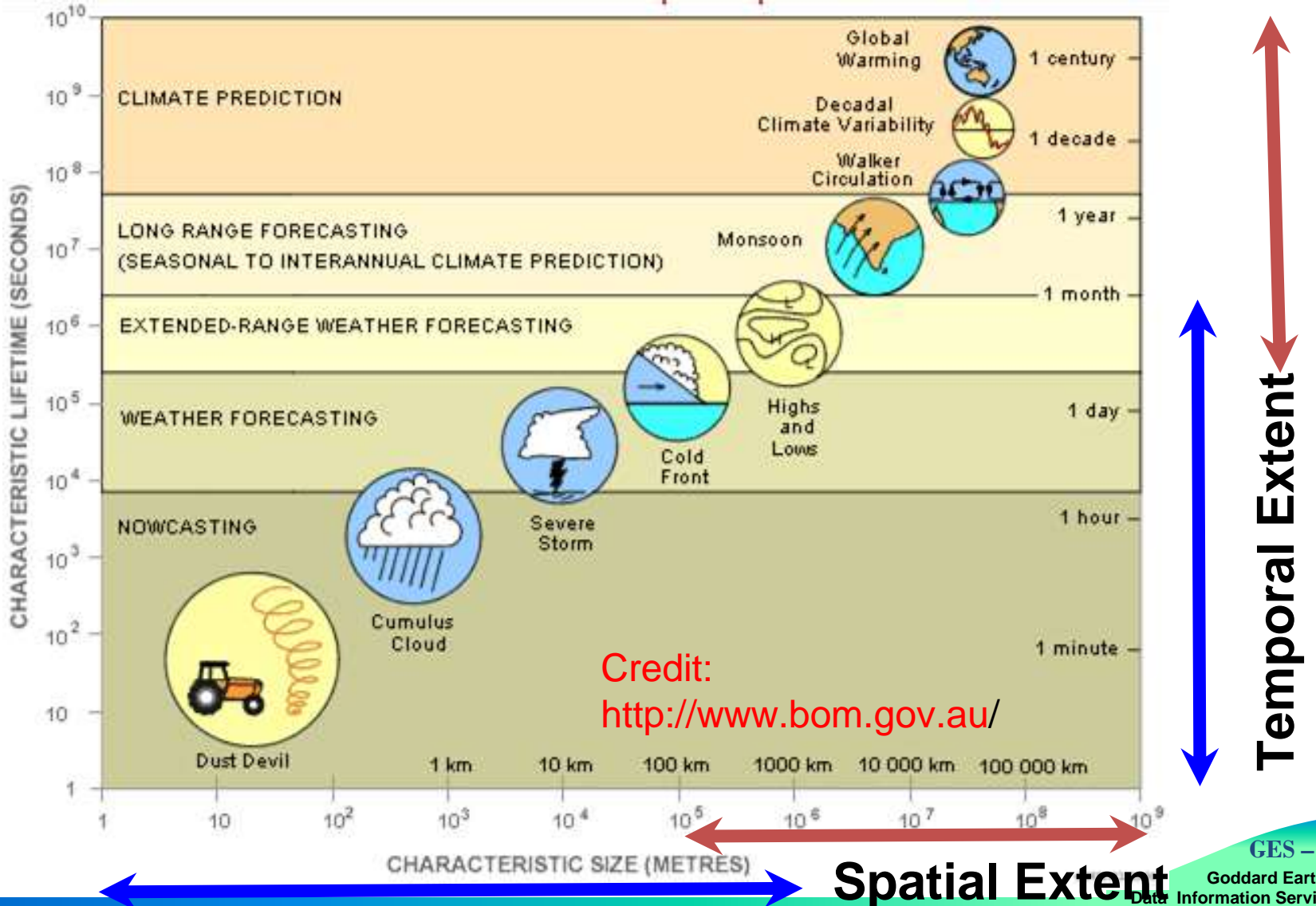
[35th Conference on Environmental Information Processing Technologies](#)

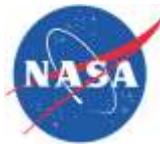


Outline

- Definition of Weather & Climate
- Fitness for business services for weather & climate
- NASA GES DISC Data & Services for Weather & Climate
- GES DISC user-friendly (but customizable) services

Climate is what you expect and **weather** is what you get!





