



# GHRC Overview and Highlights

**Dr. Aaron Kaulfus, DAAC Manager (Earth Science Branch, NASA MSFC)**

**Dr. Geoffrey Stano, DAAC Scientist (University of Alabama in Huntsville)**



# ESDS

- Earth Science Data Systems program, HQ
- Responsible for managing the Earth science data, developing capabilities and upholding the NASA policy of free and open data and software sharing...

# ESDIS

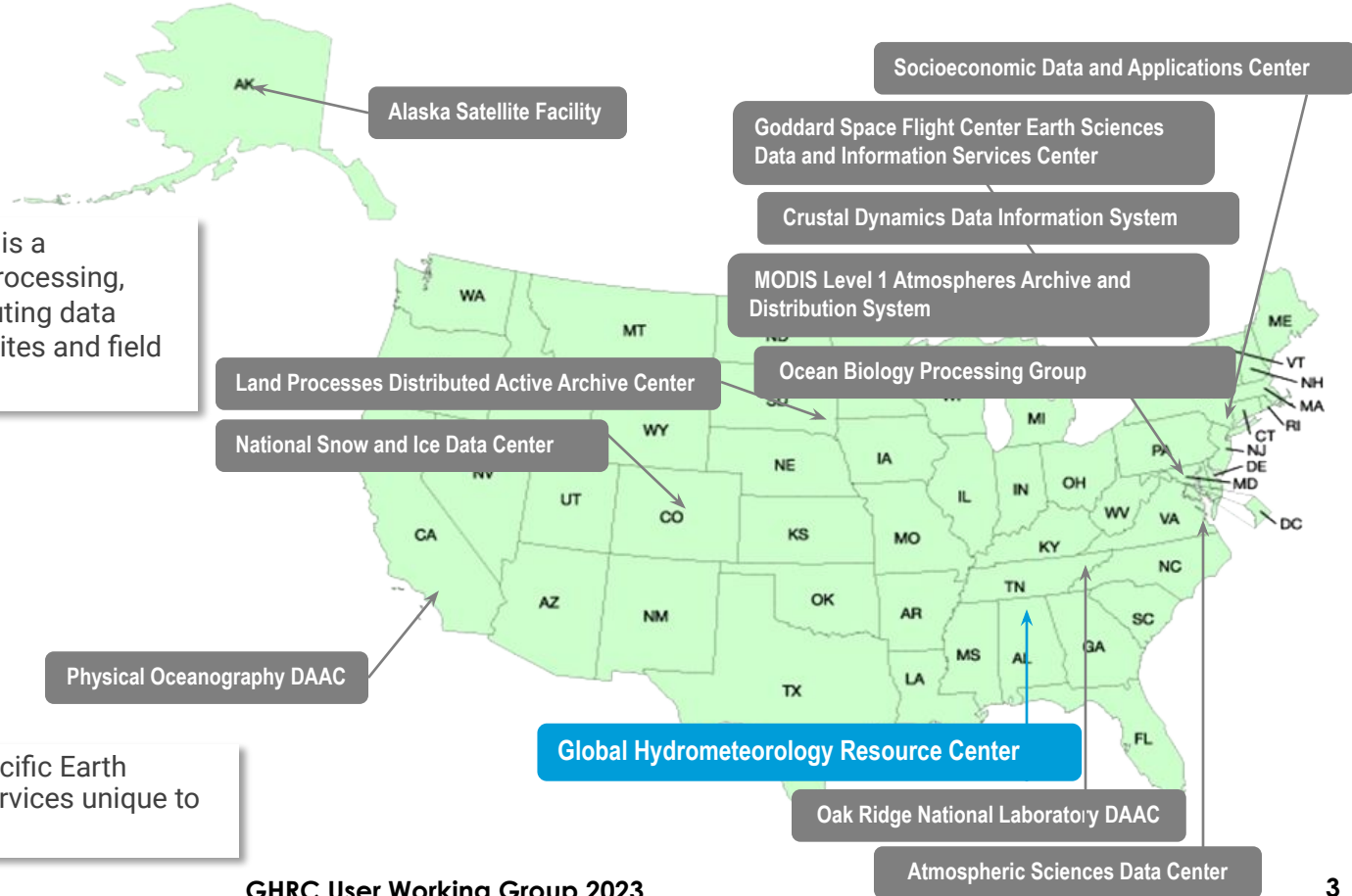
- Earth Science Data and Information System project, GSFC
- Part of the ESDS program that manages the operational systems and chartered to archive and distribute science data to the users
- Manages the distributed active archive centers — DAACs

