



GHRC Cloud Transition Update

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- **What is Cumulus?**
 - Lightweight, cloud optimized framework for data ingest, archive, distribution and management
- **Includes**
 - Data Ingest & Processing
 - Archiving & Distribution
 - Metadata & Metrics
 - Dashboard & API access for Operators
 - DAAC-specific customizations (allows DAACs to customize workflows)

Cloud DAAC Pathfinder & Support



- **Served as pathfinder for operating a DAAC in the cloud**
 - Cumulus is much improved for other teams
 - Supported improvements used by other DAACs
 - DMR++ (OPeNDAP connector to Cumulus)
 - Recursive Discover Granules (used by several DAACs)
 - GHRC working through “pathfinder” related issues (impacting backups and metrics reporting)
- **Operator Improvements**
 - Python Cumulus API utility (command line interface to Cumulus API)
 - Python cCloud Operations Tool (PyLOT)

Cloud DAAC Pathfinder & Support

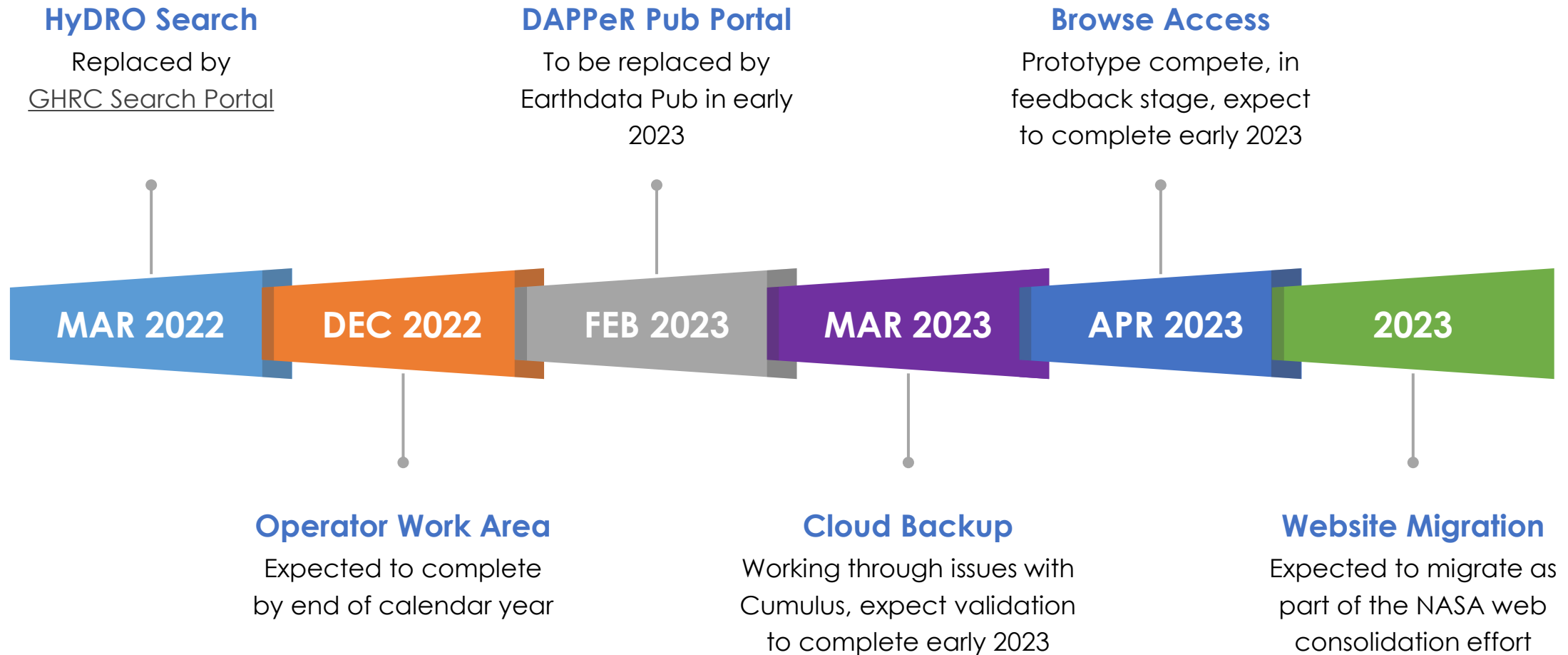


- **Supported ASDC's cloud migration effort**

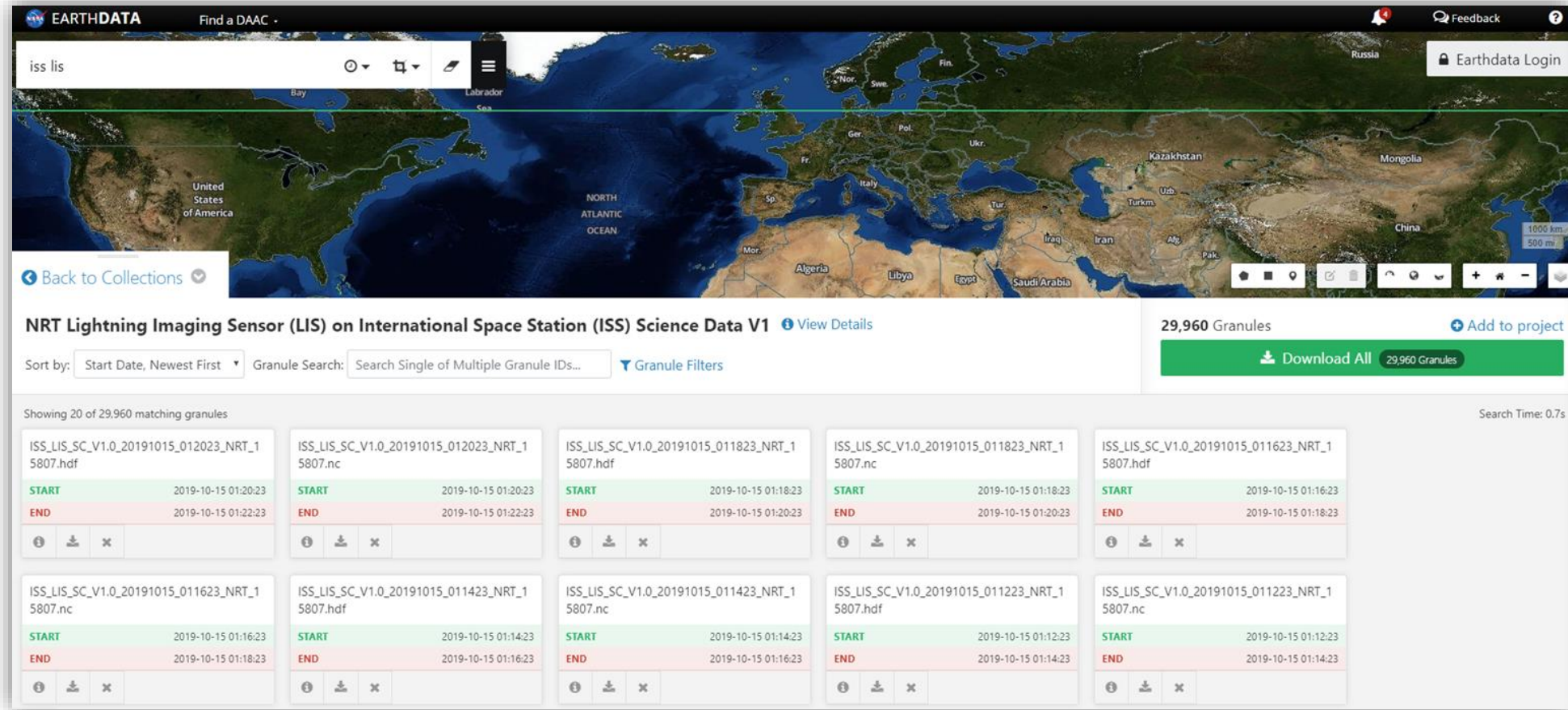
“GHRC provided invaluable help to the ASDC by helping us learn and utilize the Cumulus ingest/archive system in the Earthdata Cloud. With the ASDC on-boarding to Cumulus later than other DAACs, the notable Cumulus/Cloud learning curve for the ASDC was significantly reduced with support from GHRC. GHRC was extremely responsive to our questions as we worked through on-boarding. This has been a great example of DAAC collaboration.”

