GHRC Overview and Highlights

Dr. Manil Maskey, 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's Earth Science DAACs
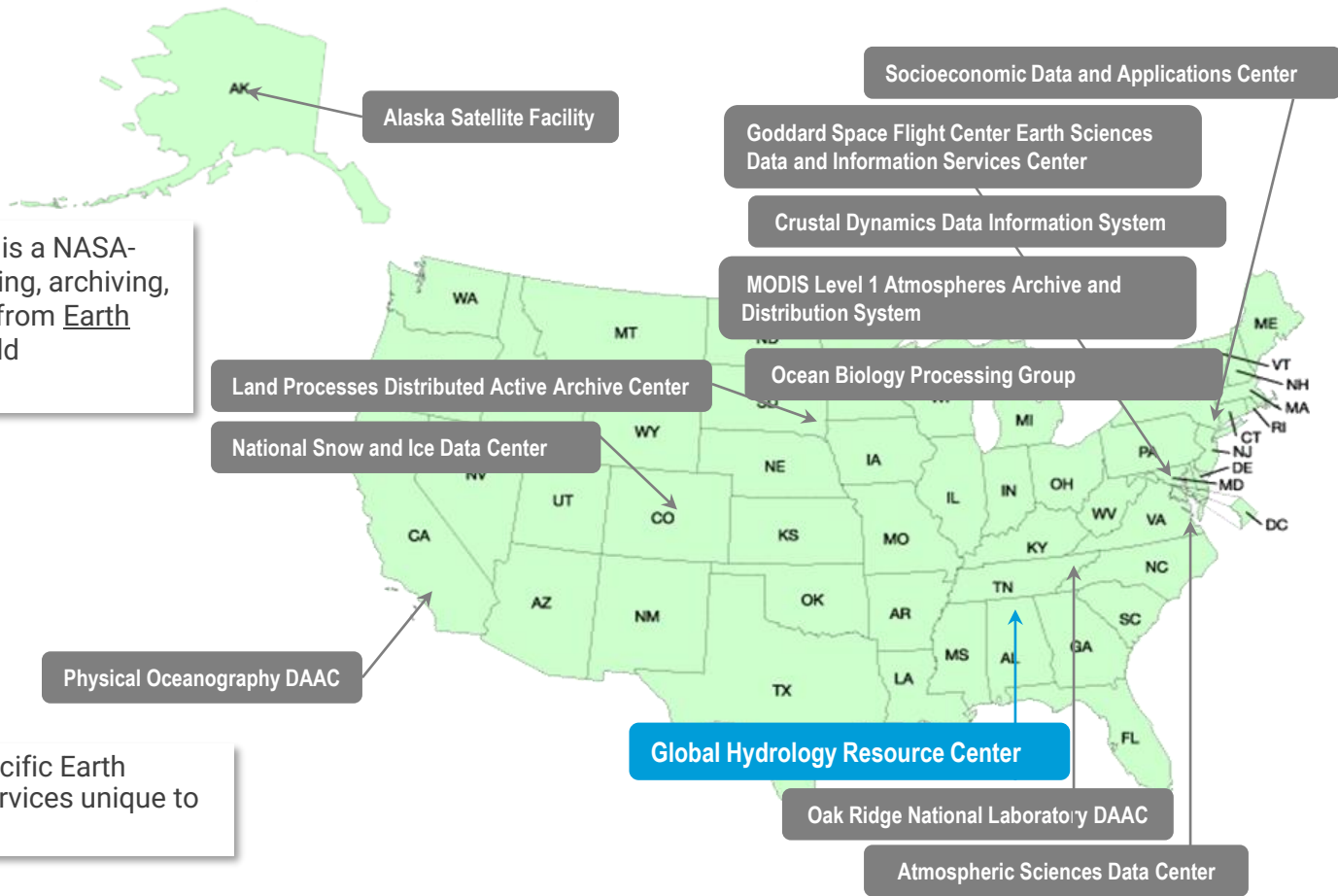
A Distributed Active Archive Center is a NASA-funded entity charged with processing, archiving, documenting and distributing data from Earth Observing System satellites and field measurement programs

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

Alaska Satellite Facility

Socioeconomic Data and Applications Center

Goddard Space Flight Center Earth Sciences Data and Information Services Center

Crustal Dynamics Data Information System

MODIS Level 1 Atmospheres Archive and Distribution System

Ocean Biology Processing Group

Land Processes Distributed Active Archive Center

National Snow and Ice Data Center

Physical Oceanography DAAC

Global Hydrology Resource Center

Oak Ridge National Laboratory DAAC

Atmospheric Sciences Data Center

GHRC Mission

To provide a comprehensive active archive of data and knowledge augmentation services with a focus on *hazardous weather, its governing dynamical and physical processes, and associated applications.*

