# 30 Years of Satellite and Airborne Altimetry Data at NSIDC DAAC

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NASA NSIDC DAAC

The NASA snow and ice Distributed Active Archive Center (DAAC) is located at the National Snow and Ice Data Center (NSIDC).

NSIDC is a part of the Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado Boulder.
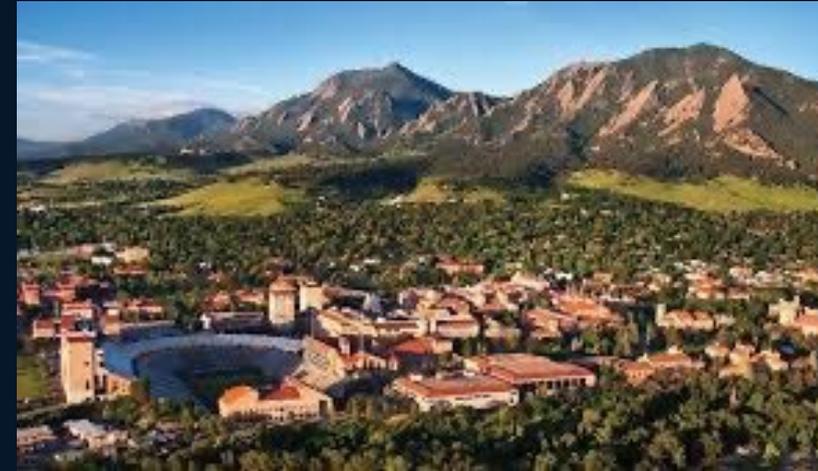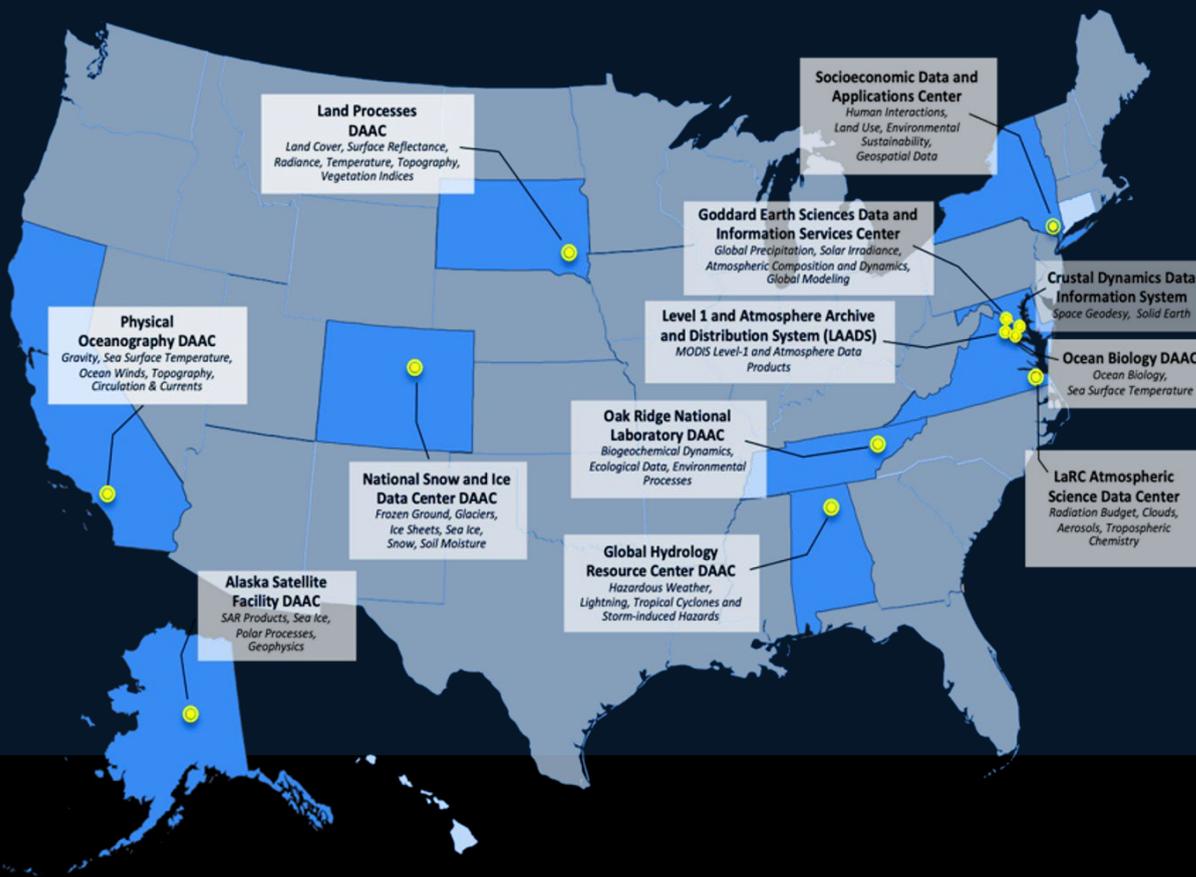
NSIDC DAAC is one of 12 NASA DAACs serving as key data infrastructure for NASA Earth science.