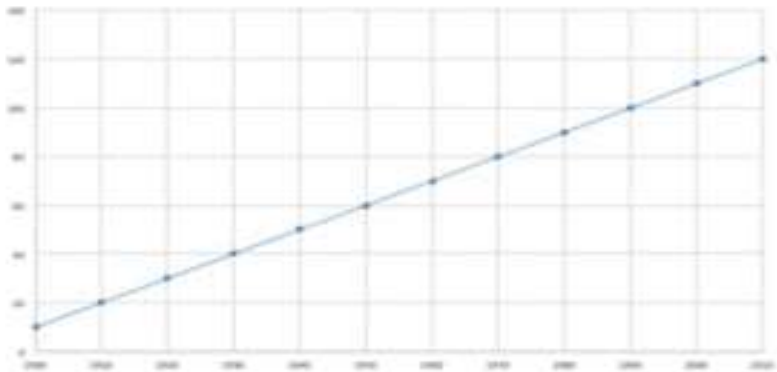
Fitness for Business in Weather/Climate services - GES DISC Mission

Will we need to evacuate the city due to ...?

How much solar/wind energy can we expect to get in this area?

Where...?
What... ?
How... ?

Weather vs. Climate





Data Producers

Data Users



Sciences

Atmospheric
Composition

Global Water &
Energy Cycles

Climate
Variability

Weather

Carbon Cycles

Data

Satellite
In Situ
Model
Aircraft

Ingest

Archive

Preservation

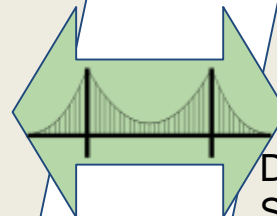
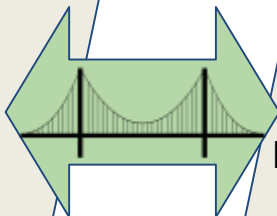
Distribution

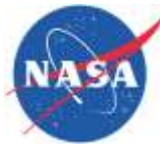
Services

Accessibility
Interoperability
Usability

Downloading
Subsetting
Reprojection
Visualization

User Services





GES DISC Data Search Service: Explore Weather/Climate data



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

The screenshot shows the GES DISC website interface. The browser address bar displays <https://disc.gsfc.nasa.gov>. The page header includes the NASA logo, the text "EARTHDATA Find a DAAC -", and the main title "GES DISC Atmospheric Composition, Water & Energy Cycles and Climate Variability". In the top right corner, there are links for "Feedback", "Help", and "Login".

On the left side, there is a navigation menu titled "Explore..." with the following items: Data Collections (selected), Data Documentation, Alerts, FAQs, Glossary, How-To's, Image Gallery, News, and Tools. A red box highlights this menu.

In the center, there is a search bar with the placeholder text "Enter search (e.g., rainfall, GPM, TRMM_3B42)". A red box highlights the search bar, and a red arrow points to it with the label "Keyword Search".

Below the search bar, there is a "Browse Data by Category" section. A red box highlights the "Measurement" category, and a red arrow points to it with the label "Navigating Data".

On the right side, there is a green box with the text "Example: SO2 data associated to Volcano, Mount Merapi, Indonesia (Nov 6-12, 2010)". A red arrow points to this box with the label "Temporal and spatial Range".

At the bottom left, there is a "Projects & Missions" section.

