ATL15 Product Data Dictionary

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description	(Attribute)	This data set (ATL15) contains seasonal, annual, and biennial gridded land ice elevation change.
level	(Attribute)	L3B
short_name	(Attribute)	ATL15
title	(Attribute)	SET_BY_META
Group: /		This data set (ATL15) contains seasonal, annual, and biennial gridded land ice elevation change.
Conventions	(Attribute)	CF-1.7
GDAL_AREA_OR_POINT	(Attribute)	Area
_NCProperties	(Attribute)	version=2,netcdf=4.7.4,hdf5=1.10.6
asas_release	(Attribute)	SET_BY_PGE
citation	(Attribute)	Cite these data in publications as follows: The data used in this study were produced by the ICESat-2 Science Project Office at NASA/GSFC. The data archive site is the NASA National Snow and Ice Data Center Distributed Active Archive Center.
contributor_name	(Attribute)	Benjamin Smith (besmith@uw.edu), Tyler Sutterley (tsutterl@uw.edu), Suzanne Dickinson (sdickins@uw.edu), Benjamin Jelley (benjamin.p.jelley@nasa.gov), Denis Felikson (denis.felikson@nasa.gov), Thomas E Neumann (thomas.neumann@nasa.gov), Helen Fricker (hafricker@ucsd.edu), Alex Gardner (alex.s.gardner@jpl.nasa.gov), Laurence Padman (padman@esr.org), Thorsten Markus (thorsten.markus@nasa.gov), Naithan Kurtz (nathan.t.kurtz@nasa.gov), Suneel Bhardwaj (suneel.bhardwaj@nasa.gov), David W Hancock III (david.w.hancock@nasa.gov), Jeffrey Lee (jeffrey.e.lee@nasa.gov)
contributor_role	(Attribute)	Investigator, Investigator, Investigator, Investigator, Investigator, Algorithm Developer, Algorithm Developer, Algorithm Developer
creator_name	(Attribute)	GSFC I-SIPS > ICESat-2 Science Investigator-led Processing System
date_created	(Attribute)	2021-12-02T22:02:20.553630Z
date_type	(Attribute)	UTC
fileName	(Attribute)	ATL15_CN_0311_40km_001_01.nc
geospatial_lat_max	(Attribute)	[84.71672186]
geospatial_lat_min	(Attribute)	[71.09020548]
geospatial_lat_units	(Attribute)	degrees_north
geospatial_lon_max	(Attribute)	[-63.88608737]
geospatial_lon_min	(Attribute)	[-125.27242145]
geospatial_lon_units	(Attribute)	degrees_east
granule_type	(Attribute)	ATL15
hdfversion	(Attribute)	SET_BY_PGE
history	(Attribute)	SET_BY_PGE
identifier_product_doi	(Attribute)	doi:10.5067/ATLAS/ATL15.001
identifier_product_doi_authority	(Attribute)	http://dx.doi.org
identifier_product_format_version	(Attribute)	SET_BY_PGE
identifier_product_type	(Attribute)	ATL15
institution	(Attribute)	National Aeronautics and Space Administration (NASA)
instrument	(Attribute)	ATLAS > Advanced Topographic Laser Altimeter System
keywords	(Attribute)	EARTH SCIENCE > CRYOSPHERE > GLACIERS/ICE SHEETS > GLACIER ELEVATION/ICE SHEET ELEVATION > NONE > NONE > NONE
keywords_vocabulary	(Attribute)	NASA/GCMD Science Keywords
license	(Attribute)	Data may not be reproduced or distributed without including the citation for this product included in this metadata. Data may not be distributed in an altered form without the written permission of the ICESat-2 Science Project Office at NASA/GSFC.
