



Science in the Cloud

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NASA Earth Science Data Systems (ESDS)

- Program oversees the life cycle of NASA's Earth Science data
- GHRC DAAC aims to align with ESDS goal of Open Science including:
 - Ensuring data and tools are freely available
 - Proper data stewardship
 - Community impacts and outreach
 - Technology investment
- Transition to a cloud-only DAAC offers opportunity to evaluate alignment with these goals
 - New cloud-based data stewardship
 - Analysis in the cloud

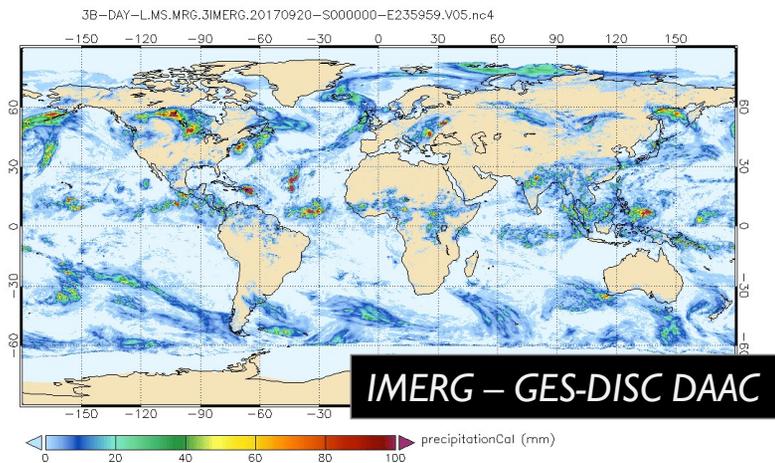
Goal of Science in the Cloud

- Objective of cloud operations
 - More than data storage and access
 - Cross-DAAC opportunities
 - Ability to process in the cloud (no need to download data)
- Follow guidance of NASA's ESDS for Open Science – Current activities
 - Data stewardship in the cloud to enable collaborative science
 - Technology investment to enable broader dissemination and analysis of data in the cloud

Where is GHRC DAAC now?

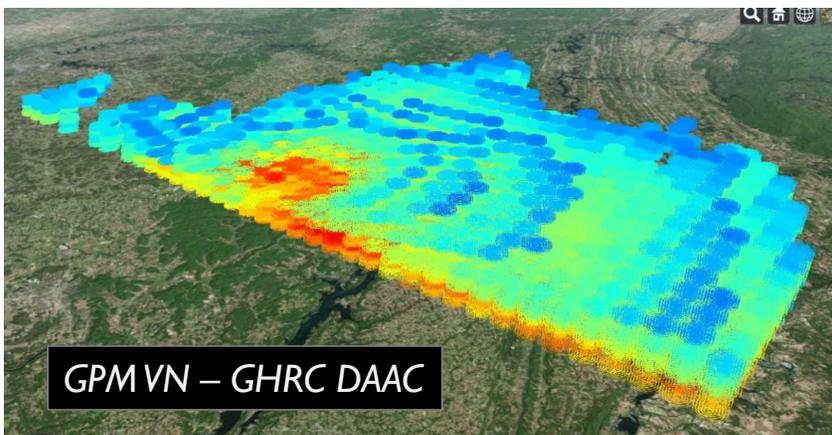
- Multiple projects underway
 - Cross-DAAC collaborations
 - GHRC/GES-DISC cloud analysis
 - Discussions for collaboration between the atmospheric DAACs led by Bhaskar Ramachandran
- For discussion with the User Working Group in this talk
 - How do we truly USE the cloud?
 - What direction do you wish to see GHRC take?