# NASA Earth Science DAACs



A Distributed Active Archive Center is a NASA-funded entity charged with processing, archiving, documenting and distributing data from Earth Observing System satellites and field measurement programs

Each DAAC serves one or more specific Earth science disciplines and provides services unique to its particular science

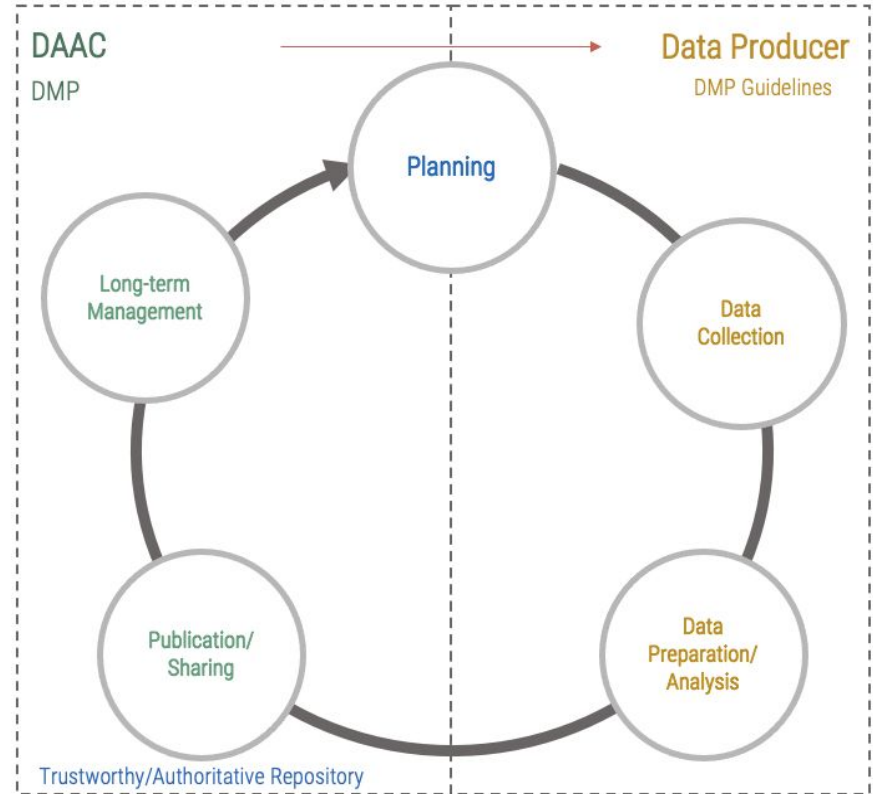


To provide a comprehensive archive of datasets for the analysis of dynamical and physical processes of *storm hazards, lightning, precipitation, convective and tropical systems, and field campaigns*. GHRC emphasizes cloud-based tools, science expertise, and open science enabling users to more fully access, analyze, and visualize GHRC's unique holdings.