naming_authority	(Attribute)	http://dx.doi.org
netcdfversion	(Attribute)	4.7.4
platform	(Attribute)	ICESat-2 > Ice, Cloud, and land Elevation Satellite-2
processing_level	(Attribute)	3B
project	(Attribute)	ICESat-2 > Ice, Cloud, and land Elevation Satellite-2
publisher_email	(Attribute)	nsidc@nsidc.org
publisher_name	(Attribute)	NSIDC DAAC > NASA National Snow and Ice Data Center Distributed Active Archive Center
publisher_url	(Attribute)	http://nsidc.org/daac/
reference_frame	(Attribute)	ITRF2014
references	(Attribute)	http://nsidc.org/data/icesat2/data.html
shortName	(Attribute)	ATL15_META
source	(Attribute)	Spacecraft
spatial_coverage_type	(Attribute)	Horizontal
standard_name_vocabulary	(Attribute)	CF-1.6
summary	(Attribute)	The purpose of ATL15 is to provide an IceSat-2 gridded satellite summary of height changes of land-based ice.
time_coverage_duration	(Attribute)	[70587713.40189457]
time_coverage_end	(Attribute)	2021-06-23T10:51:09.697181Z
time_coverage_start	(Attribute)	2019-03-29T11:09:16.295287Z
time_type	(Attribute)	CCSDS UTC-A
uuid	(Attribute)	d2e4bc72-fc01-497c-9875-bed6e91c81e3
vertical_datum	(Attribute)	WGS84
Group: /METADATA		ISO19115 Structured Metadata Represented within HDF5
iso_19139_dataset_xml	(Attribute)	SET_BY_META
iso_19139_series_xml	(Attribute)	SET_BY_META
Group: /METADATA/AcquisitionInformation		Describe the group
Group: /METADATA/AcquisitionInformation/lidar		Describe the group
description	(Attribute)	ATLAS on ICESat-2 determines the range between the satellite and the Earth's surface by measuring the two-way time delay of short pulses of laser light that it transmits in six beams. It is different from previous operational ice-sheet altimeters in that it is a photon-counting LIDAR. ATLAS records a set of arrival times for individual photons, which are then analyzed to derive surface, vegetation, and cloud properties. ATLAS has six beams arranged in three pairs, so that it samples each of three reference pair tracks with a pair of beams; ATLAS transmits pulses at 10 kHz, giving approximately one pulse every 0.7 m along track; ATLAS's expected pointing control will be better than 90 m RMS.
identifier	(Attribute)	ATLAS
pulse_rate	(Attribute)	10000 pps
type	(Attribute)	Laser Altimeter
wavelength	(Attribute)	532 nm
Group: /METADATA/AcquisitionInformation/lidarDocument		Describe the group
edition	(Attribute)	Pre-Release
publicationDate	(Attribute)	12/31/17
title	(Attribute)	A document describing the ATLAS instrument will be provided by the ICESat-2 Project Science Office.
Group: /METADATA/AcquisitionInformation/platform		Describe the group
description	(Attribute)	Ice, Cloud, and land Elevation Satellite-2
identifier	(Attribute)	ICESat-2
type	(Attribute)	Spacecraft
Group: /METADATA/AcquisitionInformation/platformDocument		Describe the group
edition	(Attribute)	31-Dec-16
publicationDate	(Attribute)	31-Dec-16
title	(Attribute)	The Ice, Cloud, and land Elevation Satellite-2 (ICESat-2); Science requirements, concept, and implementation. Thorsten Markus, Tom Neumann, Anthony Martino, Waleed Abdalati, Kelly Brunt, Beata Csatho, Sinead Farrell, Helen Fricker, Alex Gardner, David Harding, Michael Jasinski, Ron Kwok, Lori Magruder, Dan Lubin, Scott Luthcke, James Morison, Ross Nelson, Amy Neuenschwander, Stephen Palm, Sorin Popescu, CK Shum, Bob E. Schutz, Benjamin Smith, Yuekui Yang, Jay Zwally. http://dx.doi.org/10.1016/j.rse.2016.12.029
Group: /METADATA/DataQuality		Describe the group
scope	(Attribute)	NOT_SET
Group: /METADATA/DataQuality/CompletenessOmission		Describe the group
evaluationMethodType	(Attribute)	directInternal
measureDescription	(Attribute)	TBD
nameOfMeasure	(Attribute)	TBD
unitofMeasure	(Attribute)	TBD
value	(Attribute)	NOT_SET
Group: /METADATA/DataQuality/DomainConsistency		Describe the group
evaluationMethodType	(Attribute)	directInternal
measureDescription	(Attribute)	TBD
nameOfMeasure	(Attribute)	TBD
unitofMeasure	(Attribute)	TBD
value	(Attribute)	NOT_SET
Group: /METADATA/DatasetIdentification		Describe the group
VersionID	(Attribute)	SET_BY_PGE
abstract	(Attribute)	The ICESat-2 ATL15 standard data product reports a land ice elevation change as comapred to an ice sheet digital elevation model (DEM).