The DAACs' purpose is to **preserve** NASA Earth science data and to make it **discoverable**, **accessible**, and **usable**.
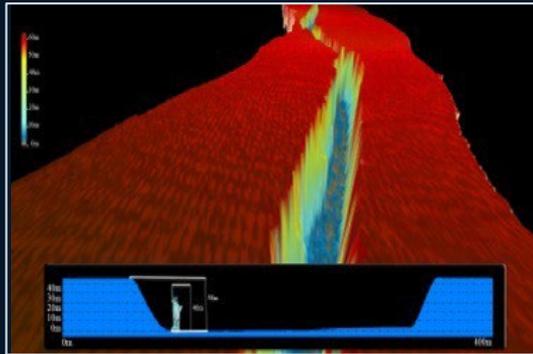


The Earth Science Data and Information System (ESDIS) manages the 12 DAACs.

ESDIS is a project of the NASA Earth Science Data Systems (ESDS) program.

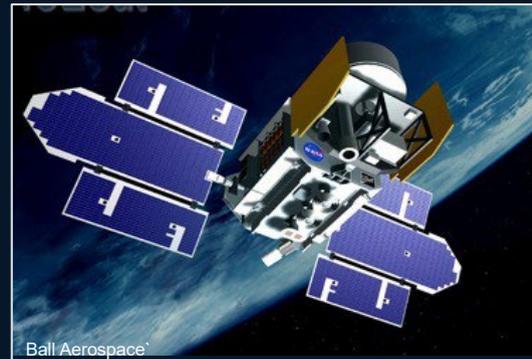# 30 years of data from NASA altimetry missions



**Pre-IceBridge Campaigns**

- Airborne Topographic Mapper (ATM)

- Elevation change studies, Greenland mass balance assessments, and calibration/validation of satellite altimeters.

**ICESat**

- Geoscience Laser Altimeter System (GLAS)

- Measure ice sheet elevation and changes in elevation through time.

**Operation IceBridge**
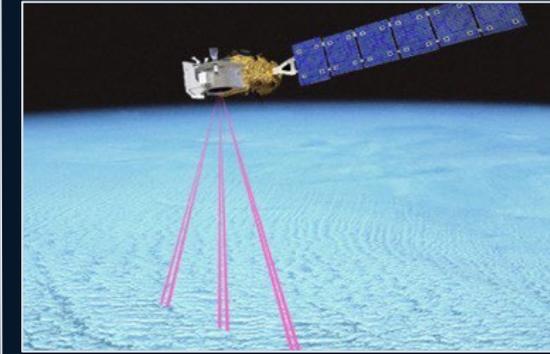
- Airborne Topographic Mapper (ATM)
- Land, Vegetation, and Ice Sensor (LVIS)

- Airborne remote sensing measurements of Arctic and Antarctic land and sea ice from multiple instruments

**ICESat-2**

- Advanced Topographic Laser Altimeter System (ATLAS)