Archive Size: 2,207,798 TB
 Archived Data Files: 115,845,589
 Files Distributed*: 2,362,370,288
 Data Volume Distributed*: 22,462,951 TB



Giovanni - Analyze/Visualize on-the-fly service

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

GIOVANNI This Bridge Between Data and Science # 4.26

3872 Project recommendations not to use 3881 coranin_CO and 3784 ... 11 of 1 message(s) [Email] [Print]

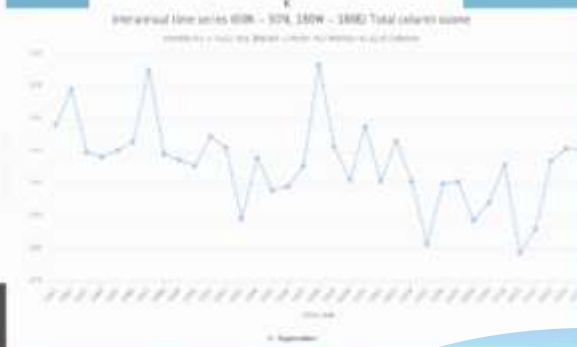
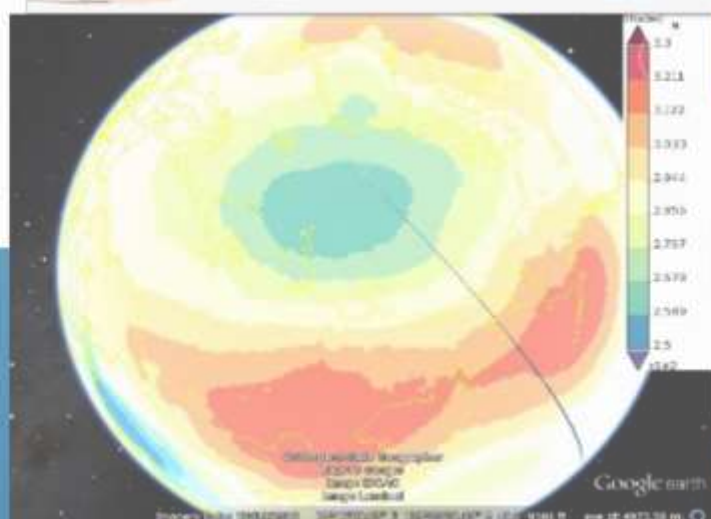
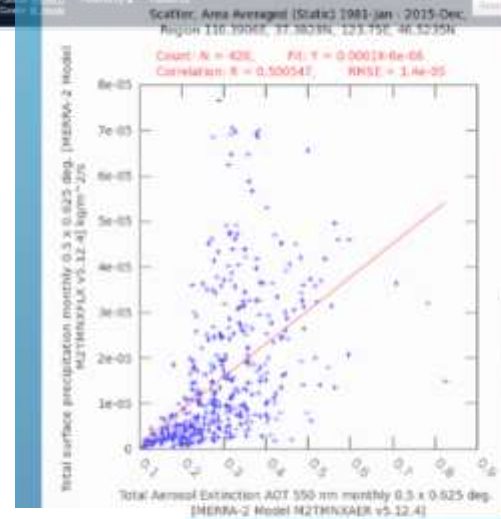
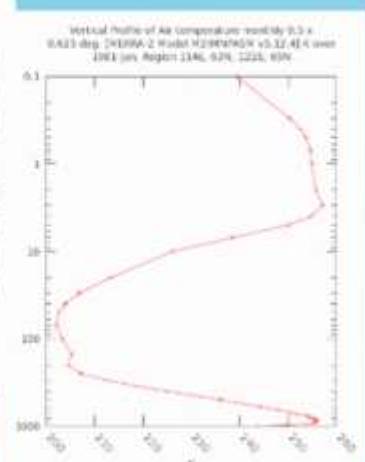
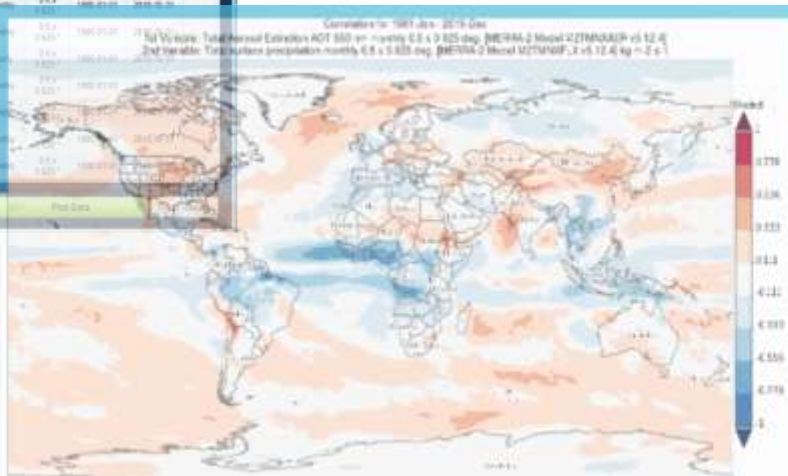
Select Plot
 + Range: Time Averaged Map + | Comparison: Select... | Vertical: Select... | Time Series: Select... | Multi-Frame: Select...

