



National Snow and Ice Data Center  
*Supporting Cryospheric Research Since 1976*



## **OIB @ NSIDC: Status and Plans**

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*IceBridge Science Liaison*

*June 29, 2010*

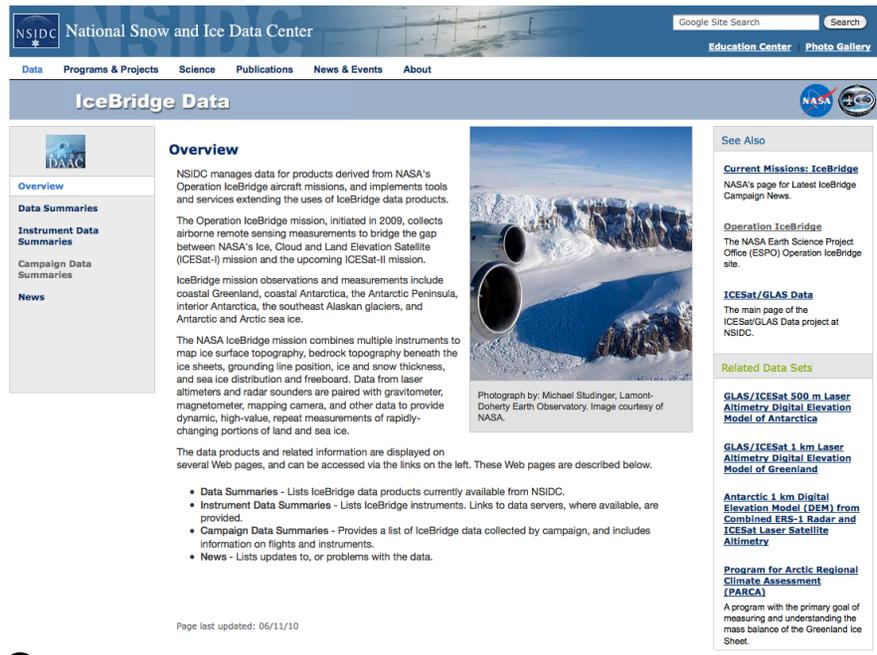
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- *Thanks to all providers for cooperation and patience!*



# IceBridge Data at NSIDC

<http://nsidc.org/data/icebridge>

- Single point for all OIB information at NSIDC
- Links to other IceBridge sites
- Linked from NSIDC homepage and other OIB sites
- RSS updates as data published
- Data access currently limited to FTP download



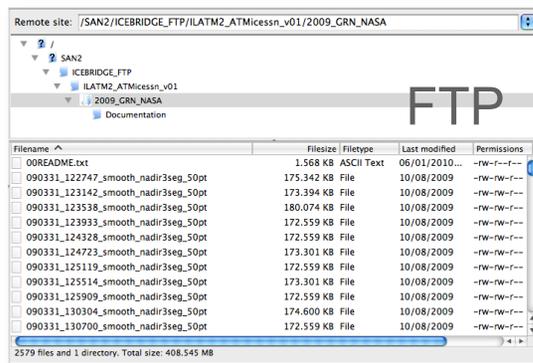
The screenshot shows the NSIDC website's 'IceBridge Data' page. At the top, there's a navigation menu with links for Data, Programs & Projects, Science, Publications, News & Events, and About. Below this is the 'IceBridge Data' header with the NSIDC logo and NASA/ICESat logos. The main content area is divided into several sections: a left sidebar with navigation links (Overview, Data Summaries, Instrument Data Summaries, Campaign Data Summaries, News), an 'Overview' section with text describing the mission and its instruments, a photograph of an aircraft in flight over a snowy landscape, and a 'See Also' section with links to related data sets and missions. The page footer indicates it was last updated on 06/11/10.