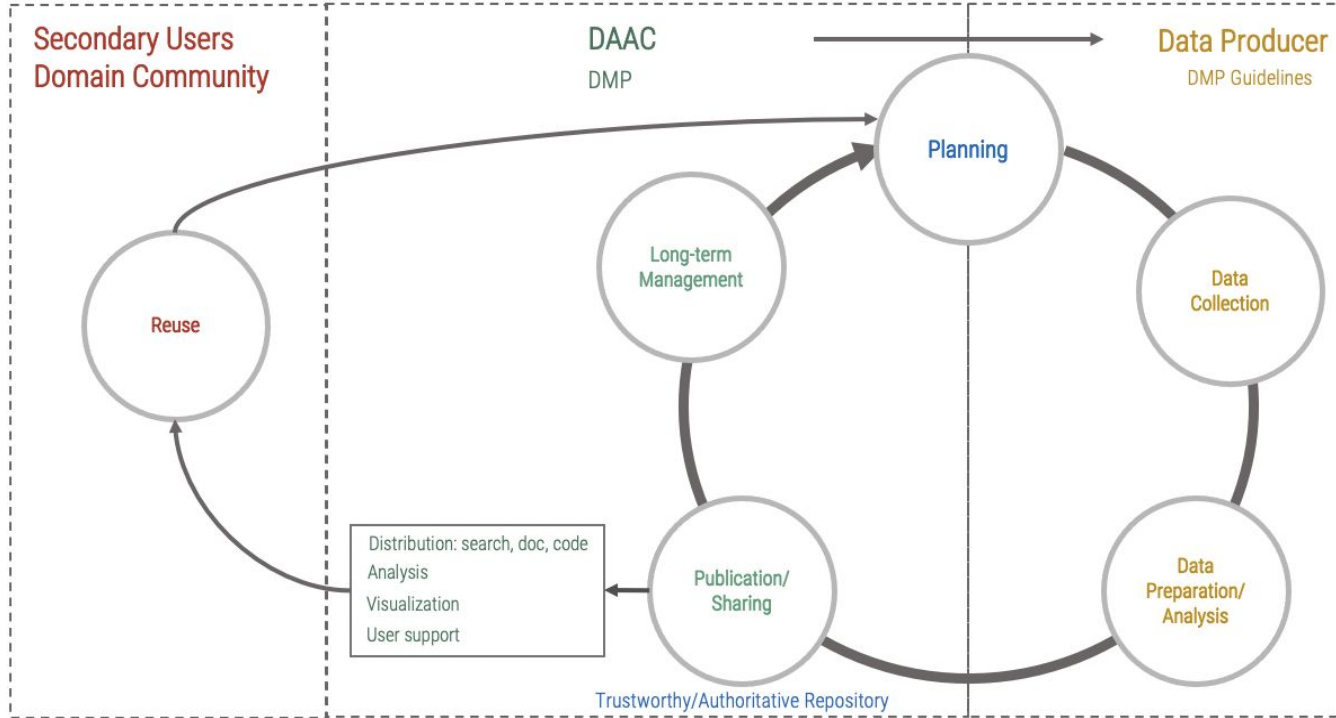
Focus on *lightning, tropical cyclones, and storm-induced hazards* through integrated collections of satellite, airborne, and in-situ data sets.

## Data Stewardship Responsibility

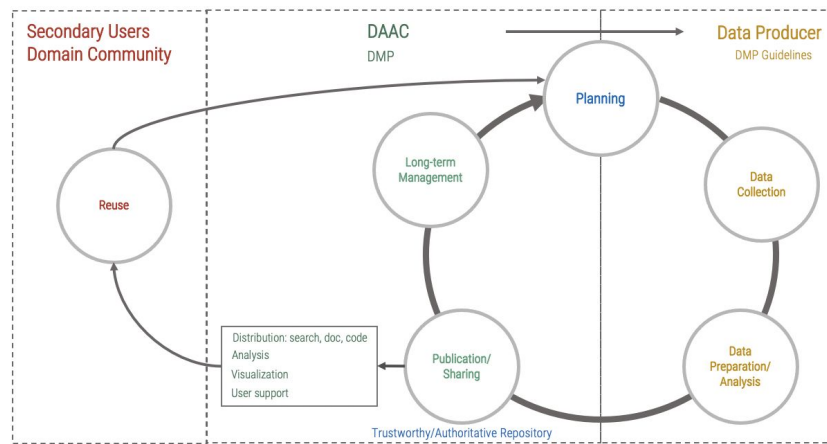
- Assist data producers in developing Data Management Plans (DMPs) to support transparency and openness during research phase
- Use DAAC DMPs to efficiently manage data
- Utilize workflows and policies in accordance with standards to serve as a trustworthy repository



