



# EXPLORE EARTH

YOUR HOME, OUR MISSION

## Earth Science Data and Information System (**ESDIS**) Project Update

**GHRC** User Working Group Meeting  
October 22-23, 2019 – Huntsville, AL  
Stephen Berrick, ESDIS Project, NASA GSFC

To start, a Quick  
Moment on  
EOSDIS

EARTH OBSERVING SYSTEM  
DATA AND INFORMATION SYSTEM



# EOSDIS Comprises Data of the Whole Earth System

## Atmosphere

Winds & Precipitation  
Aerosols & Clouds  
Temperature & Humidity  
Solar radiation

## Ocean

Surface temperature  
Surface wind fields & Heat flux  
Surface topography  
Ocean color

## Cryosphere

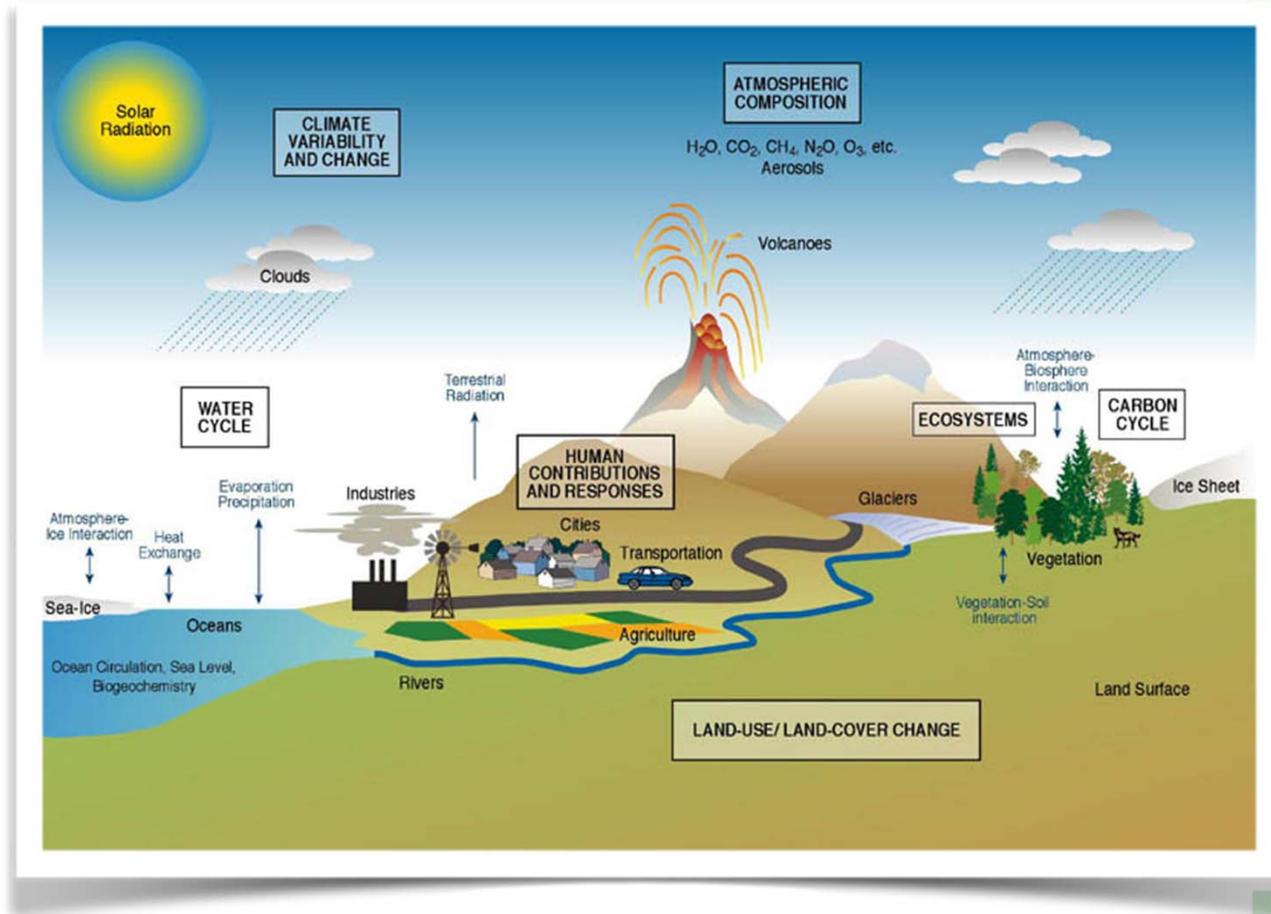
Sea/Land Ice  