# Data Ingest Overview

## User Interface

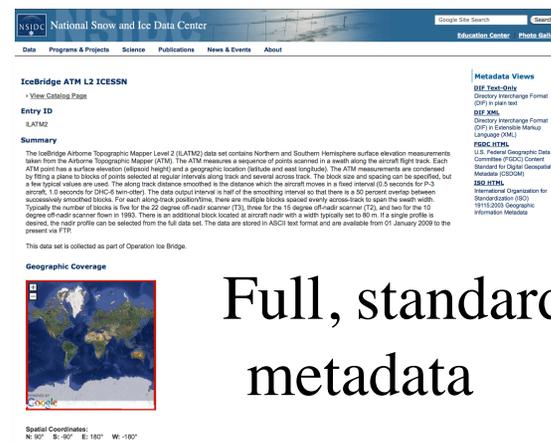
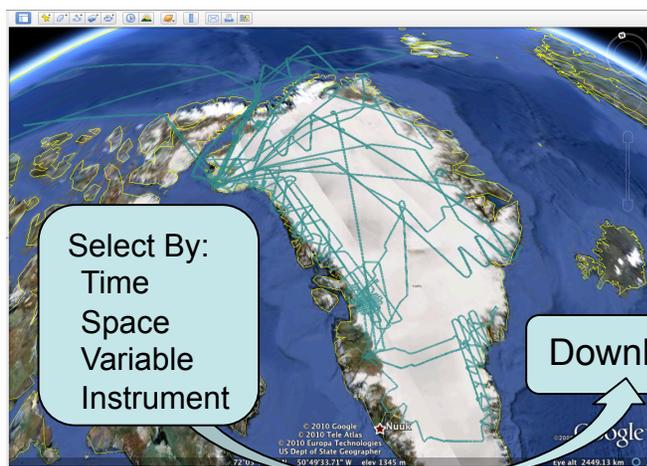
## Metadata Support