- Measure and investigate ice sheet and glacier melt, sea ice thickness, inland water, and vegetation height worldwide.
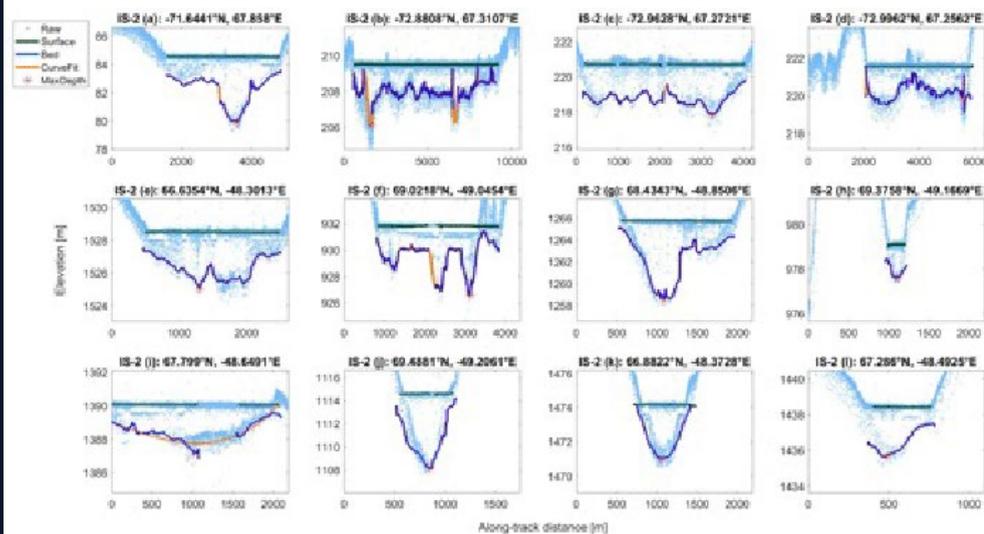
1993 - 2008