- GHRC / GES-DISC collaboration is early step in answering how we fully utilize the cloud
- Several objectives
 - Demonstrate data analysis between DAACs
 - Demonstrate data analysis exclusively in the cloud
 - Demonstrate data analysis of dissimilar datasets
 - Demonstrate scalability of cloud resources over time
 - Demonstrate using the cloud to expand data usability



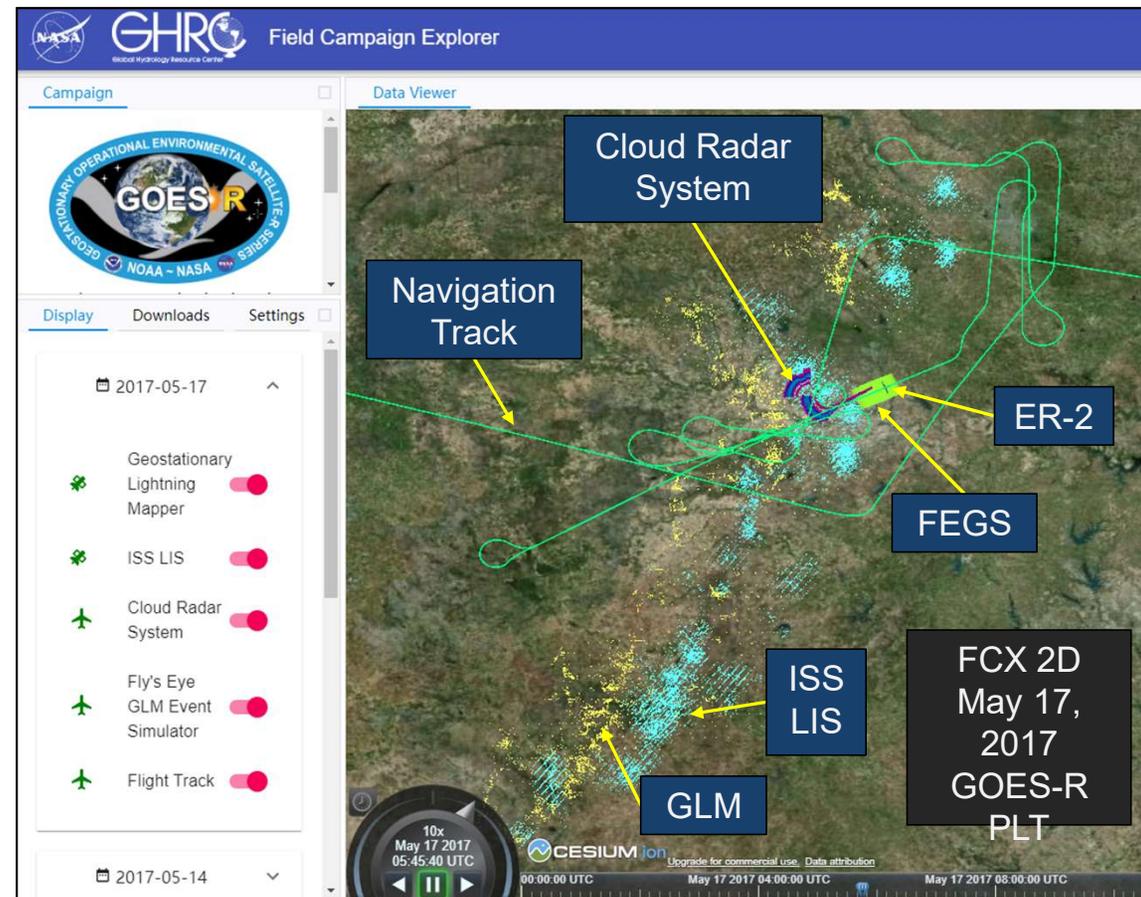
Datasets

- Integrated Multi-satellite Retrievals for GPM (IMERG) – GES-DISC DAAC
- Global Precipitation Measurement Validation Network (GPM VN) – GHRC DAAC
 - Two components
 - Level 2 products
 - Match observations from multiple platforms
 - Level 3 Multi-Radar, Multi-Sensor (MRMS)
 - Accumulates precipitation over 30 minutes
 - Aligns with the 30 min IMERG product
- Need to address how to intercompare different datasets
 - Level 3 MRMS likely first step, mostly requires resampling



Integrate Field Campaign Explorer

- Will discuss FCX in more detail later
- As a tool FCX provides capabilities for GHRC to utilize
 - Cloud-based – Access to cloud data
 - Visualization tool
 - Multiple types of datasets (temporally and spatially)
 - Rapid rendering of imagery
- How can utilization be expanded?
 - Micro articles / data recipes
 - Combine with data searches
 - Dynamic browse imagery to better select data
 - Similar to Lightning Imaging Sensor calendar pages





THANK YOU!

QUESTIONS?