Snow Cover

## Land

Cover & Usage  
Soil Moisture  
Topography & elevation  
Temperature

## Human Dimensions

Population & Land Use  
Human & Environmental Health



# NASA Earth Science Missions: Present through 2023

- (Pre)Formulation
- Implementation
- Primary Ops
- Extended Ops

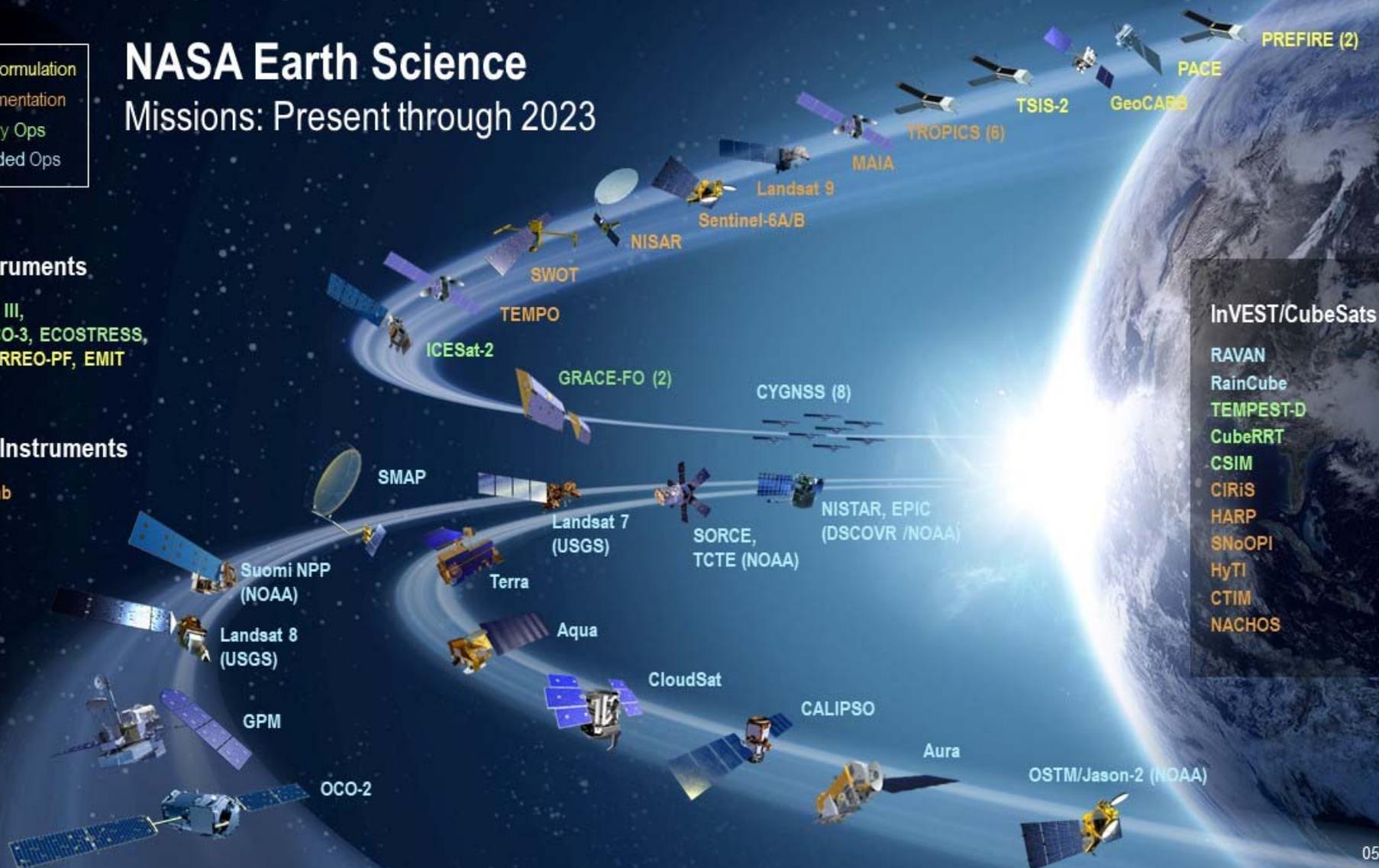
## ISS Instruments

LIS, SAGE III, TSIS-1, OCO-3, ECOSTRESS, GEDI, CLARREO-PF, EMIT

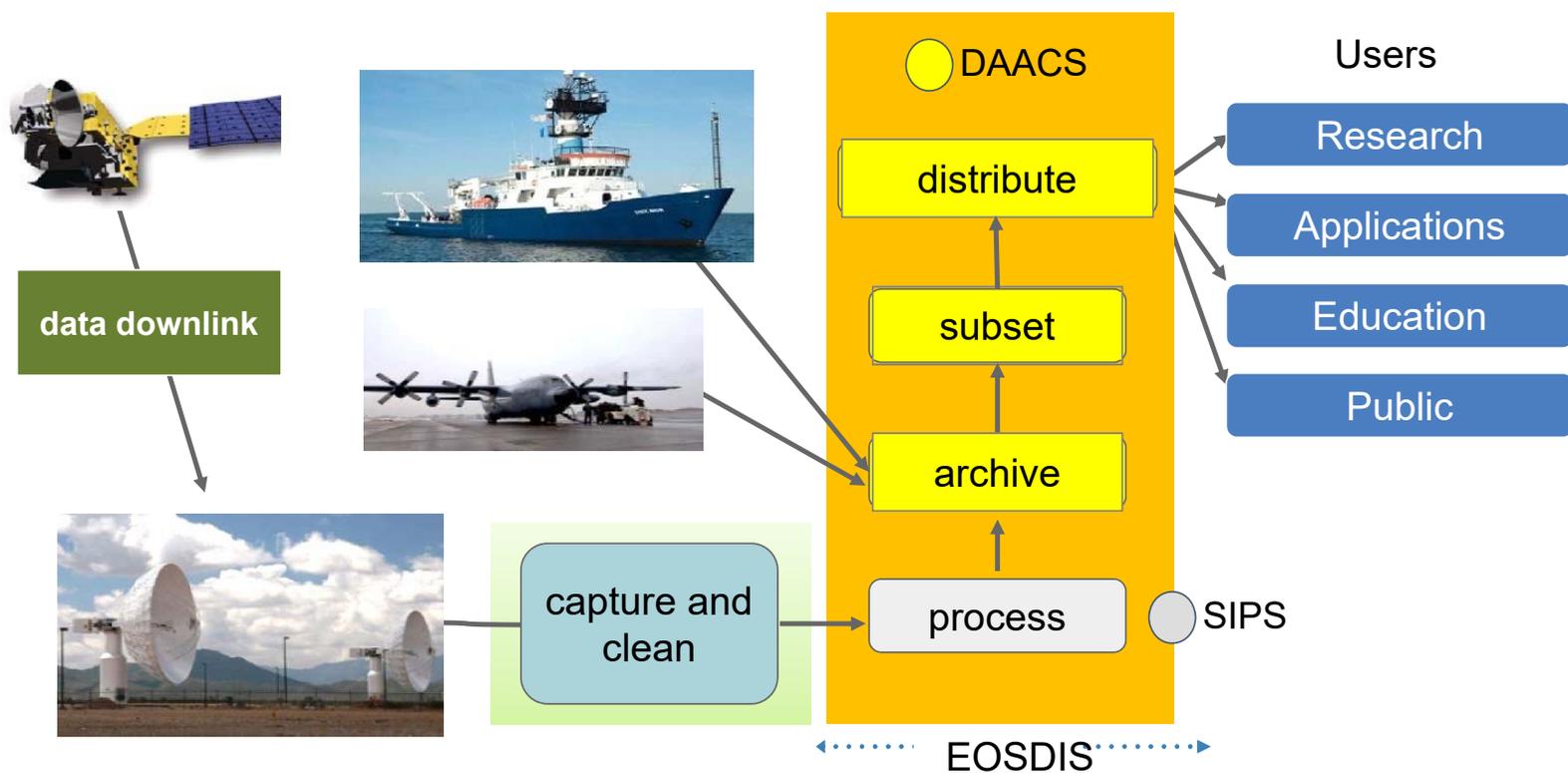
## JPSS-2 Instruments

OMPS-Limb

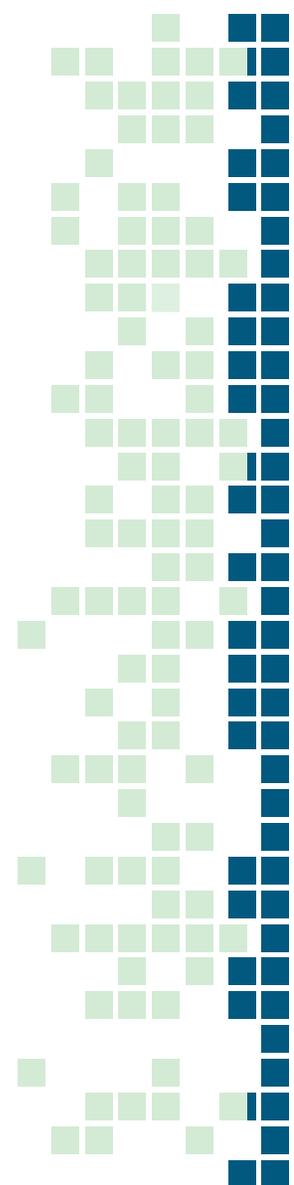
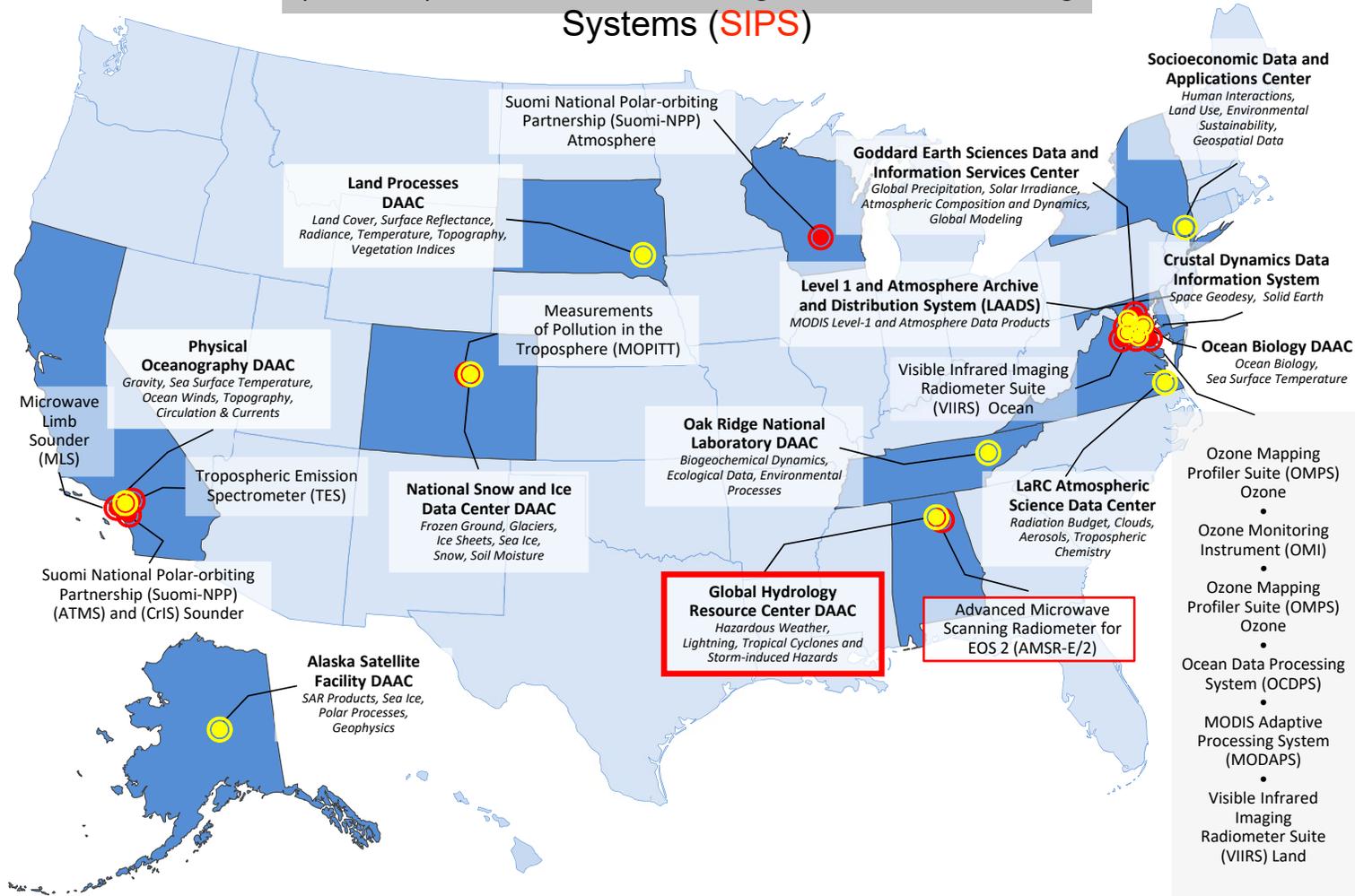
- ### InVEST/CubeSats
- RAVAN
  - RainCube
  - TEMPEST-D
  - CubeRRT
  - CSIM
  - CIRIS
  - HARP
  - SN<sub>o</sub>OPI
  - HyTI
  - CTIM
  - NACHOS



# Components of the EARTH OBSERVING SYSTEM DATA AND INFORMATION SYSTEM



# EOSDIS Distributed Active Archive Center (DAACs) and Science Investigator-led Processing Systems (SIPS)





FISCAL 201



**EOSDIS** has  
over  
**30 Petabytes**  
of accessible Earth  
science data

EOSDIS delivered over  
**1.6 Billion** data products  
to over **3.1 Million**  
science users from around the world



... with over  
**438 Million**  
Science data files in the repository

...

... ability to search over  
**33,000 Data Collections**  
in the CMR  
(Common Metadata Repository)...