2003 - 2010

2009 - 2019

2018 – Present

1990    2000    2010    2020    2030

# Advances in science resulting from cross-mission altimetry data, including ESA's CryoSat

# ~5,000 unique users of NASA altimetry data at NSIDC DAAC in FY2024

## 143 Total Datasets

### Number of Datasets per Mission



- Pre-IceBridge: 5
- ICESat/GLAS: 15
- IceBridge: 95
- ICESat-2: 28

### Unique Data Users Per Mission Per Year
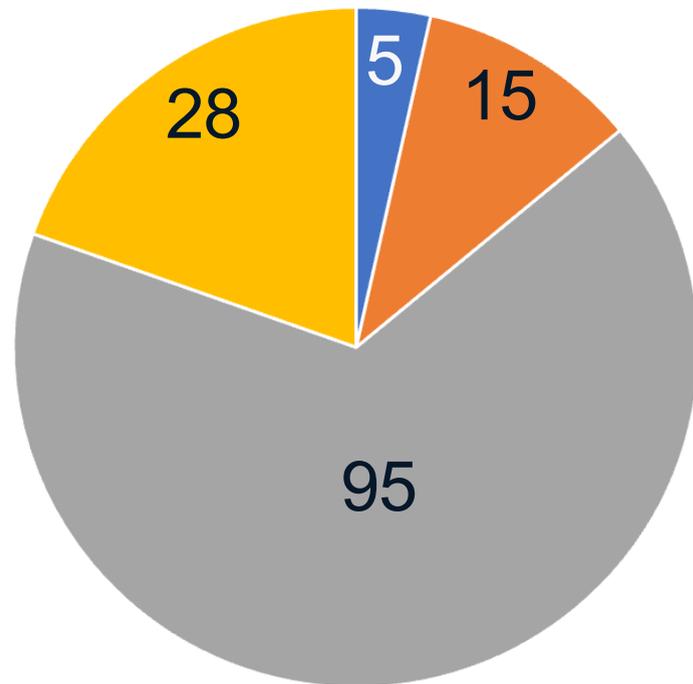


Legend: ICESat-2 · ICESat/GLAS · IceBridge
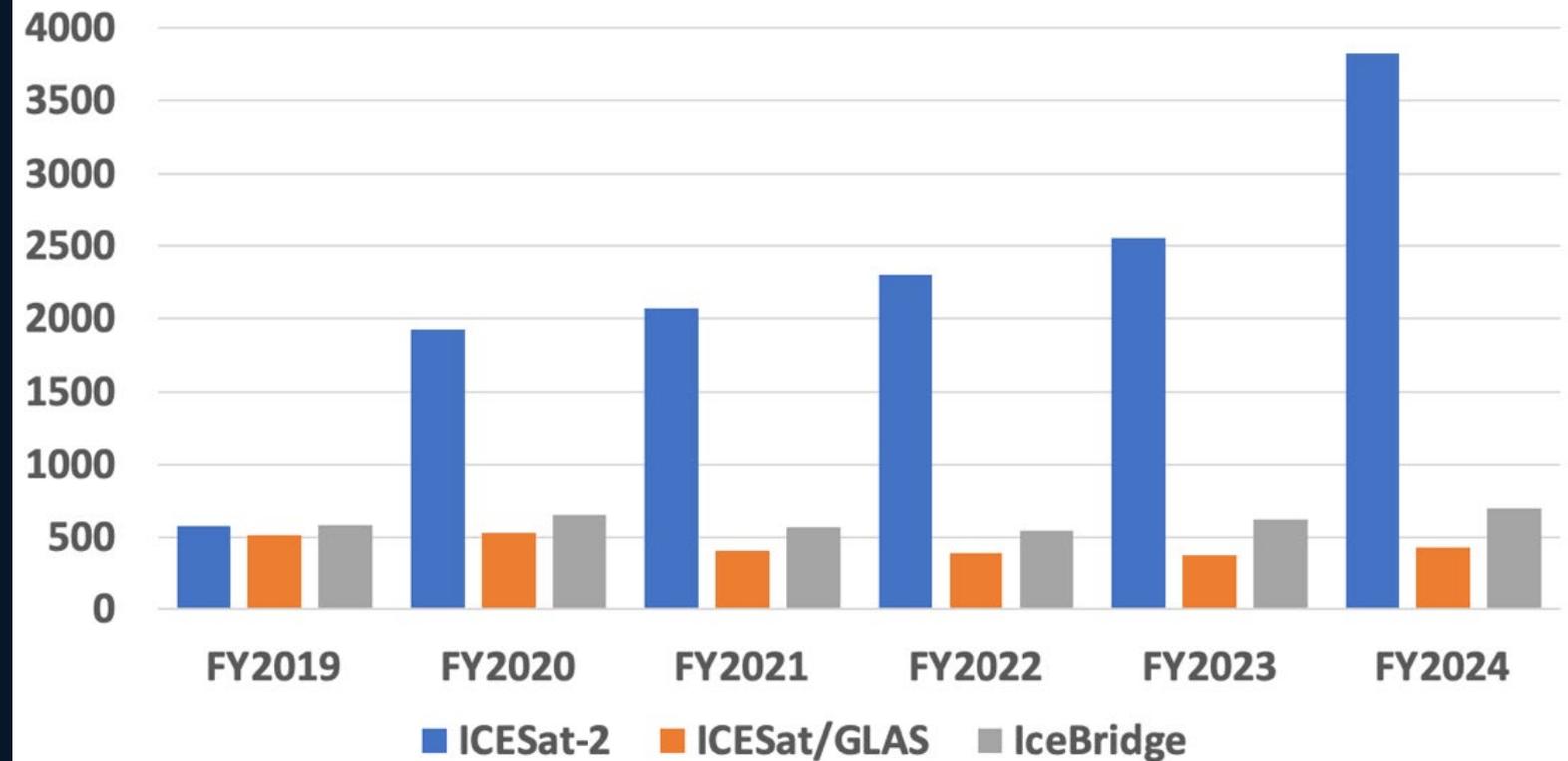
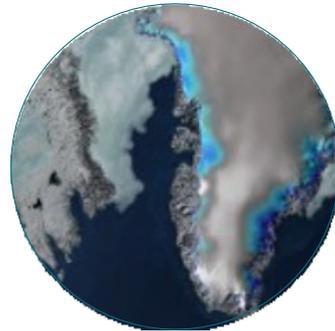Fiscal Year (FY): October - September

Pre-IceBridge metrics included in IceBridge

The NSIDC DAAC's role is to support and enable science with the 30 years of altimetry data.
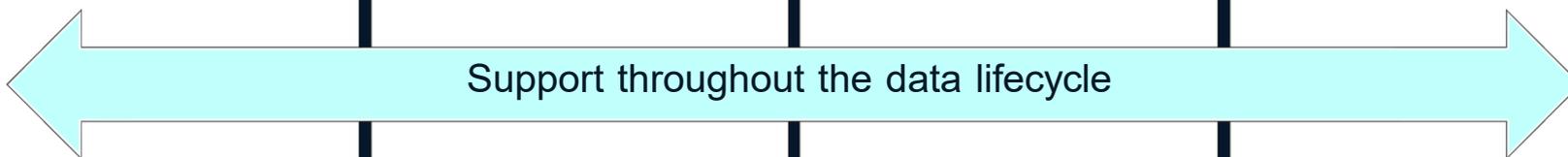


