



# Airborne and Field Data In the Clouds

What's this Earthdata Cloud Thing?

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# What is Earthdata Cloud?

- Evolution of the infrastructure for the Earth Observing System Data and Information System (EOSDIS)
- A common platform, using public cloud (Amazon Web Services) for delivering data and services
- A migration that will take years to complete

<https://earthdata.nasa.gov/eosdis/cloud-evolution>

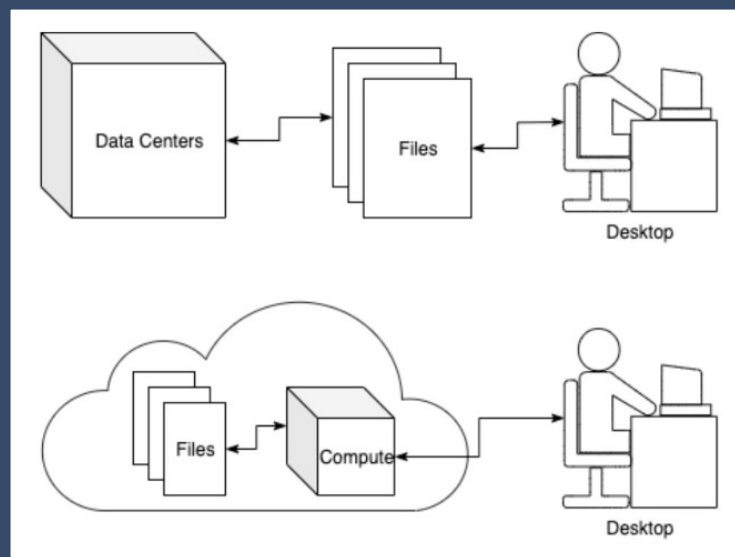




# Why?

- Enable user access to large volume data
- Remove barriers to cross-DAAC data access and tools
- Enable synergy across the ESDIS elements, particularly the DAACs

→ *Enable the next level of Open Science, including Analysis In Place*



Credit: Matthew Hanson, Element 84



## What doesn't change?

- **Data Access policy:** *NASA data remains free and open. Users just need an Earthdata Login account and there are no download or use charges for users.*
- **DAACs retain their science focus:** *At some level, it doesn't matter whether the servers are running on site or in the cloud.*



## What are we enabling?

- End user direct access to data using Amazon S3 protocol (does require an AWS account and this is restricted to same region access)
- Cross-DAAC tools for subsetting, reprojection, regridding (Harmony, OPeNDAP, ...)
- SpatioTemporal Asset Catalog (STAC)
- Cloud-native for new missions (including some cloud-optimized data formats)
- The current migration focus is the most heavily used ESDIS data and data for new missions



# What data is already there?

The screenshot displays the EarthData Search interface. At the top, it says "EARTHDATA" and "Find a DAAC". Below that is "EARTHDATA SEARCH". A search bar contains "Search for collections or topics". The main content area shows "1,166 Matching Collections" and "Showing 20 of 1,166 matching collections". There are buttons for "Export", "Sort", and "View".

On the left, a "Filter Collections" sidebar is open, with a yellow arrow pointing to the "Features" section. The "Features" section includes the following options:

- Available from AWS Cloud
- Customizable
- Map Imagery
- Near Real Time

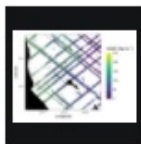
The search results list three collections:

Collection ID	Granules	Start Date	Description	Organization	Product Name
SENTINEL-1A_SLC	1,226,344	2014-04-03 ongoing	Sentinel-1A slant-range product	GEOSS	SENTINEL-1A_SLC v1 - ASF
SENTINEL-1B_SLC	789,393	2016-04-25 ongoing	Sentinel-1B slant-range product	GEOSS	SENTINEL-1B_SLC v1 - ASF
SENTINEL-1A_DUAL_POL_GRD_HIGH_RES	1,045,180	2014-04-03 ongoing	Sentinel-1A Dual-pol ground projected high and full resolution images	GEOSS	SENTINEL-1A_DP_GRD_HIGH v1 - ASF

<https://search.earthdata.nasa.gov>



# Accessing Data



## GEDI L4A Footprint Level Aboveground Biomass Density, Version 2.1

49,760 Granules • 2019-04-17 to 2021-11-23 • This dataset contains Global Ecosystem Dynamics Investigation (GEDI) Level 4A (L4A) Version 2.1 on 2 predictions of the aboveground biomass density (AGBD; in Mg/h a) and estimates of the prediction standard error within each sample...

GEOS

GEDI\_L4A\_AGB\_Density\_V2\_1\_2056 v2.1 - ORNL\_DAAC



## Cloud Access

Available for access in-region with AWS Cloud

Region

**us-west-2**

Bucket/Object Prefix

**s3://ornl-cumulus-prod-protected/gedi/GEDI\_L4A\_AGB\_Density\_V2\_1/**

AWS S3 Credentials

[Get AWS S3 Credentials](#)

[Documentation](#)



# Accessing Data - Harmony



## Services

Users should be able to seamlessly analyze data from different NASA data centers in ways previously unachievable. Harmony aims to increase usage and ease of use of EOSDIS' data, focusing on opportunities made possible by cloud-accessible data.



## Together

Transform how the development community works together to achieve #1. Let's reuse the simple, but necessary components (e.g. EDL, UMM, CMR and Metrics integration) and let's work together on the hard stuff like chaining, scaling and cloud optimizations.

<https://harmony.earthdata.nasa.gov/>





## More info

- Search: Earthdata Cloud, Earthdata Harmony
- Learning Resources and tutorials from different DAACs
- Earthdata Webinar