Select Date Range (UTC)
 2019-01-04 00:00:00 to 2019-01-19 00:00:00 [Date Range: 2019-01-04 00:00:00 to 2019-01-19 00:00:00]

Select Region (Bounding Box or Shape)
 110.000000, 37.000000, 123.750000, 36.525000

Select Variables
 Number of matching variables: 3 of 1897. Total variables included in Plot: 1

Variable	Units	Source	Temp. Res.	Spac. Res.	Begin Date	End Date
M21M000	kg m ⁻²	M21M000	Monthly	1000 x 1000	1981-01-01	2015-12-31
M21M001	kg m ⁻²	M21M001	Monthly	1000 x 1000	1981-01-01	2015-12-31
M21M002	kg m ⁻²	M21M002	Monthly	1000 x 1000	1981-01-01	2015-12-31
M21M003	kg m ⁻²	M21M003	Monthly	1000 x 1000	1981-01-01	2015-12-31
M21M004	kg m ⁻²	M21M004	Monthly	1000 x 1000	1981-01-01	2015-12-31
M21M005	kg m ⁻²	M21M005	Monthly	1000 x 1000	1981-01-01	2015-12-31
M21M006	kg m ⁻²	M21M006	Monthly	1000 x 1000	1981-01-01	2015-12-31
M21M007	kg m ⁻²	M21M007	Monthly	1000 x 1000	1981-01-01	2015-12-31
M21M008	kg m ⁻²	M21M008	Monthly	1000 x 1000	1981-01-01	2015-12-31
M21M009	kg m ⁻²	M21M009	Monthly	1000 x 1000	1981-01-01	2015-12-31
M21M010	kg m ⁻²	M21M010	Monthly	1000 x 1000	1981-01-01	2015-12-31





Analyze California Fire with GES DISC data & tools



Carbon Monoxide and Aerosol from Satellites and MERRA-2 California Fire, July 28 2018