--John Kusterer, ASDC DAAC Manager

Cloud-only Timeline



HyDRO → GHRC Search Portal



The screenshot displays the Earthdata search portal interface. At the top, there is a search bar containing 'iss lis' and a 'Find a DAAC' dropdown. Below the search bar is a world map showing the search area. The main content area displays the search results for 'NRT Lightning Imaging Sensor (LIS) on International Space Station (ISS) Science Data V1'. The results are sorted by 'Start Date, Newest First' and show 20 of 29,960 matching granules. Each granule entry includes the file name, start and end dates, and download options. A 'Download All' button is visible at the top right of the results section.

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

Sample Data on GHRC Search Portal
<https://search.earthdata.nasa.gov/portal/ghrc/search>

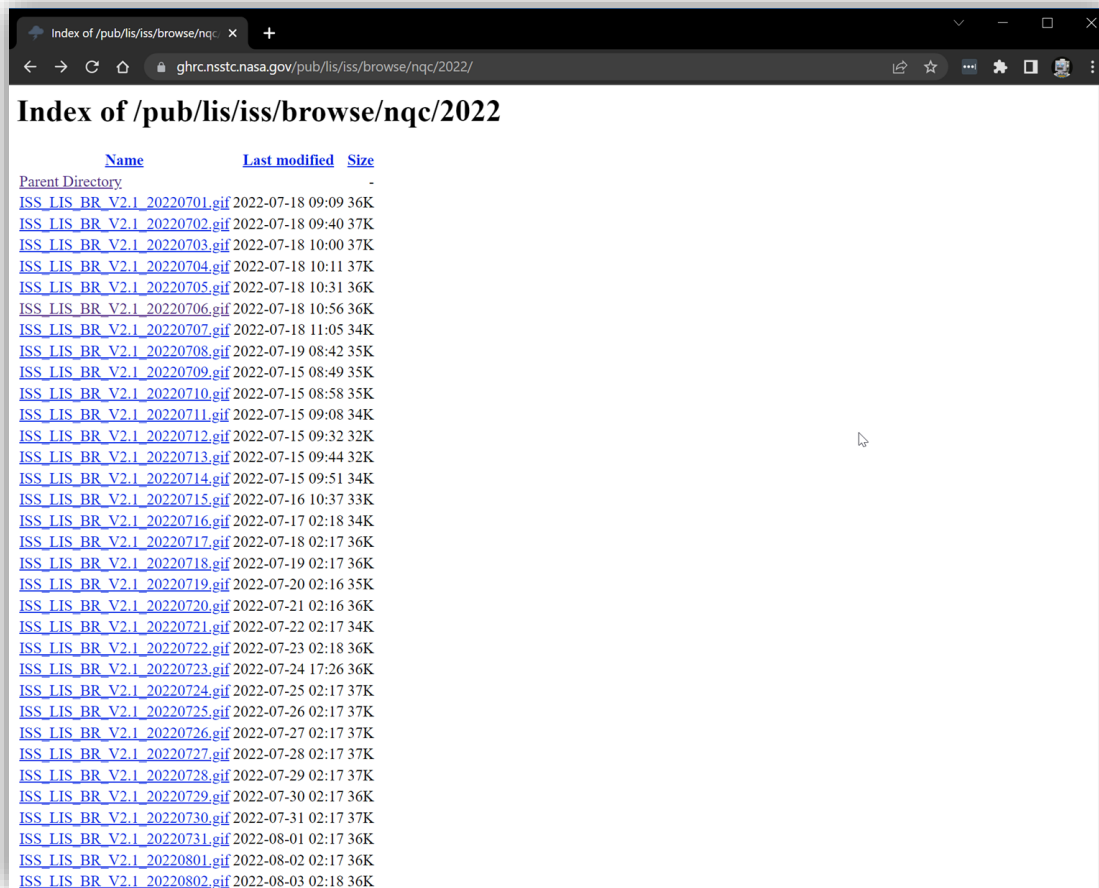
DAPPeR → Earthdata Pub



A screenshot of the Earthdata Pub Overview page. The page has a dark blue header with the NASA logo on the left, the text 'Earthdata Pub Overview' in white, and a green 'Beta' badge. On the right side of the header is a 'Dashboard' link. The main content area is white and features the heading 'Earthdata Pub helps you publish your NASA data' in a large, dark blue font. Below this heading is a list of four steps: '1. Create new requests', '2. Provide metadata', '3. Track publication status', and '4. Communicate with DAAC staff'. At the bottom of the main content area are three buttons: 'Data Producer Resources' (green), 'New Request' (red), and 'Dashboard' (dark blue). Below the main content area is a section titled 'What is a NASA DAAC?' in a dark blue font. This section contains two paragraphs of text explaining what DAACs are and their role. The first paragraph states that DAACs are components of NASA's Earth Observing System Data and Information System (EOSDIS) and provide science data to a wide community of users. The second paragraph explains that DAACs provide data publication, data access, and data user support, and lists 12 NASA DAACs and their primary scientific disciplines. A final line of text provides a link to the Earthdata EOSDIS DAACs page for more information.