**Fast  
Track**



ReadMe files from data providers

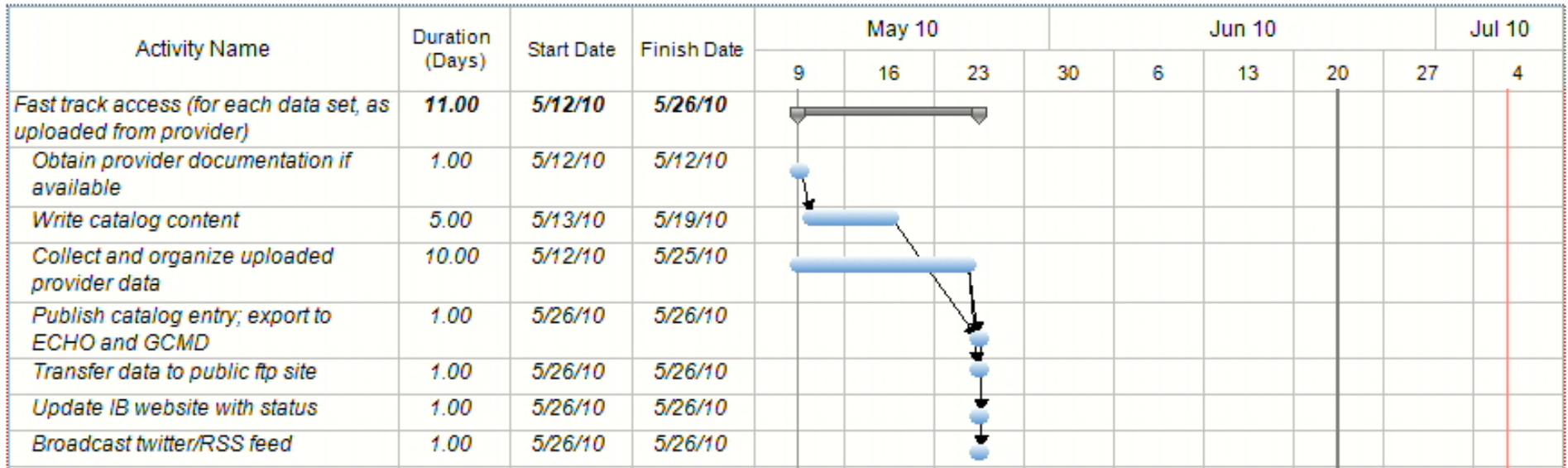
**ECS – Full  
Support**



Full, standardized metadata

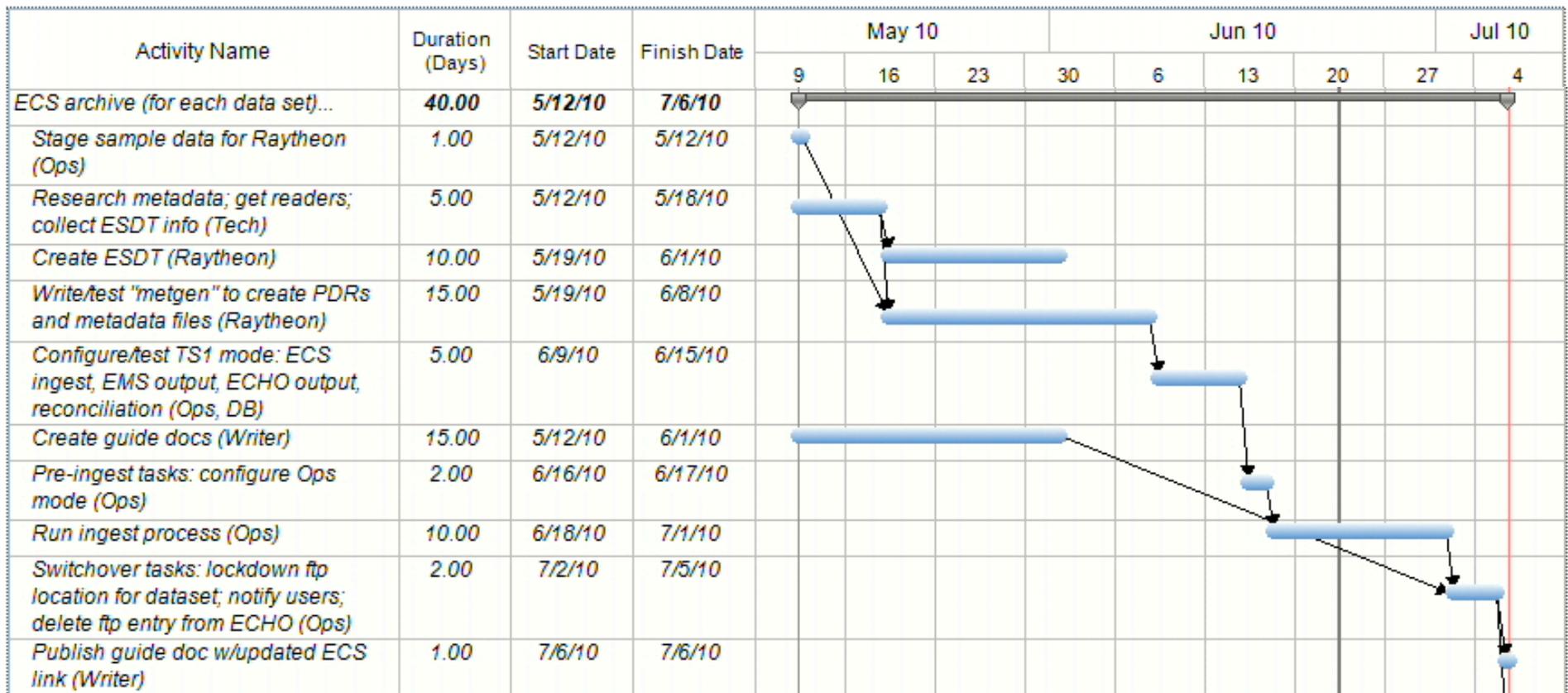
# Overview of Ingest Process: Fast Track

- Fast Track rapid ingest
  - FTP access
  - Allows rapid data availability
  - Minimum metadata



# Overview of Ingest Process: ECS – Full Support

- ECS – EOSDIS Core System
  - Ensures data preservation
  - Enhanced metadata allows integration with EOSDIS search & discovery tools
  - Will allow greater user interface functionality



## *Public Data Availability as of 6/28/10*

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- ATM
  - ICESSEN (Gr '09) *published 6/2*
  - QFIT (Gr '09) *published 6/17*
- LVIS
  - Ground Elevation/Return Energy Quartiles (Gr '09) *published 6/25*
- PARIS
  - Ice Thickness (Gr '09) *published 6/28*
- LDEO/Sander AirGRAV
  - Geolocated Anomalies (An '09) *published 6/28*