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

DAAC Role in Supporting Science

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
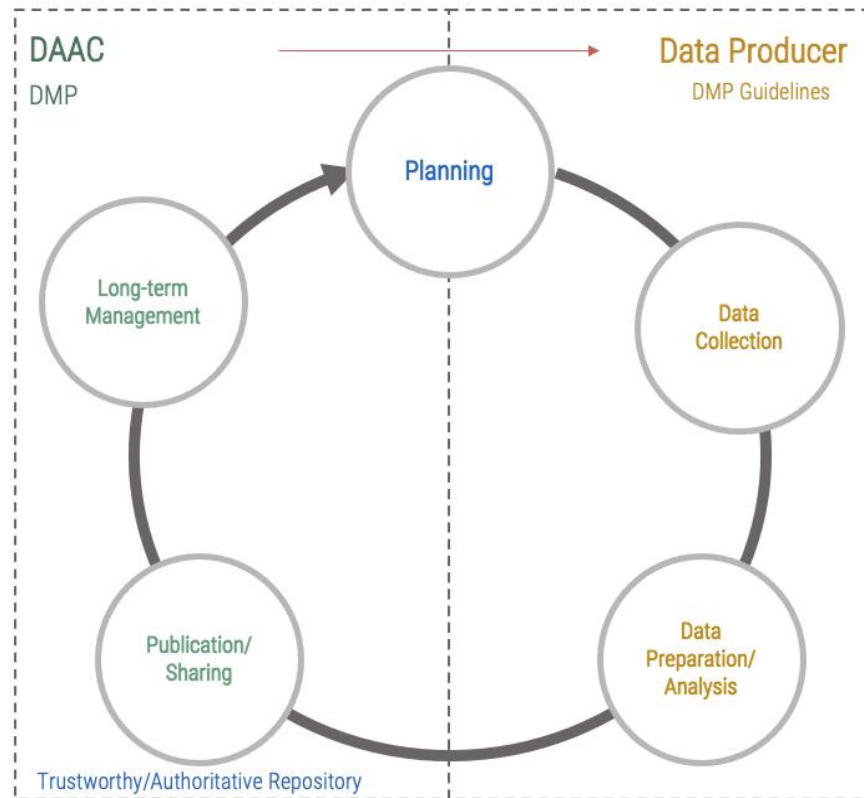
DAAC Role in Supporting Science