characterSet	(Attribute)	utf8
creationDate	(Attribute)	2021-12-02
credit	(Attribute)	The software that generates the ATL15 product was designed and implemented within the ICESat-2 Science Investigator-led Processing System at the NASA Goddard Space Flight Center in Greenbelt, Maryland.
fileName	(Attribute)	ATL15_CN_0311_40km_001_01.nc
language	(Attribute)	eng
originatorOrganizationName	(Attribute)	GSFC I-SIPS > ICESat-2 Science Investigator-led Processing System
purpose	(Attribute)	The purpose of ATL15 is to provide an IceSat-2 gridded satellite summary of height changes of land-based ice.
shortName	(Attribute)	ATL15

spatialRepresentationType	(Attribute)	along-track
status	(Attribute)	onGoing
topicCategory	(Attribute)	geoscientificInformation
uuid	(Attribute)	87aa5805-754a-4fc0-a27a-944aa99bfb5e
Group: /METADATA/Extent		Describe the group
eastBoundLongitude	(Attribute)	[-63.88608737]
northBoundLatitude	(Attribute)	[84.71672186]
rangeBeginningDateTime	(Attribute)	2019-03-29T11:09:16.295287Z
rangeEndingDateTime	(Attribute)	2021-06-23T10:51:09.697181Z
southBoundLatitude	(Attribute)	[71.09020548]
westBoundLongitude	(Attribute)	[-125.27242145]
Group: /METADATA/Lineage		Describe the group
Group: /METADATA/Lineage/ANC19		Describe the group
description	(Attribute)	TAI to UTC leapsecond file retrieved from ftp://maia.usno.navy.mil/ser7/tai-utc.dat
fileName	(Attribute)	SET_BY_PGE
shortName	(Attribute)	SET_BY_PGE
uuid	(Attribute)	SET_BY_PGE
version	(Attribute)	SET_BY_PGE
Group: /METADATA/Lineage/ANC36-15		Describe the group
description	(Attribute)	ISO 19139 XML file containing Series-level metadata information.
fileName	(Attribute)	DsESDTA/ATL15.001.series.xml
shortName	(Attribute)	ANC36-15
uuid	(Attribute)	5BFCCB48-D68E-4897-92C6-389DE6A1C32B
version	(Attribute)	001
Group: /METADATA/Lineage/ANC38-15		Describe the group
description	(Attribute)	ISO 19139 XML file containing DataSet-level metadata information.
fileName	(Attribute)	DsESDTA/ATL15.001.dataset.xml
shortName	(Attribute)	ANC38-15
uuid	(Attribute)	958F65A6-F1E7-445E-9E94-ADD030917038
version	(Attribute)	001
Group: /METADATA/Lineage/ATL11		Describe the group
description	(Attribute)	ATLAS/L3B Land Ice Height
end_cycle	(Attribute)	SET_BY_PGE
end_geoseg	(Attribute)	SET_BY_PGE
end_orbit	(Attribute)	SET_BY_PGE
end_region	(Attribute)	SET_BY_PGE
end_rgt	(Attribute)	SET_BY_PGE
fileName	(Attribute)	SET_BY_PGE
shortName	(Attribute)	SET_BY_PGE
start_cycle	(Attribute)	SET_BY_PGE
start_geoseg	(Attribute)	SET_BY_PGE
start_orbit	(Attribute)	SET_BY_PGE
start_region	(Attribute)	SET_BY_PGE
start_rgt	(Attribute)	SET_BY_PGE
uuid	(Attribute)	SET_BY_PGE
version	(Attribute)	SET_BY_PGE
Group: /METADATA/Lineage/Control		Describe the group
description	(Attribute)	Text-based keyword=value file generated automatically within the ICESat-2 data system that specifies all of the conditions required for each individual run of the software.