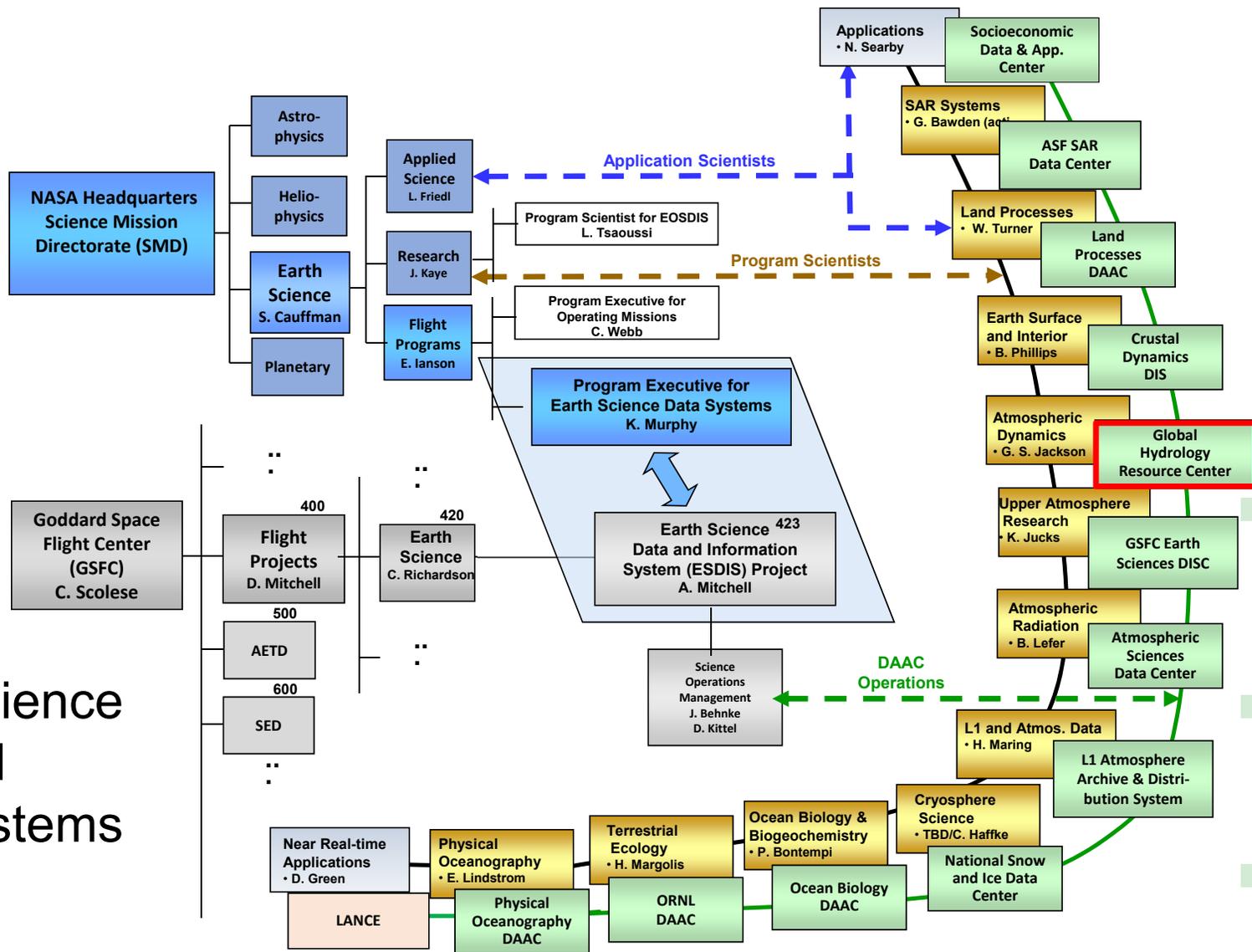


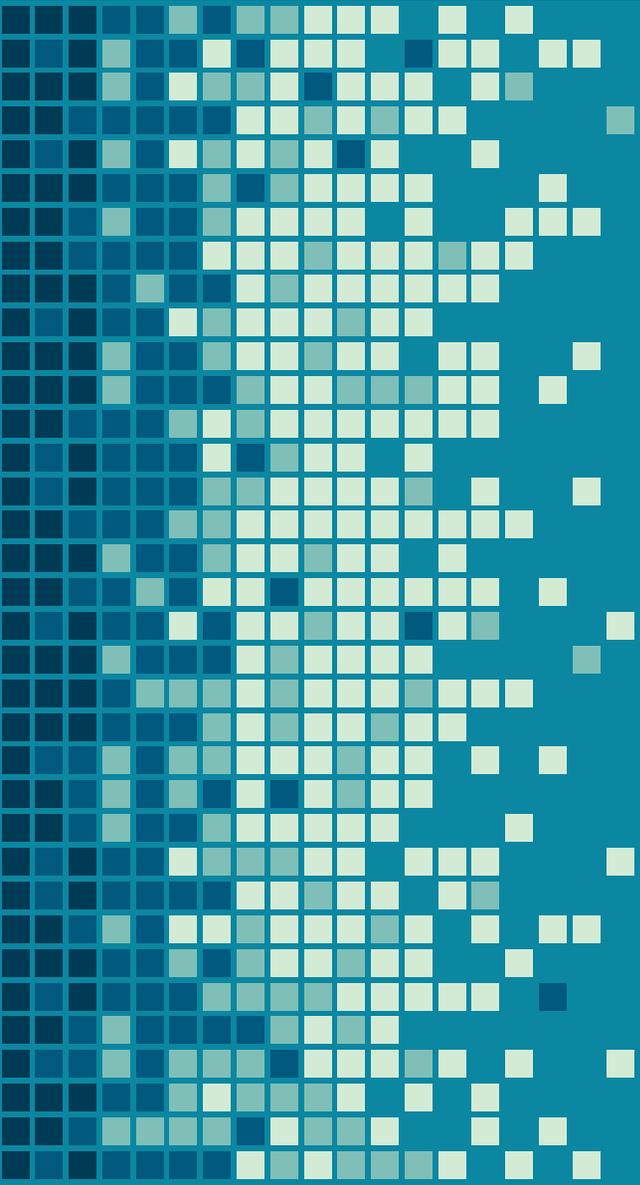
... of which 98% of searches for data  
complete in less than **1 Second**



... and our LANCE system supports **over 530** unique near real-time datasets...  
distributed over 134 million files and produced 1  
Petabyte of data **within 3 hours of**  
**satellite acquisition**

# Earth Science and Data Systems





# You, UWGs & GHRC

# Role of the UWGs

- ✓ Assist in defining and accomplishing the DAAC's science goals.
- ✓ Provide guidance on DAAC data management priorities.
- ✓ Provide recommendations about annual work plans and long-range planning.
- ✓ Coordinate science issues with the ESDIS Project staff and Program Scientists.
- ✓ Provide oversight and guidance on DAAC activities, including data set acquisition, development of value-added products, user support, development activities, and operational functions.
- ✓ For new product considerations, provide input according to the established process for handling new data types and services.