Earthdata Pub Welcome Screen
<https://pub.earthdata.nasa.gov/>

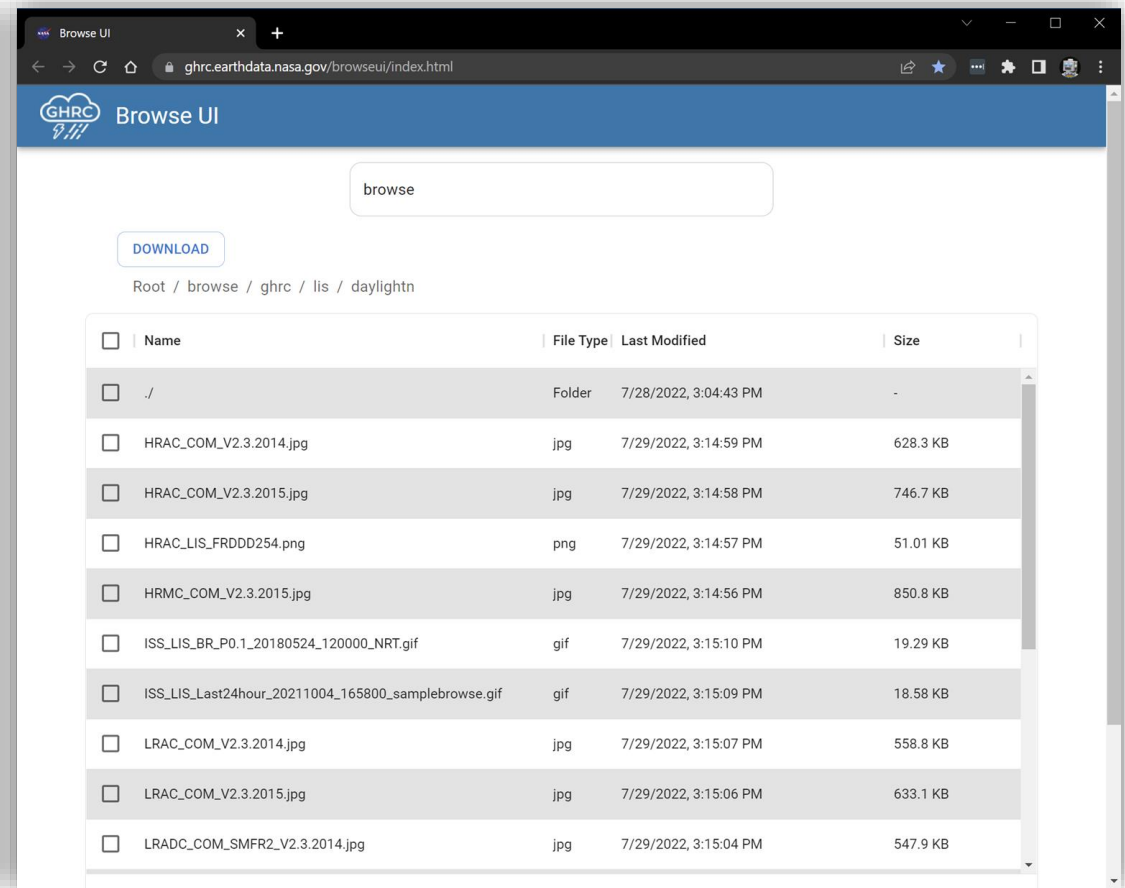
Web Browse → Cloud Browse



Index of /pub/lis/iss/browse/nqc/2022

Name	Last modified	Size
Parent Directory	-	-
ISS_LIS_BR_V2.1_20220701.gif	2022-07-18 09:09	36K
ISS_LIS_BR_V2.1_20220702.gif	2022-07-18 09:40	37K
ISS_LIS_BR_V2.1_20220703.gif	2022-07-18 10:00	37K
ISS_LIS_BR_V2.1_20220704.gif	2022-07-18 10:11	37K
ISS_LIS_BR_V2.1_20220705.gif	2022-07-18 10:31	36K
ISS_LIS_BR_V2.1_20220706.gif	2022-07-18 10:56	36K
ISS_LIS_BR_V2.1_20220707.gif	2022-07-18 11:05	34K
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ISS_LIS_BR_V2.1_20220710.gif	2022-07-15 08:58	35K
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ISS_LIS_BR_V2.1_20220716.gif	2022-07-17 02:18	34K
ISS_LIS_BR_V2.1_20220717.gif	2022-07-18 02:17	36K
ISS_LIS_BR_V2.1_20220718.gif	2022-07-19 02:17	36K
ISS_LIS_BR_V2.1_20220719.gif	2022-07-20 02:16	35K
ISS_LIS_BR_V2.1_20220720.gif	2022-07-21 02:16	36K
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ISS_LIS_BR_V2.1_20220729.gif	2022-07-30 02:17	36K
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ISS_LIS_BR_V2.1_20220731.gif	2022-08-01 02:17	36K
ISS_LIS_BR_V2.1_20220801.gif	2022-08-02 02:17	36K
ISS_LIS_BR_V2.1_20220802.gif	2022-08-03 02:18	36K

Web Browse
<https://ghrc.nsstc.nasa.gov/pub/>



Browse UI

Root / browse / ghrc / lis / daylightn

Name	File Type	Last Modified	Size
./	Folder	7/28/2022, 3:04:43 PM	-
HRAC_COM_V2.3.2014.jpg	jpg	7/29/2022, 3:14:59 PM	628.3 KB
HRAC_COM_V2.3.2015.jpg	jpg	7/29/2022, 3:14:58 PM	746.7 KB