fileName	(Attribute)	SET_BY_PGE
shortName	(Attribute)	SET_BY_PGE
version	(Attribute)	SET_BY_PGE
Group: /METADATA/ProcessStep		Describe the group
Group: /METADATA/ProcessStep/Browse		Describe the group
identifier	(Attribute)	SET_BY_PGE
processDescription	(Attribute)	Browse processing is performed for each granule SIPS produces. The browse utility reads data from the granule and produces browse images as defined in the respective product ATBD. The utility then embeds each browse image into the product within the /Browse group.
runTimeParameters	(Attribute)	SET_BY_PGE
softwareDate	(Attribute)	SET_BY_PGE
softwareTitle	(Attribute)	SET_BY_PGE
softwareVersion	(Attribute)	SET_BY_PGE
stepDateTime	(Attribute)	SET_BY_PGE
Group: /METADATA/ProcessStep/Metadata		Describe the group
identifier	(Attribute)	atlas_meta
processDescription	(Attribute)	Metadata information is processed by the metadata utility for each granule produced by SIPS. During PGE processing, dynamic metadata are written to the product. Additional static information is provided with the metadata template. The metadata utility reads ISO Dataset and Series metadata files and updates the product with static information from within those files. The utility then merges the static and dynamic metadata to creates output ISO19139 Dataset and Series XML files. Finally the utility reads the ISO19139 Dataset and Series XML files into memory and stores the textual representations as attributes attached to the /METADATA group.
runTimeParameters	(Attribute)	ATL15_CN_0311_40km_001_01.ctl
softwareDate	(Attribute)	Nov 18 2021
softwareTitle	(Attribute)	Creates ATLAS XML metadata files
softwareVersion	(Attribute)	Version 5.0
stepDateTime	(Attribute)	2021-12-03T12:41:56.000000Z
Group: /METADATA/ProcessStep/PGE		Describe the group
ATBDDate	(Attribute)	12/04/2019
ATBDTitle	(Attribute)	Algorithm Theoretical Basis Document (ATBD) For Sea Ice Products
ATBDVersion	(Attribute)	N/A
documentDate	(Attribute)	Feb 2020
documentation	(Attribute)	ATLAS Science Algorithm Software Design Description (SDD) - Volume 14 (atlas_l3b_ls)
identifier	(Attribute)	SET_BY_PGE
processDescription	(Attribute)	Computes seasonal, annual, biennial land ice elevation change.
runTimeParameters	(Attribute)	SET_BY_PGE
softwareDate	(Attribute)	SET_BY_PGE
softwareTitle	(Attribute)	SET_BY_PGE
softwareVersion	(Attribute)	SET_BY_PGE
stepDateTime	(Attribute)	SET_BY_PGE
Group: /METADATA/ProcessStep/QA		Describe the group
identifier	(Attribute)	atl15_qa_util
processDescription	(Attribute)	QA processing is performed by an external utility on each granule produced by SIPS. The utility reads the granule, performs both generic and product-specific quality-assessment calculations, and writes a text-based quality assessment report. The name and creation data of this report are identified within the QADatasetIdentification metadata
runTimeParameters	(Attribute)	ATL15_CN_0311_40km_001_01.ctl
softwareDate	(Attribute)	Nov 23 2021
softwareTitle	(Attribute)	ATL15 QA Utility
softwareVersion	(Attribute)	Version 1.0
stepDateTime	(Attribute)	2021-12-03T12:41:56.000000Z
Group: /METADATA/ProductSpecificationDocument		Describe the group
ShortName	(Attribute)	ATL15_SDP
characterSet	(Attribute)	utf8
edition	(Attribute)	v1.0
language	(Attribute)	eng
publicationDate	(Attribute)	Feb 2020
title	(Attribute)	ICESat-2-SIPS-SPEC-4269 - ATLAS Science Algorithm Standard Data Product (SDP) Volume 14 (ATL15). Revision -.
