GHRC Cloud Migration

Will Ellett
IT/Operations Manager
Participated in Cumulus Prototype in October 2016

- Cumulus is a lightweight, cloud optimized framework for data ingest, archive, distribution and management
- Exploratory process to help ESDIS better understand DAAC requirements
- Used GHRC field campaign and mission datasets to prototype and test ingest, processing and archive workflows
- GHRC provided findings & recommendations to ESDIS at the end of the prototype evaluation period
GHRC Cloud Migration Effort began in November 2017

- Attended quarterly planning at GSFC
- Developers participated in hands-on cloud training
- Focused on learning Cumulus in AWS environment
- Developed sample workflows with GHRC datasets in NGAP sandbox environment
- Collaborated with the Cumulus core development team
Cloud Migration

Identified as Pathfinder for operating DAAC in cloud

- Created drafts of documents for publishing using Cumulus
- Onboarded all public GHRC datasets in Operational Earthdata Cloud
- Created Glacier Granule Restore Tool to streamline onboarding from AWS Glacier using Cumulus
- Performed Egress testing
- Updated security and developer documentation
GHRC began parallel operations on-prem and cloud on October 1st, 2019

- Publish datasets on-premise and in cloud
- Provide cloud training for Operators and Data team
- Perform cloud dataset validation
- Implement cloud disaster recovery solution
- Prepare Operational readiness review for cloud-only operations
- Prepare for GHRC’s first cloud-only dataset: IMPACTS
Lessons Learned

• Quarterly planning established by ESDIS provided insights that helped improve GHRC processes
• Large learning curve for Cumulus onboarding
• Developers & Operators need to understand AWS environment
• Cumulus Cloud Operator experience needs improvement
• Need improved data publication tool
• Cumulus supports code reuse
• Pros and Cons of updating to latest Cumulus
• Cloud transport layers need improvement
Earthdata Pub

• Build a reusable framework that provides a consistent cross-DAAC experience for data providers
• Support for cloud data products
• Track publication process and data provider interactions
• Build a reusable framework that enables DAACs to customize the publication process
• Create a consistent experience for data providers across DAACs by using common vocabulary and visual appearance

• Earthdata Pub Working Groups: (Led by Justin Rice)
  • Technical: GHRC, ORNL
  • Info: ASDC, GHRC, GES DISC, ORNL, NSIDC, PO.DAAC
Demos

GHRC Cloud Data in Earthdata Search

NRT Lightning Imaging Sensor (LIS) on International Space Station (ISS) Science Data V1

Search for granules in the Earthdata catalog.

Sort by: Start Date, Newest First | Search Single Granule ID

Granule Filters

29,990 Granules

Search Terms: ISS, LIS, NRT, Science Data, V1

Granule Details:

- ISS US SC V1.0, 20191015, 01423, NRT, 15007.hex
- ISS US SC V1.0, 20191015, 01423, NRT, 15007.hex
- ISS US SC V1.0, 20191015, 01423, NRT, 15007.hex
- ISS US SC V1.0, 20191015, 01423, NRT, 15007.hex

Search Time: 0.7s

Earthdata Login
THANK YOU!

QUESTIONS?