## *Data Ingest Status: Greenland '09*

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<b>Instrument</b>	<b>Data Set</b>	<b>Data Status</b>	<b>Doc Status</b>
ATM	L2 - ICESSN	Received	Received
	L1B - QFIT	Received	Received
Snow Radar	L1B - Echo Strength Profiles	Received	Received
PARIS	L2 - Ice Thickness	Received	Received
LVIS	L1B - Return Energy Waveforms	Received 1 of 3 flights	-
	L2 - Ground Elevation and Return Energy Quartiles	Received	Received
CAMBOT	L1B - Nadir Imagery	Received	-

- \* Level 0/raw data: need to arrange ingest
- \* Legacy (pre-09) ATM data incoming

## *Data Ingest Status: Antarctica '09*

<b>Instrument</b>	<b>Data Set</b>	<b>Data Status</b>	<b>Doc Status</b>
ATM	L2 - ICESSEN	Incoming	Received
	L1B - QFIT	Incoming	Received
MCoRDS	L2 - Ice Thickness	Received	Received
Snow Radar	L1B - Echo Strength Profiles	Incoming (early July)	Received
Ku-Band Radar	L1B - Echo Strength Profiles	-	-
LVIS	L1B - Return Energy Waveforms	-	-
	L2 - Ground Elevation and Return Energy Quartiles	-	Received
DMS	L1B - GeoTiff	Incoming	Incoming
Air Gravimeter	L1B - Grav Anomalies	Received	Received
CAMBOT	L1B - Nadir Imagery	-	-
NSERC Met	L1B - Meteorology	Received	Received
UTexas (5 instruments)	(18 Datasets)	Received	Received

## *Data Ingest Status: UAF Alaska Glaciers '09*

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<b>Instrument</b>	<b>Data Set</b>	<b>Data Status</b>	<b>Doc Status</b>
UAF Lidar Profiler	Surface Elevation Triplets	Received	-
UAF Lidar Scanner	Surface Elevation Triplets	Received (missing 1 day)	-

\* Legacy UAF data incoming

# *EOS & OIB Dataset Levels*

SDP Level	EOS Level Definition	OIB Level Def
<b>0</b>	Reconstructed, unprocessed instrument/payload data at full resolution	Raw, unprocessed instrument data.
<b>1A</b>	Reconstructed, unprocessed instrument data at full resolution, time-referenced, and annotated with ancillary information, appended but not applied to the Level 0 data.	Not used
<b>1B</b>	Level 1A data that have been processed to sensor units	Geolocated, quality-controlled primary along-track product, with artifacts removed.
<b>1BX</b>	Not used	Level 1B data that has been processed to a standard format suitable for comparison between IceBridge instruments.
<b>2</b>	Derived geophysical variables at the same resolution and location as the Level 1 source data.	Derived geophysical variables at the same or similar resolution as the Level 1 source data. Some aggregation is possible.
<b>3</b>	Variables mapped on uniform space-time grids, usually with some completeness and consistency.	Same as EOS
<b>4</b>	Model output or results from analyses of lower level data, e.g., variables derived from multiple measurements.	Same as EOS

## *Lessons Learned in First Ingest Cycles*

- Incoming FTP slow for some providers
- Beginning 2010, we will need a *data manifest* at initiation of ingest
  - Currently we only have flight report info
  - Need detailed list of files to be transferred

Date (mm/dd/yyyy)	DC-8 Flight #	Mission	LVIS	POS/AV	DMS	MCoRDS	Gravimeter	ATM	Ku-band radar	Snow radar
03/22/2010	100203	Transit Palmdale to Thule Airbase (BGTL)	x	x	x					
03/23/2010	100204	Sea Ice 05	x	x	x		x	x		x
03/24/2010	100205	Petermann 01		x	x	x	x	x		x
03/26/2010	100206	Sea Ice 03	x	x	x		x	x	x	x
03/29/2010	100207	LVIS Northwest	x	x	x	x	x			
03/30/2010	100208	NEIS 01		x	x	x	x	x	x	x
04/02/2010	100209	Sea Ice 08	x	x	x		x	x	x	x
04/05/2010	100210	Sea Ice 06	x	x	x		x	x	x	x
04/09/2010	100211	LVIS Rink Isbræ	x	x	x	x	x			