# DAAC Role in Supporting Science



# Creating a Common Process for Different Data Sources

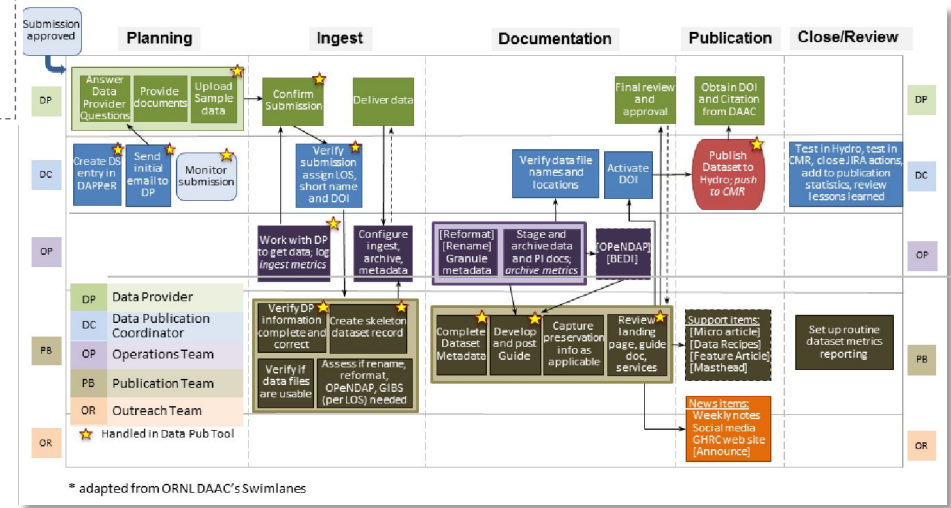


Assigned Satellite Mission (LIS)

Assigned Field Campaign (GPM-GV)

SIPS/MEaSURES Program

Recommendation from the User Community: UWG/ESDIS/HQ Approval



# GHRC Organization



**Dr. Aaron Kaulfus**  
NASA DAAC Manager

**David Hood**  
NASA Assistant DAAC Manager

**Dr. Sara Graves**  
UAH Principal Investigator

**Will Ellett**  
Operations Manager

- Cloud Operations
- Data Operations
- IT Security

**Dr. Geoffrey Stano**  
DAAC Scientist

- Science Outreach
- Open Science Strategist
- Science Collaboration Lead

**Leigh Sinclair**  
Data Management Lead

- Data Publications
- Metadata Management

**Eddie Campos**  
Back-end Development Lead

- Cloud development
- Earthdata Pub

**Navaneeth Selvaraj**  
Front-end Development Lead

- Visualization Tools
- Field Campaign Explorer
- Lightning Dashboard



# GHRC UWG Board Members



Name	Discipline / Program	Affiliation
Timothy Lang		NASA MSFC
Wiebke Deierling	Lightning	NCAR
Christopher Schultz		NASA MSFC
Derrick Herndon	Hurricane Science	Univ. Wisconsin CIMSS
Kristen Corbosiero		SUNY - Albany
<b>Anna Wilson</b>		SCRIPPS UC San Diego
Patrick Gatlin	Precipitation Science	NASA MSFC
Kristen Rasmussen		Colorado State University
<b>Jordan Bell</b>	Applications	NASA MSFC
Timothy Mayer		NASA SERVIR
Will McCarty	GHRC Program Scientist/Weather	NASA HQ
Cerese Albers	ESDS Program Executive	
Ted Sobchak	ESDIS Project Manager	
Rita Grullon - Pingon	ESDIS Deputy Project Manager Science Operations	NASA GSFC
Steve Berrick	GHRC DAAC Engineer	
Sara Lubkin	ESDIS Science Data Operations	

## Data Stewardship

- GLM gridded Level 3 (first end-to-end cloud only, ongoing publication)

## Cloud Transition

- Improved CloudOps, Released PyLOT, Replaced DAPPeR with EDPub, Replaced HyDRO with Earthdata Search, supported enterprise Bulk Downloader

## Tool Improvements

- New datasets & campaigns added to FCX and Lightning Dashboard
- Add to FCX: Playground, modular subsetting, histogram
- Created Cloud Browse to replace on-prem solution