Data producer and user support

Science-focused data and metadata curation

Capabilities to enable data use and science

Data preservation and open access

Support throughout the data lifecycle

The NSIDC DAAC's role is to support and enable science with the 30 years of data.
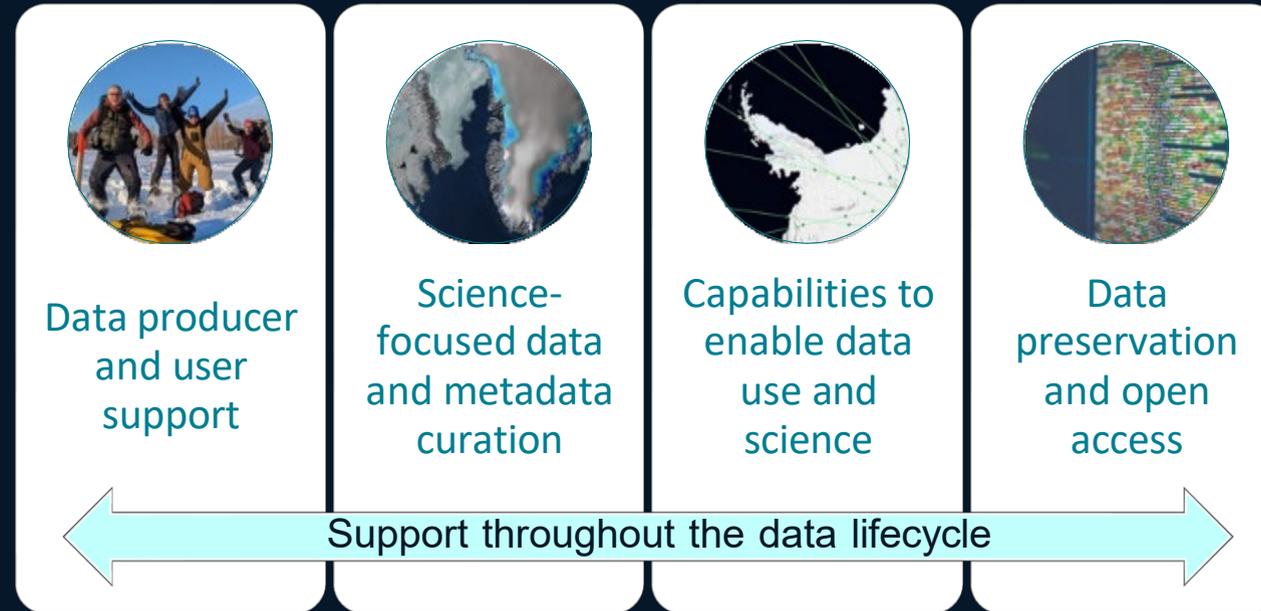
Support creating FAIR data



Data citations and DOIs

As a condition of using these data, you must cite the use of this data set.

10.5067/ATLAS/ATL08.005

Select a Citation Style
APA

Neuenschwander, A. L., K. L. Pitts, B. P. Jelley, J. Robbins, B. Klotz, S. C. Popescu, R. F. Nelson, D. Harding, D. Pederson, and R. Sheridan. (2021). ATLAS/ICESat-2 L3A Land and Vegetation Height, Version 5 [Data Set]. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center. https://doi.org/10.5067/ATLAS/ATL08.005. Date Accessed 04-21-2023.