## *Future Dataset Submission*

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- Timelines – established by ROSES 2009
  - Greenland 2010 by August 1
  - Antarctica 2010 by February 1
- Dataset levels – primary products
  - L1B or L2
- Data delivery manifest
  - 1<sup>st</sup> file transferred
  - Inventory of all files to be transferred, with sizes
- Incoming FTP preferred
  - HD shipment as needed

# *Metadata/Documentation Needs*

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- Guide documents for ECS ingest
  - Several fields require provider input, e.g.:
    - Detailed sensor descriptions & methods
    - Sensor history – changes in config or components
    - Processing workflow & algorithms
    - QA/QC procedures

**Example:**

**AMSR-E/Aqua L2A Global Swath Spatially-Resampled  
Brightness Temperatures**

# Projections for Gridded (Level 3) Datasets

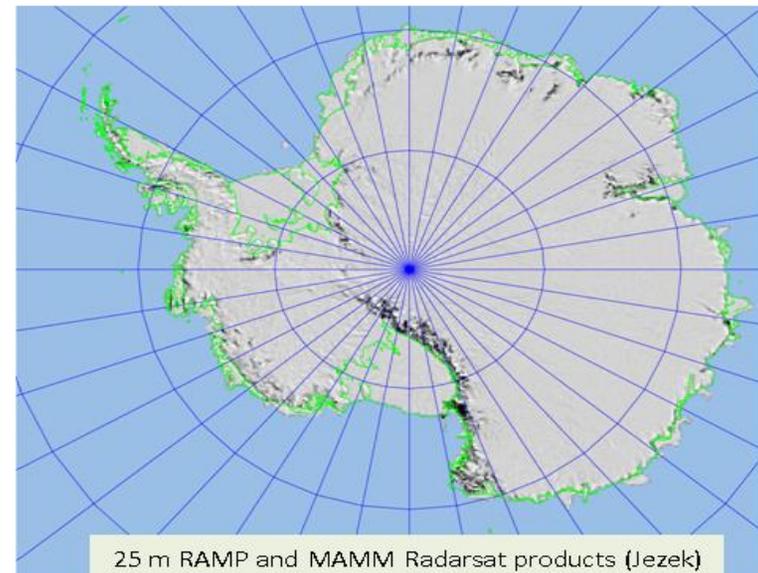
Arctic/Greenland  
*Polar Stereographic*  
70°N plane of projection  
135°E up, 45°W down  
WGS84 ellipsoid



100 m SAR Radarsat-1 mosaic (Kwok)  
MODIS Mosaic of Greenland (MOG, shown above)  
MEaSURES InSAR ice velocity data sets  
1-km ICESat Greenland DEM (Zwally)

5km Radar Altimetry Greenland DEM ( $\gamma=39^\circ\text{N}$ )  
NSIDC Passive Microwave Data (Hughes ellip.)

Antarctica  
*Polar Stereographic*  
71°S plane of projection  
0° up, 180° down  
WGS84 ellipsoid



25 m RAMP and MAMM Radarsat products (Jezek)  
MODIS Mosaic of Antarctica (MOA, shown above)  
MEaSURES InSAR ice velocity data sets  
1-km ICESat+Radar Alt DEM (Bamber)  
AVHRR and LIMA mosaics (USGS, Bindshchdlr)

ICESat 500m DEM (70°S, Hughes Ellips.)  
NSIDC Passive Microwave Data (70°S, Hughes ellip.)

# *Value-Added Data Products*

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## **Along-track**

multisensor files:

- Elevation + Slope
- Roughness, Grain Size
- Ice Thickness
- Bed elevation/echo strength
- Gravity
- links to DMS images, waveforms
- Accumulation rate
- ...

## **Updated grids of**

geophysical params:

- DEM
- Bed elevation maps
- Accumulation grids
- dH/dt
- Roughness maps
- ...

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*Thanks!*