# NASA DAAC User Working Groups: Community

## Insights

The UWGs duties are principally:

1. Assist in accomplishing science goals
2. Provide guidance on data management priorities
3. Provide guidance on DAAC Core activities
4. Provide input to annual work plans and long-range planning
5. Help coordinate science issues between ESDIS and HQ



### The UWGs

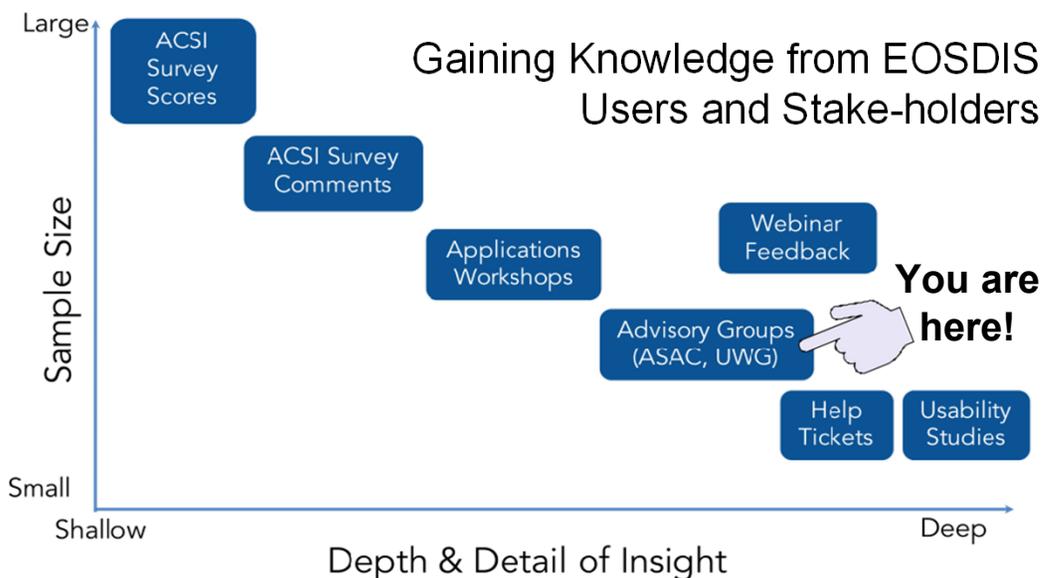
... provide community input into the operation of the DAACs and EOSDIS.

... provide oversight and guidance/on-going reality check of DAAC goals and objectives - are these being met?



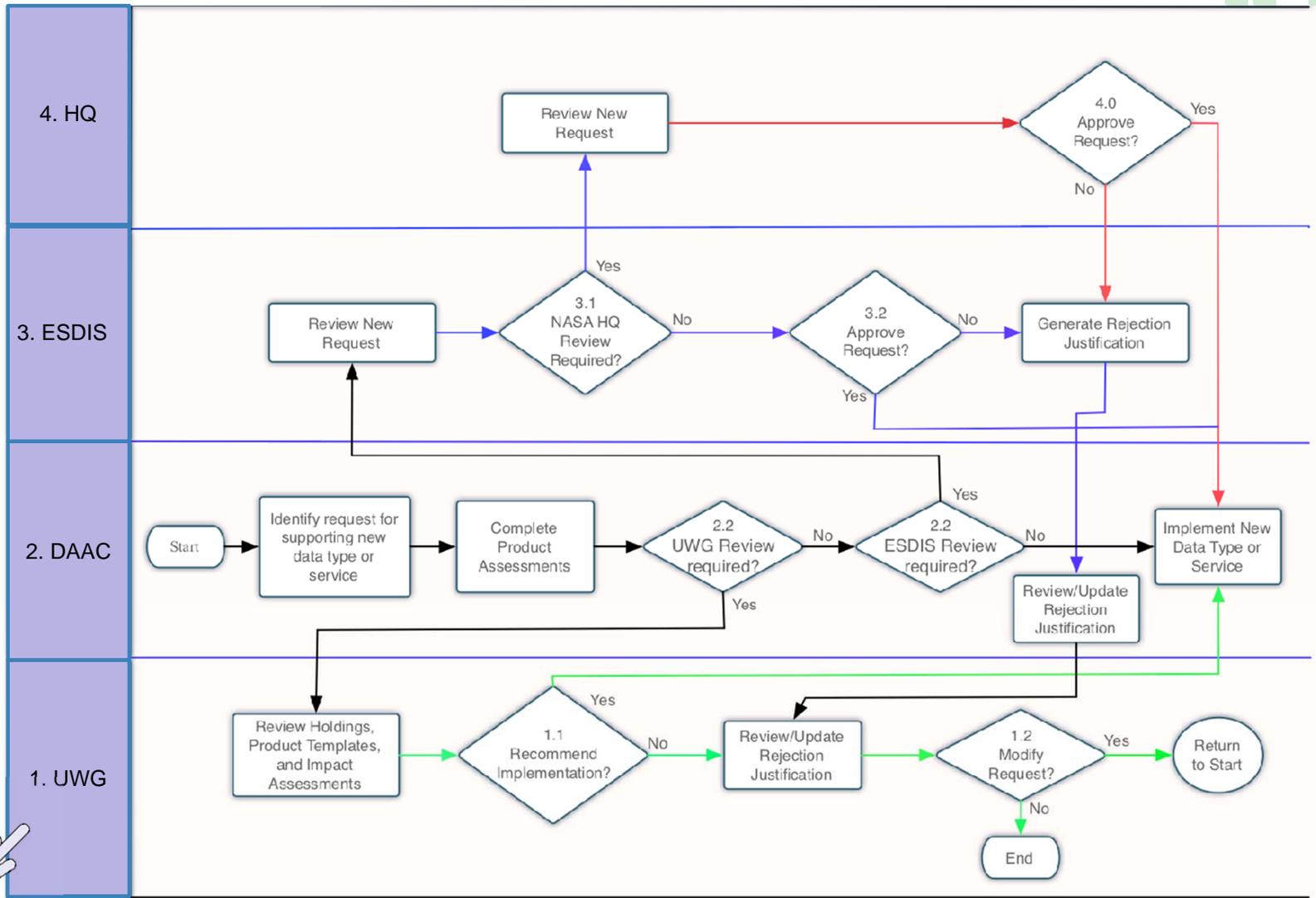
### The UWG

... members represent a specific community of data users and have a depth of experience with SEDAC data and services.



# Adding New Data to GHRC

- DAAC holdings are highly curated.
- The process for adding new data sets involves all the NASA data system organizations.



You are here!