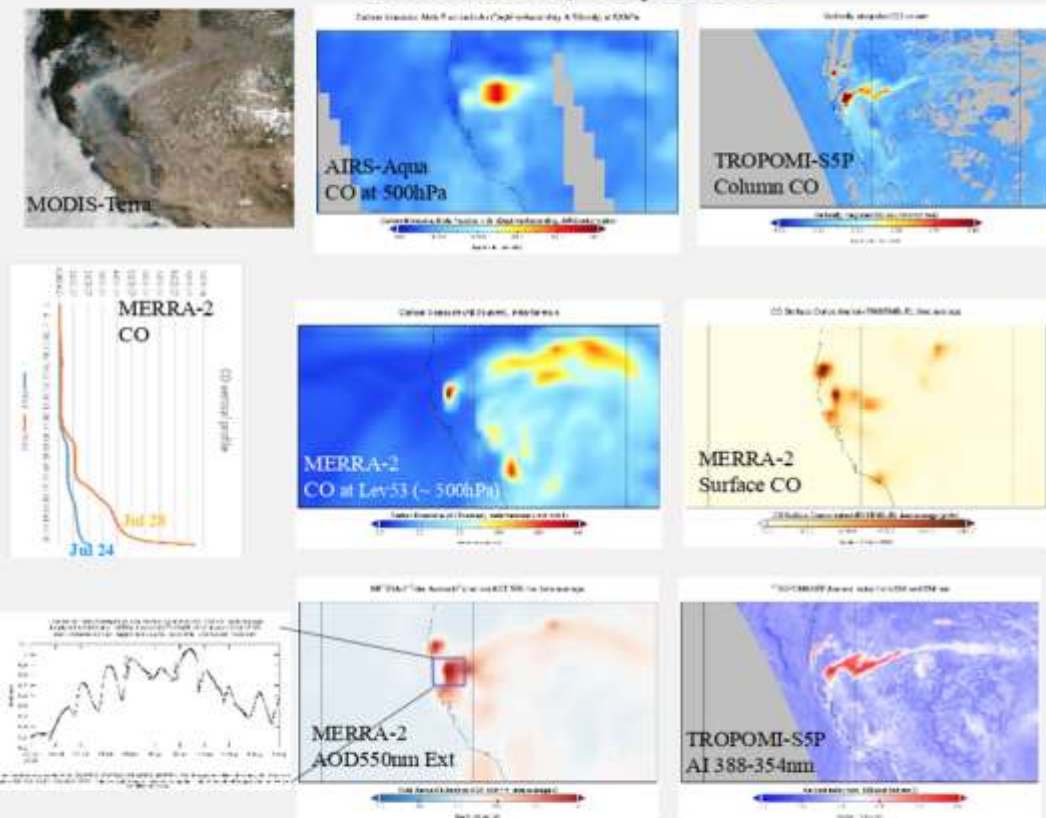


Fig.1 Images demonstrated the large scale elevated Carbon Monoxide (CO) and aerosols observed from satellite (AIRS/Aqua and TROPOMI/Sentinel-5P) and model assimilated data from MERRA-2 during a California Fire event on July 28 2018. The true color image is from MODIS-Terra.

Meteorology and Land Surface Conditions Before the Fire event

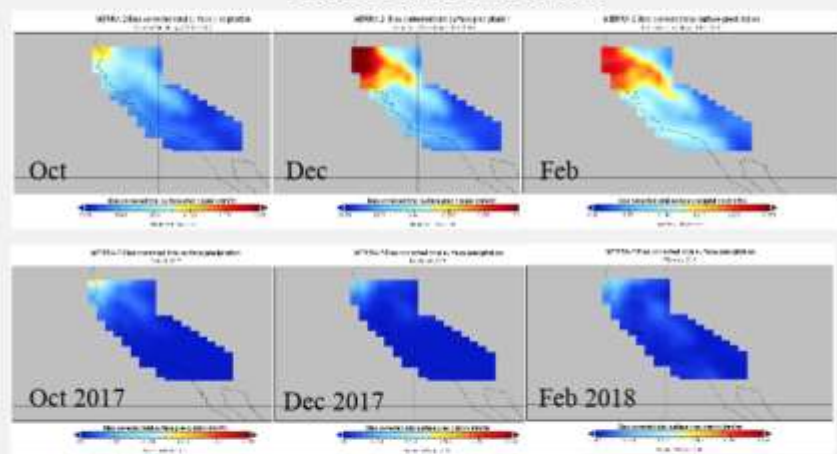


Fig.2 Images are monthly precipitation from MERRA-2, showing that the precipitation during 2017-2018 raining season is much below the climatology.

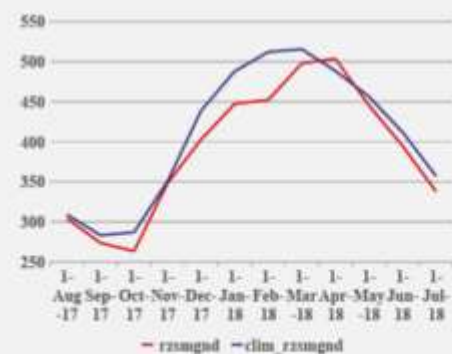


Fig.3 Time series of monthly soil moisture at root zone from NLDAS_NOAH over northern California (-124.0,38.9,-120.3,41.5) from Aug 2017 to Jul 2018 (Red line) and corresponding monthly Climatology