## Community Engagement

- Science team meetings / conferences (GLM, IMPACTS, INCUS PDR, ALOFT, etc.)
- NASA Earthdata webinar, TOPS, Openscapes, ArcGIS DAAC Collaboration

## Collaboration

- CPEX (ASDC), INCUS (GES DISC), Earthdata Pub (ORNL), ADMG

# Looking Forward (FY25)



## Data Stewardship

- Lightning: MALMA, ALOFT, GLM L0, WMO global lightning
- Airborne campaigns: TEFLUN, TRMM-KWAJEX, TRMM-LBA, AMPR, HAMSAR, and TC4

## Cloud Transition

- Bulk downloader, cloud upload

## Tool Improvements

- New data and capabilities for FCX and Lightning Dashboard
- Earthdata Pub and Python cCloud Operator Tool

## Community Engagement

- INCUS, ALOFT, AOS
- TOPS, OpenScapes, EGIST

## Collaboration

- Web Unification, TROPICS, ADMG

## Open Science (SPD41a)

- Free and open ecosystem for data, processing, and software

## Earth Action

- Research + Applied Science

## Earth System Observatory (ESO)

- Interdisciplinary missions
- Science Enabling Centers

## Web Unification and DNS consolidation

- Earthdata and DAAC sites

## SMD Core Services

- Common services utilized across the enterprise

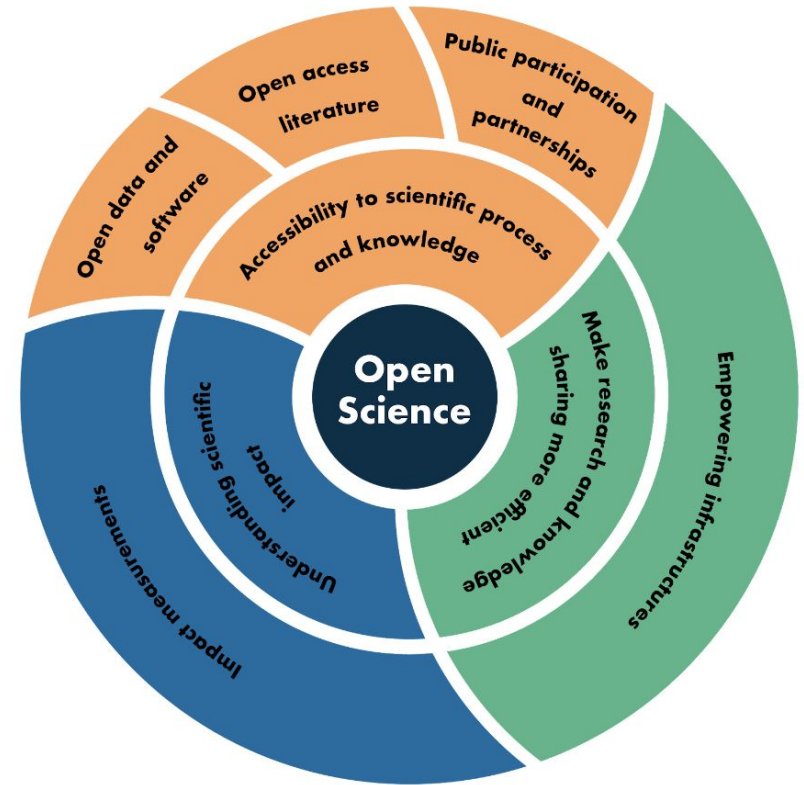
## Primary Objectives include but are not limited to:

- Suggesting improvements to overall user experience including discovery, accessibility, and usability of data
- Suggesting new R&D ideas relevant to GHRC to support product/tool prototyping and generation
- Facilitating communications with the general user community and interested members of other communities
- Assisting GHRC in prioritization and pursuit of new data holdings within the bounds of and budget and ESDIS mission constraints
- Provide guidance on strategic initiatives to align with ESDIS goals

# GHRC Role

- Advocate for open science
- Data stewardship and expertise
- Community outreach and participation
- Technology development to support accessibility, sharing, and communicating
- Expertise in airborne / field campaign data, information, and knowledge sharing

# Open Science



Source: Ramachandran et al.



**THANK YOU!**