# NASA's Earthdata Web Site

Search datasets, news, articles, and information

ATMOSPHERE CALIBRATED RADIANCE & SOLAR RADIANCE CRYOSPHERE HUMAN DIMENSIONS LAND OCEAN

**ACCESS NASA EARTH SCIENCE DATA**  
NASA's data policy ensures that all NASA data are available fully, openly, and without restrictions. [Here's what this means to you.](#)

[FIND DATA](#) [VISUALIZE DATA](#) [GETTING STARTED](#)

**DATASET**

**New Data from the Atmospheric Tomography (ATom) Mission**

The NASA ATom Mission is an Earth Venture Suborbital-2 mission to measure greenhouse gases and human produced air pollution in remote areas. ATom flights occurred in each of 4 seasons from 2016 to 2018. Flight originate from the Armstrong Flight Research Center in Palmdale, California, fly north to the western Arctic, south to the South Pacific, east to the Atlantic, north to Greenland, and return to California across central No America. During each flight, the aircraft executes a continuous series of vertical profiles from 0.2 to 12 km altitude. Several new ATom Level 2 data products are available at the NASA Oak Ridge National Laboratory Distributed Active Archive Center (ORNL DAAC). Discover and access new ATom data:<http://bit.ly/2OgNix9>

**GLOBAL HYDROLOGY RESOURCE CENTER (GHRC) DAAC**

Search datasets, news, articles, and information

Earth Observing System Data and Information System (EOSDIS) • EOSDIS Distributed Active Archive Centers (DAACs)  
Global Hydrology Resource Center (GHRC) DAAC

Global Hydrology Resource Center Distributed Active Archive Center (GHRC DAAC)

**Discover**

[Get Data](#)

[Learn About Data](#)

[View Dataset Collections](#)

[Explore Projects](#)

**Contact Information**

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Huntsville, AL 35805

Visit the DAAC: <https://ghrc.nsstc.nasa.gov/home/>  
[Learn more about other DAACs](#)

[Twitter](#) [Facebook](#) [YouTube](#) [LinkedIn](#) [RSS](#)

New Global Sea Level Change Animation at NASA's PO DAAC

Fires in Southeastern Africa

Webinar: Discover and Access SAR Data with ASF's Vertac: Better, Stronger, Faster  
Event Date: October 16, 2019

Beacons in the sky help monitor Earth's orientation in space

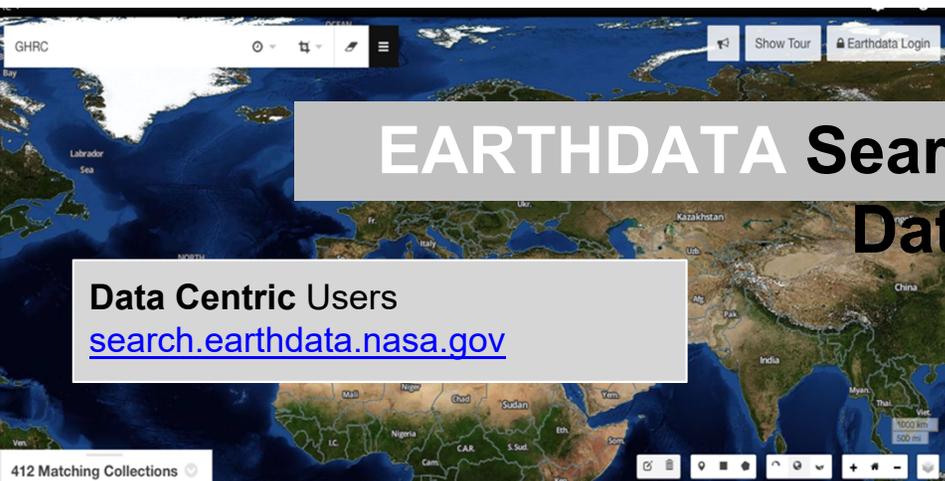
Continue to make improvements in content and organization, focus on the user experience

# EARTHDATA Search: Accessing GHRC

## Data Sets

Data Centric Users

[search.earthdata.nasa.gov](https://search.earthdata.nasa.gov)



412 Matching Collections

Sort by: Relevance  Only include collections with granules  Include non-EOSDIS collections

Tip: Add + collections to your project to compare and download their data.

- AMSR-E/AMSR2 Unified L3 Global 5-Day 25 km EASE-Grid Snow Water Equivalent V001**  
527 Granules - 2012-07-02 ongoing - This AMSR-E/AMSR2 Unified Level-3 (L3) data set provides 5-day maximum estimates of Snow Water Equivalent (SWE). SWE was derived from brightness temperature measurements acquired by the Advanced Microwave Scanning Radiometer 2 (AMSR2) instrument on board the JAXA GCOM-W1 satellite...  
MAP IMAGERY AUJ Di5no v1 - NASA NSIDC DAAC
- AMSR-E/AMSR2 Unified L3 Global Daily 25 km EASE-Grid Snow Water Equivalent V001**  
2,650 Granules - 2012-07-02 ongoing - This AMSR-E/AMSR2 Unified Level-3 (L3) data set provides daily estimates of Snow Water Equivalent (SWE). SWE was derived from brightness temperature measurements acquired by the Advanced Microwave Scanning Radiometer 2 (AMSR2) instrument on board the JAXA GCOM-W1 satellite. The...  
MAP IMAGERY AUJ Di5no v1 - NASA NSIDC DAAC
- NRT AMSR2 Unified L3 Global Daily 25 km EASE-Grid Snow Water Equivalent V1**  
19 Granules - 2019-03-17 ongoing - The Advanced Microwave Scanning Radiometer 2 (AMSR2) instrument on the Global Change Observation Mission - Water 1 (GCOM-W1) provides global passive microwave measurements of terrestrial, oceanic, and atmospheric parameters for the investigation of global water and energy cycles...  
MAP IMAGERY NRT AUJ Di5no NRT\_R01 v1 - NASA/MSFC/AMSR SIPS/LANCE
- AMSR-E/AMSR2 Unified L3 Global Monthly 25 km EASE-Grid Snow Water Equivalent V001**  
86 Granules - 2012-07-02 ongoing - This AMSR-E/AMSR2 Unified Level-3 (L3) data set provides monthly mean estimates of Snow Water Equivalent (SWE). SWE was derived from brightness temperature measurements acquired by the Advanced Microwave Scanning Radiometer 2 (AMSR2) instrument on board the JAXA GCOM-W1 satellite...  
MAP IMAGERY AUJ Di5no v1 - NASA NSIDC DAAC