How-To's

Download

Case Study

Visualization

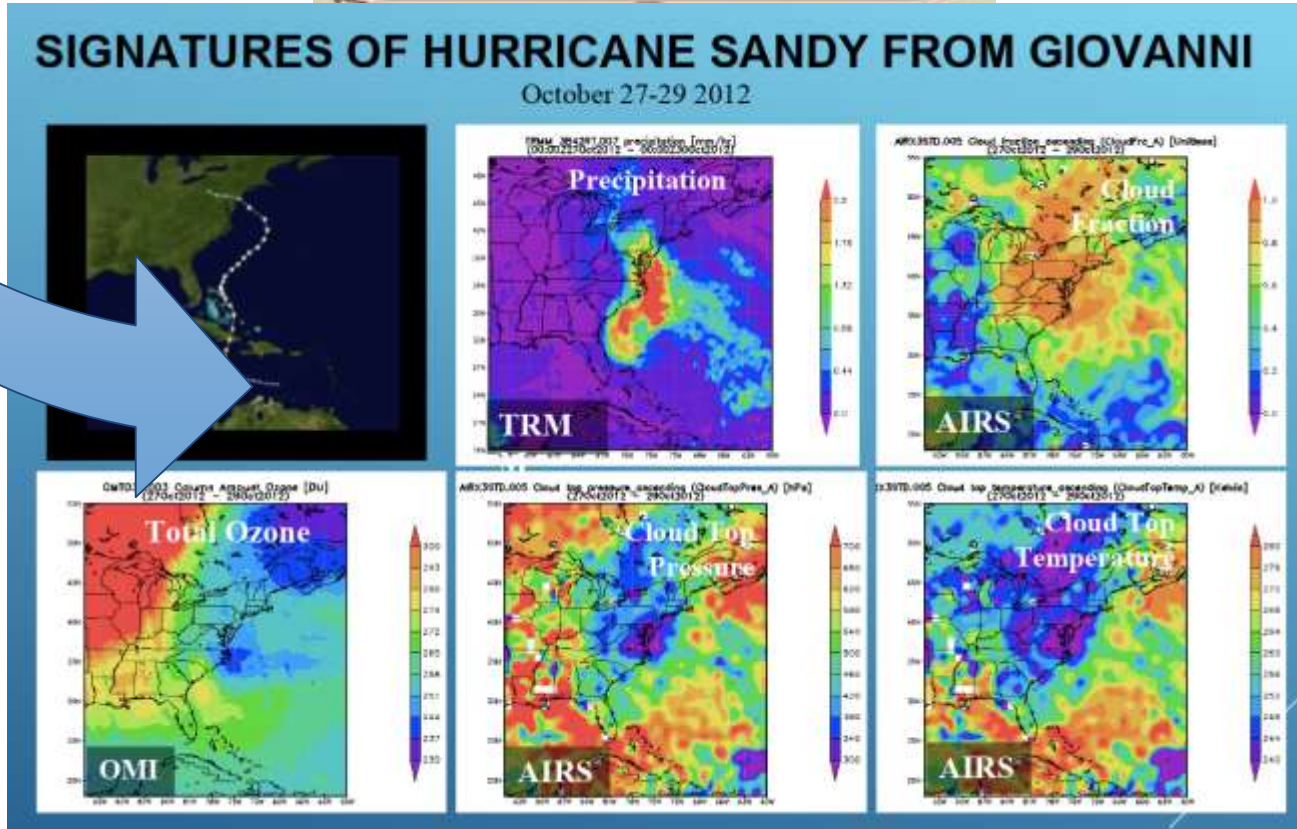


GES DISC Customizable datasets for features




List of "Bundle Data Parameters"

Hurricane	Volcano	Flood
Precipitation; Wind Speed; SST; Humidity; Air Temp.; Sfc Pressure; Aerosol	Air Temp.; SO2; Aerosol/Dust; Wind Speed; Humidity; Clouds	Precipitation; Soil Moisture; Sfc Runoff; Humidity; Air Temp.






Customized with GES DISC data & tools

- Videos on **You Tube** : subscribe “NASAGESDISC”
- Twitter  : @NASA_GESDISC, @NASA_Giovanni
- How-To's

Download

Case Study

Visualization

- Feedback: 
- Help Desk: gsfc-help-disc@lists.nasa.gov
- **Data Recipe or Data HowTo's**
- Webinars
- **GES DISC news articles**

