



GHRC Cloud Migration

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A series of four dark blue chevrons pointing to the right, arranged horizontally. The first chevron contains the text "FY17" in white.

FY17

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

Cloud Migration



FY17

FY18

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



FY17

FY18

FY19

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

Cloud Operations



FY17

FY18

FY19

FY20

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

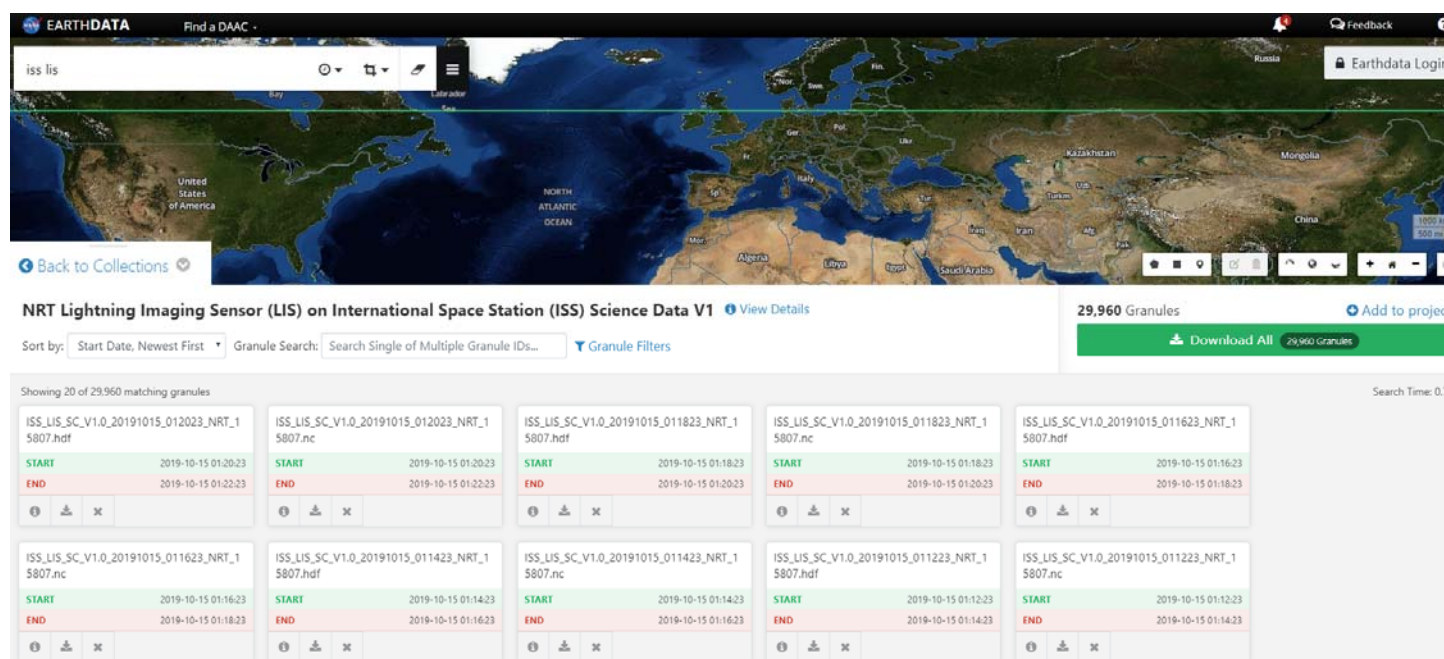
Lessons Learned



- 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

- 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

GHRC Cloud Data in Earthdata Search



The screenshot displays the Earthdata Search web application. At the top, a search bar contains the text 'iss lis'. Below the search bar is a world map. The search results section is titled 'NRT Lightning Imaging Sensor (LIS) on International Space Station (ISS) Science Data V1'. It shows 29,960 granules. Below this, a table displays 20 of the 29,960 matching granules. Each granule entry includes a file name, a 'START' date, an 'END' date, and icons for information, download, and delete.

Granule ID	START	END
ISS_LIS_SC_V1.0_20191015_012023_NRT_1_5807.hdf	2019-10-15 01:20:23	2019-10-15 01:22:23
ISS_LIS_SC_V1.0_20191015_012023_NRT_1_5807.nc	2019-10-15 01:20:23	2019-10-15 01:22:23
ISS_LIS_SC_V1.0_20191015_011823_NRT_1_5807.hdf	2019-10-15 01:18:23	2019-10-15 01:20:23
ISS_LIS_SC_V1.0_20191015_011823_NRT_1_5807.nc	2019-10-15 01:18:23	2019-10-15 01:20:23
ISS_LIS_SC_V1.0_20191015_011623_NRT_1_5807.hdf	2019-10-15 01:16:23	2019-10-15 01:18:23
ISS_LIS_SC_V1.0_20191015_011623_NRT_1_5807.nc	2019-10-15 01:16:23	2019-10-15 01:18:23
ISS_LIS_SC_V1.0_20191015_011423_NRT_1_5807.hdf	2019-10-15 01:14:23	2019-10-15 01:16:23
ISS_LIS_SC_V1.0_20191015_011423_NRT_1_5807.nc	2019-10-15 01:14:23	2019-10-15 01:16:23
ISS_LIS_SC_V1.0_20191015_011223_NRT_1_5807.hdf	2019-10-15 01:12:23	2019-10-15 01:14:23
ISS_LIS_SC_V1.0_20191015_011223_NRT_1_5807.nc	2019-10-15 01:12:23	2019-10-15 01:14:23



THANK YOU!
QUESTIONS?