AMSR-E/AMSR2 Unified L3 Global Monthly 25 km EASE-Grid Snow Water Equivalent V001

86 Granules

Sort by: Start Date, Newest First Granule Search: Search Single or Multiple Granule IDs... Granule filters

Showing 20 of 86 matching granules

AMSR_U2_L3_MonthlySnow_B01_201908.je5	AMSR_U2_L3_MonthlySnow_B01_201907.je5	AMSR_U2_L3_MonthlySnow_B01_201906.je5	AMSR_U2_L3_MonthlySnow_B01_201905.je5	AMSR_U2_L3_MonthlySnow_B01_201904.je5
START 2019-08-01 00:00:00 END 2019-08-31 23:59:59	START 2019-07-01 00:00:00 END 2019-07-31 23:59:59	START 2019-06-01 00:00:00 END 2019-06-30 23:59:59	START 2019-05-01 00:00:00 END 2019-05-31 23:59:59	START 2019-04-01 00:00:00 END 2019-04-30 23:59:59
AMSR_U2_L3_MonthlySnow_B01_201903.je5	AMSR_U2_L3_MonthlySnow_B01_201902.je5	AMSR_U2_L3_MonthlySnow_B01_201901.je5	AMSR_U2_L3_MonthlySnow_B01_201812.je5	AMSR_U2_L3_MonthlySnow_B01_201811.je5
START 2019-03-01 00:00:00 END 2019-03-31 23:59:59	START 2019-02-01 00:00:00 END 2019-02-28 23:59:59	START 2019-01-01 00:00:00 END 2019-01-31 23:59:59	START 2018-12-01 00:00:00 END 2018-12-31 23:59:59	START 2018-11-01 00:00:00 END 2018-11-30 23:59:59
AMSR_U2_L3_MonthlySnow_B01_201810.je5	AMSR_U2_L3_MonthlySnow_B01_201809.je5	AMSR_U2_L3_MonthlySnow_B01_201808.je5	AMSR_U2_L3_MonthlySnow_B01_201807.je5	AMSR_U2_L3_MonthlySnow_B01_201806.je5
START 2018-10-01 00:00:00 END 2018-10-31 23:59:59	START 2018-09-01 00:00:00 END 2018-09-30 23:59:59	START 2018-08-01 00:00:00 END 2018-08-31 23:59:59	START 2018-07-01 00:00:00 END 2018-07-31 23:59:59	START 2018-06-01 00:00:00 END 2018-06-30 23:59:59

MONTH

AMSR-E/AMSR2 Unified L3 Global Monthly 25 km EASE-Grid Snow Water Equivalent V001

412 GHRC collections currently within Common Metadata Repository and available in Earthdata Search. Browse/preview of data limited to geographic extent and boundary boxes in current version

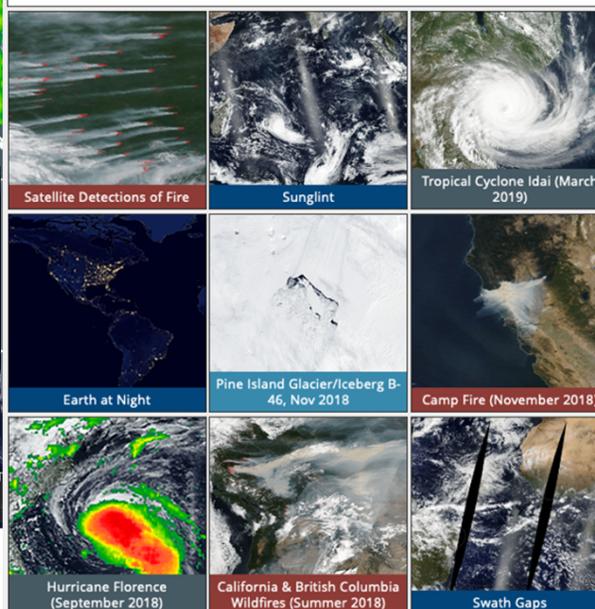
# WORLDVIEW: Visualizing GHRC Data Sets

Image Centric Users

[worldview.earthdata.nasa.gov](http://worldview.earthdata.nasa.gov)

Welcome to Worldview!

Visually explore the past and the present of this dynamic planet from a satellite's perspective. Select from an array of stories below to learn more about Worldview, the satellite imagery we provide and events occurring around the world. [Start using Worldview](#) →

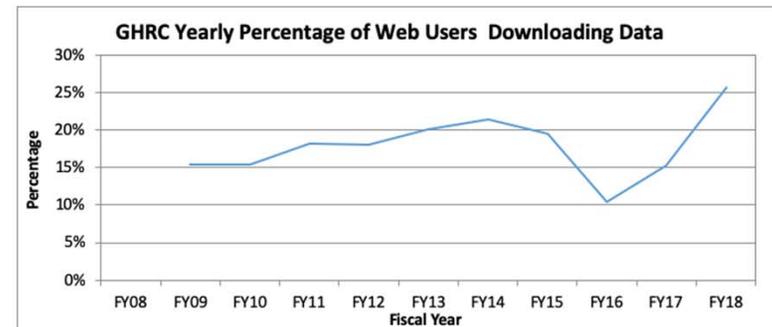
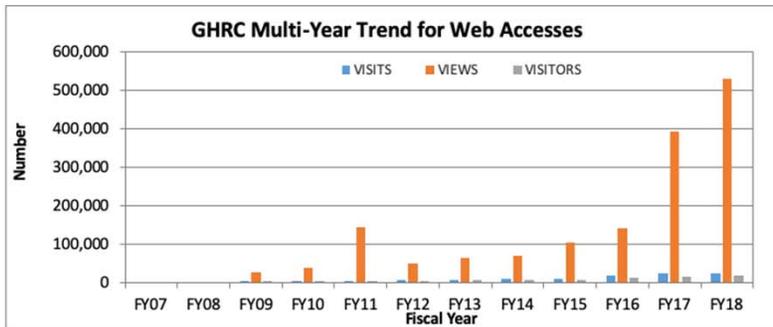
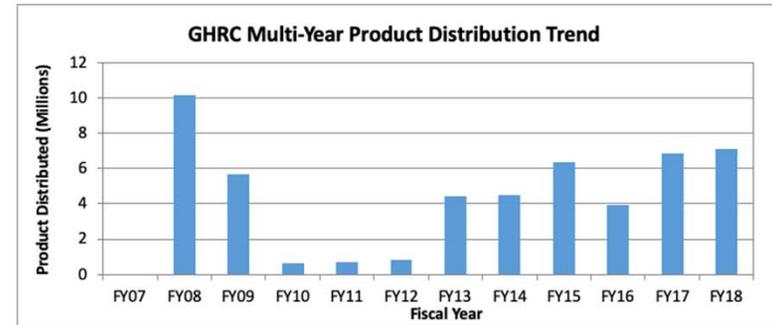
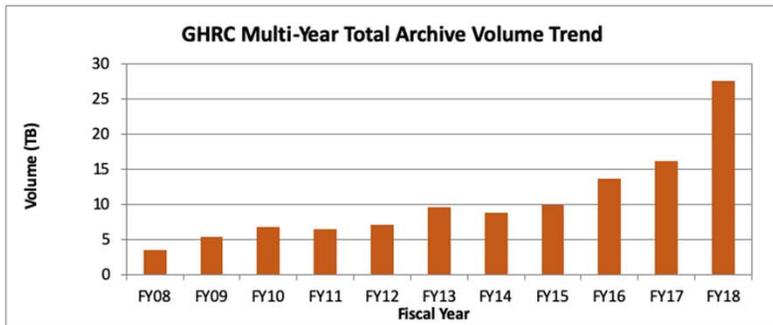