COPY DATA CITATION

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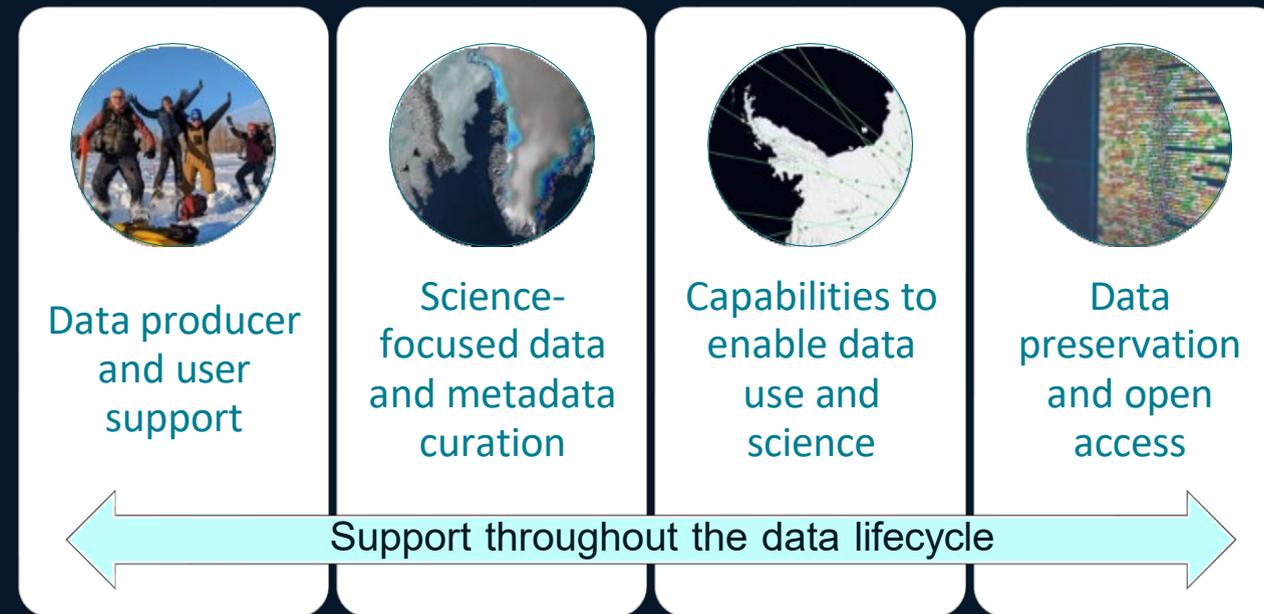Support throughout the data lifecycle

User Support

NSIDC DAAC Tutorials
- Monday 18:00-19:30
- Thursday 17:00-18:00

# The NSIDC DAAC's role is to support and enable science with the 30 years of a data.



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Mission Pages

Dataset Pages

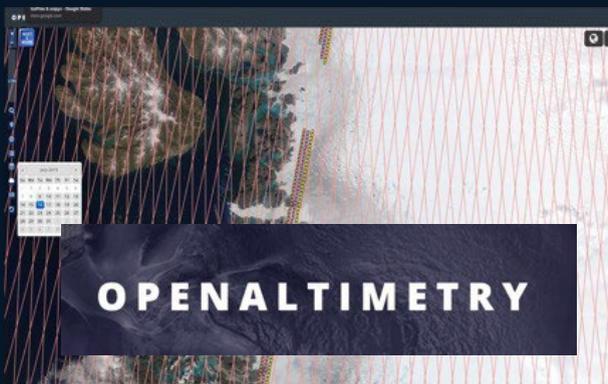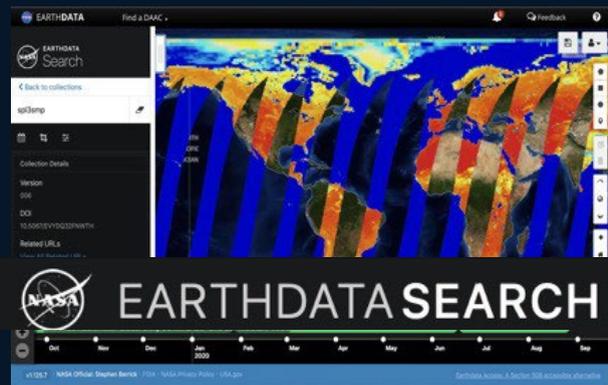Data & Tools: Lists of available datasets and tools/services

User Guide: Comprehensive product documentation on file structure, variable info, data acquisition, etc.

Subscribe: Sign up to receive dataset updates via email

# NASA ESDIS, NSIDC DAAC, and the community provide a range of cross-miss discovery and access methods.



https://nsidc.org/data/icesat-2/tools

# Opportunities to further connect NASA and ESA altimetry data



- Provides the ability to **search for**, and **download** or **stream** <u>all NASA Earth science data</u> with just a few lines of code.

- Future: Adding support for SpatioTemporal Asset Catalogs (STAC), enabling integration with additional data providers, such as ESA.

- NSIDC DAAC will steward a NASA archive of CRISTAL snow and ice datasets

- Future: Expansion of ESDIS and NSIDC DAAC tools and services for CRISTAL data

Questions? Feedback?
We'd love to hear from you!

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**NSIDC DAAC User Support**
nsidc@nsidc.org



NSIDC DAAC Website