HRAC_LIS_FRDDD254.png	png	7/29/2022, 3:14:57 PM	51.01 KB
HRMC_COM_V2.3.2015.jpg	jpg	7/29/2022, 3:14:56 PM	850.8 KB
ISS_LIS_BR_P0.1_20180524_120000_NRT.gif	gif	7/29/2022, 3:15:10 PM	19.29 KB
ISS_LIS_Last24hour_20211004_165800_samplebrowse.gif	gif	7/29/2022, 3:15:09 PM	18.58 KB
LRAC_COM_V2.3.2014.jpg	jpg	7/29/2022, 3:15:07 PM	558.8 KB
LRAC_COM_V2.3.2015.jpg	jpg	7/29/2022, 3:15:06 PM	633.1 KB
LRADC_COM_SMFR2_V2.3.2014.jpg	jpg	7/29/2022, 3:15:04 PM	547.9 KB

Cloud Browse
<https://ghrc.earthdata.nasa.gov/browseui/index.html>

Website Migration



- **Cloud-native solution**
 - Created prototype system based on webiny
- **New Direction**
 - NASA HQ & ESDIS requested that GHRC halt current effort
 - Met with ESDS Web Unification Project team
 - Expect to receive updated guidance early 2023

Cloud-only: Other Issues



- **Bulk Downloader**
 - Created Chrome addon during 2021
 - Waiting for NASA approval to submit to Chrome Store
 - Investigating other solutions with other DAACs (ASF, PO.DAAC)

- **Upload Area**
 - GHRC needs a secure upload area
 - NASA security has not allowed this feature in Earthdata Cloud
 - Working on prototype via Earthdata Pub project
 - If successful, the feature might be able to be expanded to the DAACs

- **Improve Operations**
 - Continue to improve PyLOT
 - Improve response time to problems in the cloud
- **Streamline Data Production process**
 - Improve deployment process
 - Improve code coverage
- **Cloud-only Operations**
 - Transition to Earthdata Pub
 - Finalize Cloud backups



THANK YOU!

QUESTIONS?