- Continued improvements in functionality and availability of NASA data
- 18 years of daily MODIS data is now available
- GHRC has contributed over 160 layers of data to WorldView

# Fiscal 2018 Metrics for GHRC and EOSSIS

FY2018 Metrics (Oct 2017 to Sep 2018)		
Item	EOSSIS	GHRC
Unique Data Sets	9,855	459
Distinct Users of EOSSIS Data and Services	4,126,882	26,767
Web Site Visits	3,055,959	24,485
Average Archive Growth	23,224.6 GB/day	17.1 GB/day
Total Archive Volume	28,022.3 TB	27.600 TB
End User Distribution Products	1,611.4 M	7.1 M
End User Average Distribution Volume	68,386.2 GB/day	35.3 GB/day

GHRC Distribution and User Trends (Oct 2017 to Sep 2018)				
Item	Total FY2018	Change from FY2017	Monthly Average	12 Month Trend
Files (Millions)	7.1	↑ 3.6%	0.6	
Volume (TB)	12.6	↓ -38.8%	1.0	
Data User	14,460	↑ 111.3%	1,687	
Web User	16,568	↑ 4.7%	1,466	



# EARTHDATA CLOUD - Moving Forward

## GOALS:

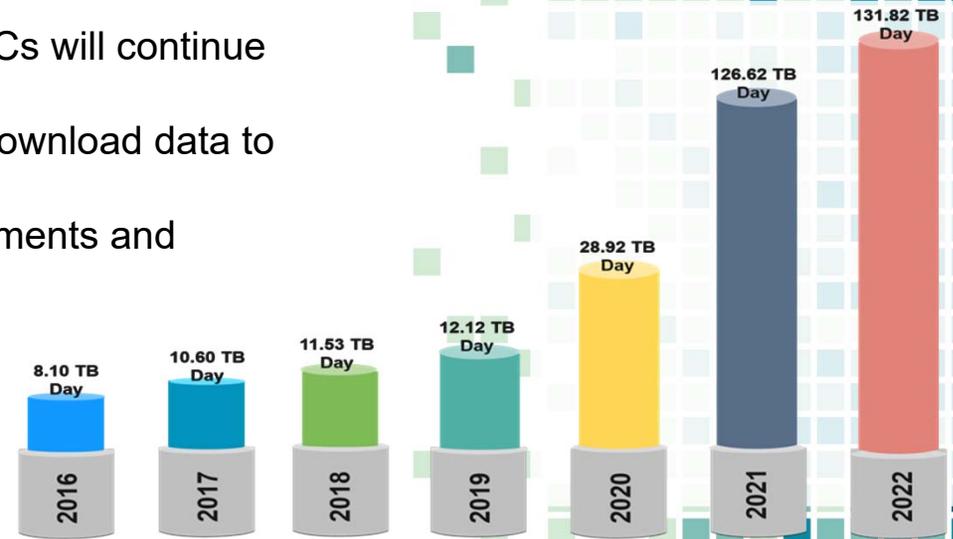
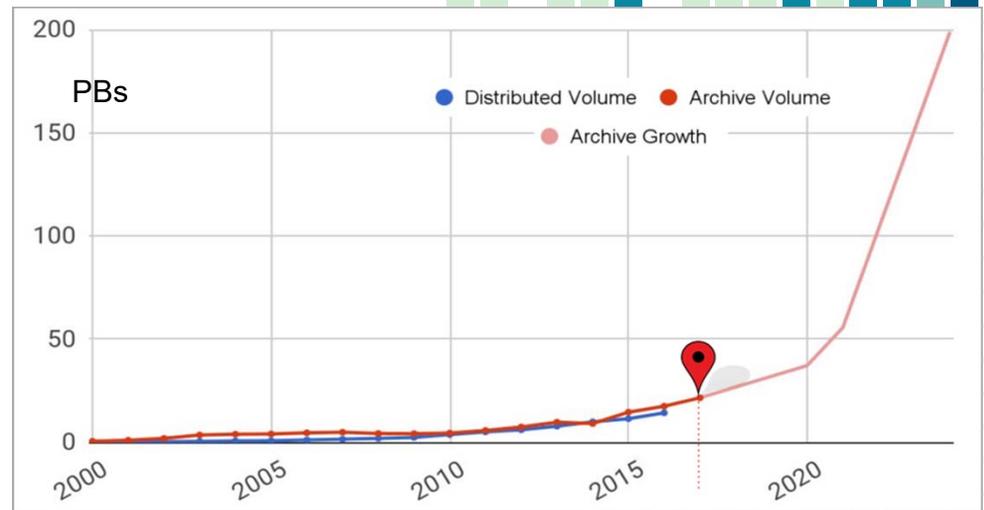
- \* Improve the efficiency of NASA's data systems operations
- \* Prepare for planned high data-rate missions
- \* Increase opportunity for researchers and commercial users to process PBs of data quickly without the need for data management/movement

## THINGS THAT WON'T CHANGE:

- \* DAACs are an integral part of EOSDIS - existing DAACs will continue their support to discipline user communities
- \* Users will see no change in the ability to search and download data to their local computing environments
- \* The EOSDIS commitment to ongoing system improvements and promoting innovation in tools and services remains



image: www.citycloud.com



# THANKS!

You can contact me at:

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