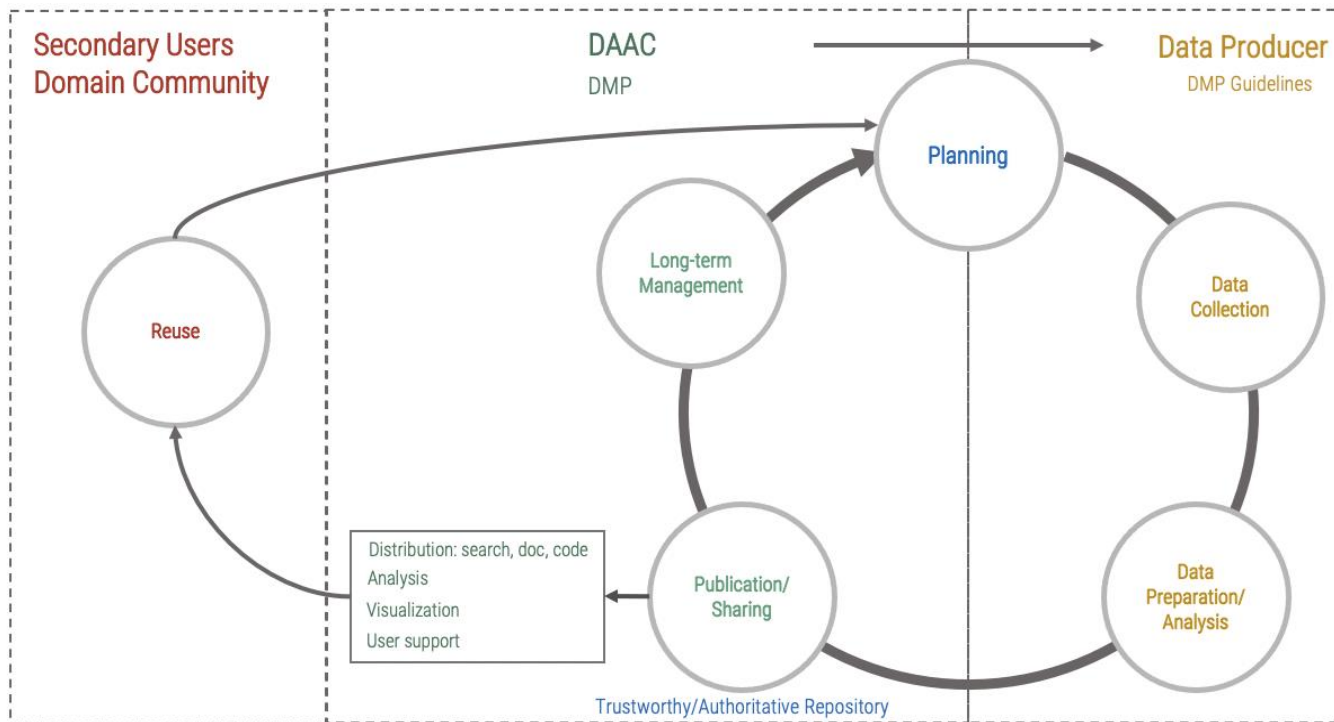
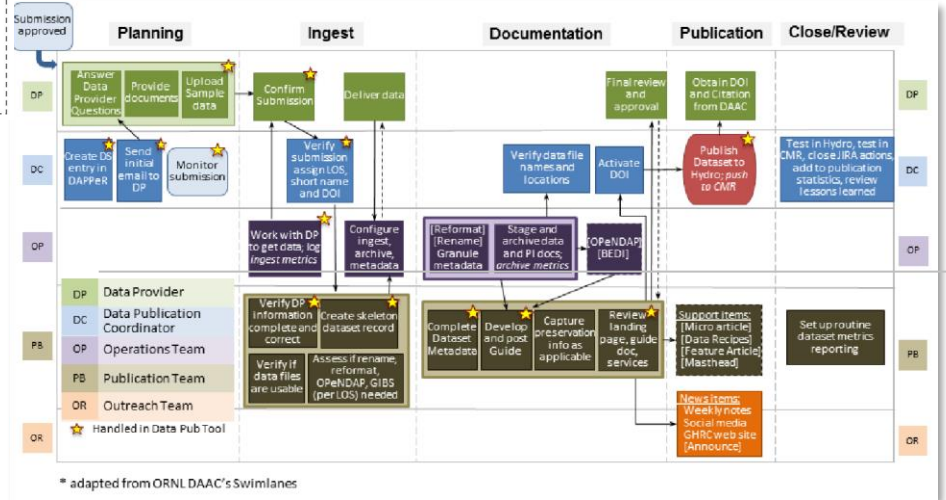# Creating a Common Process for Different Data Sources
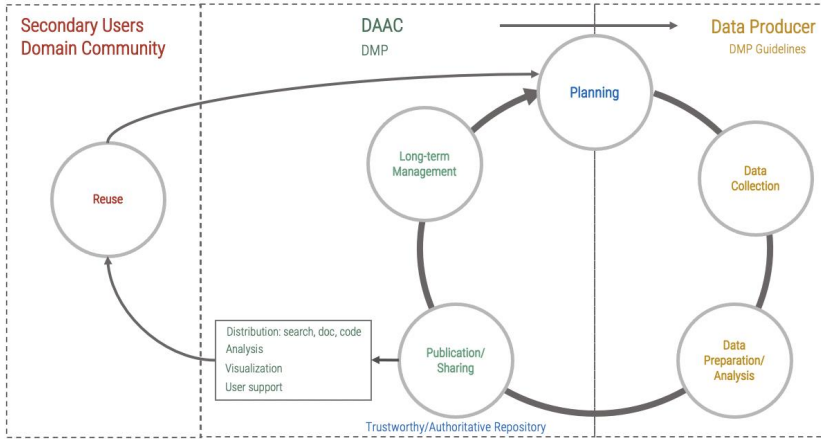
Assigned Satellite Mission (LIS)

Assigned Field Campaign (GPM-GV)

SIPS/MEaSUREs Program

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

* adapted from ORNL DAAC's Swimlanes

GHRC Organization

Manil Maskey
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

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

	Discipline/Program	Affiliation
Timothy Lang	Lightning	NASA MSFC
Wiebke Deierling		NCAR
Derrick Herndon	Hurricane Science	Univ. Wisconsin CIMSS
Anna Wilson	Global Precipitation Mission	SCRIPPS UC San Diego
Patrick Gatlin		NASA MSFC
Jordan Bell	Application	NASA MSFC
Will McCarty	GHRC Program Scientist/Weather	NASA HQ
Cerese Albers	ESDS Program Executive	
Andrew Mitchell	ESDIS Project Manager	NASA GSFC
Jeanne Behnke	ESDIS Deputy Project Manager Operations	
Steve Berrick	DAAC Engineer	
Drew Kittel	ESDIS Project Science Operations Office Manager	

GHRC Accomplishments Summary (FY22)

Data Stewardship
- 30 total datasets: IMPACTS Field Campaign, Lightning – ISS LIS Validation, CPEX-AW, CPEX, EPOCH, Hail climatology
- Approved to archive the High Impact Weather Analysis Toolkig (HIWAT) from NASA SERVIR
- Support for airborne data & information

Cloud Transition
- Improved workflows
- Created Python Cloud Operator Tool (PyLOT) Minimum Viable Product for improving cloud operator experience
- Support for ASDC

Tool Improvements
- Field Campaign Explorer (FCX) improvements
- Lightning Dashboard Minimum Viable Product
- Earthdata Pub Minimum Viable Product: Integrated metadata editor, documentation, initial onboarding

Community Engagement
- Science Teams: IMPACTS, GLM, CPEX, Marshall Lightning Science team (LIS, NALMA, MALMA)
- Data recipes updated to Jupyter Notebooks
- Earthdata Webinar
- Conferences/Meetings: AGU, AMS, IGARSS, NASA workshops and working groups

Collaboration
- Earthdata Pub Technical Team: GHRC, ORNL, GES DISC
- ESDIS activities: Cumulus, OPeNDAP, User Needs, Cloud Primer, ORCA Backup
- Cross-Collab with ASDC for CPEX and CPEX-AW field campaign datasets

Looking forward (FY23)

Tool Improvements
- Expand FCX capabilities: more datasets and campaigns, 3D subsetter
- Expand Lightning Dashboard

Cloud Transition
- Final transition to cloud-only activities
- Improve PyLOT

Data Publication
- Final publication of GLM datasets: Gridded Level 3 products, Cluster Integrity, Exception Resolution, and Reclustering Algorithm (CIERRA)
- Coordination with the World Meteorological Organization global, gridded lightning product
- Begin processing and publish the Mid-Atlantic Lightning Mapping Array
- Publish field campaign data: IMPACTS Year 3, CPEX-CV, and complete CPEX-AW
- Coordinate with Airborne Data Management Group on publishing other campaigns

Community Engagement
- Conferences
- Science team meetings
- Participation and contributions to TOPS

Cross DAAC Collaborations
- Earthdata Pub onboarding
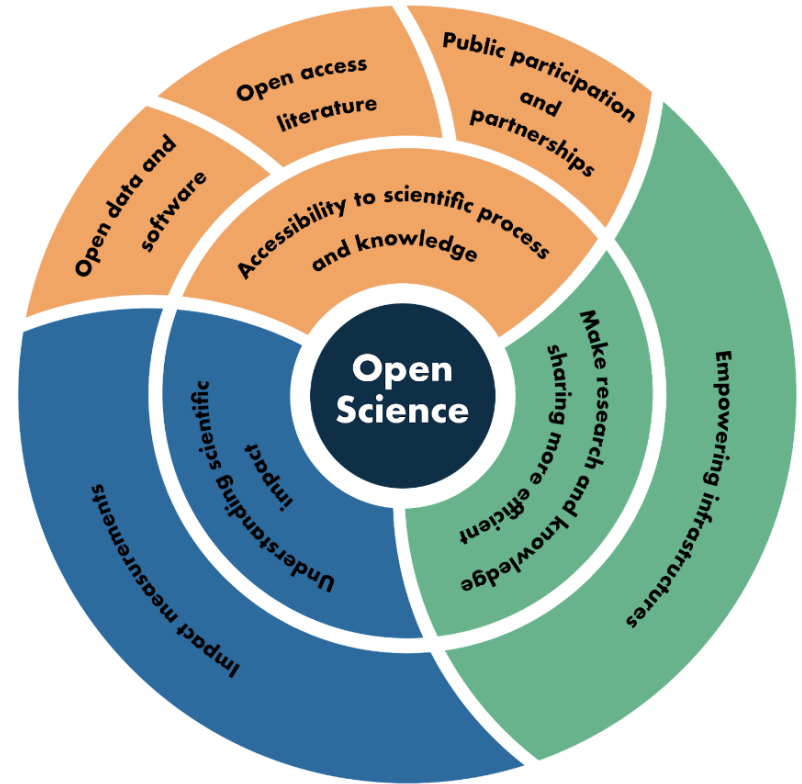
GHRC User Working Group Mandate

Primary objectives include but are not limited to:

- Suggesting improvements to overall user experience including discovery, access, 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 budget and ESDIS mission constraints

- Provide guidance on strategic initiatives to align with ESDS goals

GHRC Role

1. Data stewardship expertise

2. Community outreach and participation

3. Technology development to support accessibility, sharing, communicating

4. Expertise in airborne/field campaign data, information, and knowledge sharing

5. Advocate for open science

Open Science

Source: Ramachandran et al.