Group: /METADATA/QADatasetIdentification		Describe the group
abstract	(Attribute)	An ASCII product that contains statistical information on data product results. These statistics enable data producers and users to assess the quality of the data in the data product granule
creationDate	(Attribute)	2021-12-03T12:41:56.000000Z
fileName	(Attribute)	ATL15_CN_0311_40km_001_01.nc.qa
Group: /METADATA/SeriesIdentification		Describe the group
VersionID	(Attribute)	SET_BY_PGE
abstract	(Attribute)	The ICESat-2 ATL15 standard data product reports a land ice elevation change as comapred to an ice sheet digital elevation model (DEM).
characterSet	(Attribute)	utf8
credit	(Attribute)	The software that generates the ATL15 product was designed and implemented within the ICESat-2 Science Investigator-led Processing System at the NASA Goddard Space Flight Center in Greenbelt, Maryland.
format	(Attribute)	HDF

formatVersion	(Attribute)	5		
identifier_product_DOI	(Attribute)	doi:10.5067/ATLAS/ATL15.001		
language	(Attribute)	eng		
longName	(Attribute)	ATLAS/ICESat-2 L3B Seasonal, Annual, and Biennial Land Ice Height Change		
maintenanceAndUpdateFrequency	(Attribute)	asNeeded		
maintenanceDate	(Attribute)	SET_BY_META		
mission	(Attribute)	ICESat-2 > Ice, Cloud, and land Elevation Satellite-2		
pointOfContact	(Attribute)	NSIDC DAAC > NASA National Snow and Ice Data Center Distributed Active Archive Center		
purpose	(Attribute)	The purpose of ATL15 is to provide an IceSat-2 gridded satellite summary of height changes of land-based ice.		
resourceProviderOrganizationName	(Attribute)	National Aeronautics and Space Administration (NASA)		
revisionDate	(Attribute)	2021-06-07		
shortName	(Attribute)	ATL15		
status	(Attribute)	onGoing		
topicCategory	(Attribute)	geoscientificInformation		
Group: /delta_h				
description	(Attribute)	delta_h group includes variables describing height differences between the model surface at any time and the DEM surface at a resolution of 40 km.		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
Polar_Stereographic CONTIGUOUS	INTEGER_1([]) -127	None Polar_Stereographic	None	None (Source: None)
GeoTransform	(Attribute)	[-1520000. 40000. 0. -520000. 0. -40000.]		
crs_wkt	(Attribute)	PROJCS["WGS 84 / NSIDC Sea Ice Polar Stereographic North",GEOGCS["WGS 84",DATUM["WGS_1984",SPHEROID["WGS 84",6378137,298.257223563,AUTHORITY["EPSG","7030"]],AUTHORITY["EPSG","6326"]],PRIMEM["Greenwich",0,AUTHORITY["EPSG","8901"]],UNIT["degree",0.0174532925199433,AUTHORITY["EPSG","9122"]],AUTHORITY["EPSG","4326"]],PROJECTION["Polar_Stereographic"],PARAMETER["latitude_of_origin",70],PARAMETER["central_meridian",-45],PARAMETER["scale_factor",1],PARAMETER["false_easting",0],PARAMETER["false_northing",0],UNIT["metre",1,AUTHORITY["EPSG","9001"]],AXIS["X",EAST],AXIS["Y",NORTH],AUTHORITY["EPSG","3413"]]		
false_easting	(Attribute)	[0.]		
false_northing	(Attribute)	[0.]		
grid_mapping_name	(Attribute)	polar_stereographic		
inverse_flattening	(Attribute)	[298.25722356]		
latitude_of_projection_origin	(Attribute)	[90.]		
scale_factor_at_projection_origin	(Attribute)	[1.]		
semi_major_axis	(Attribute)	[6378.137]		
semi_minor_axis	(Attribute)	[6356.752]		
spatial_epsg	(Attribute)	3413		
spatial_ref	(Attribute)	PROJCS["WGS 84 / NSIDC Sea Ice Polar Stereographic North",GEOGCS["WGS 84",DATUM["WGS_1984",SPHEROID["WGS 84",6378137,298.257223563,AUTHORITY["EPSG","7030"]],AUTHORITY["EPSG","6326"]],PRIMEM["Greenwich",0,AUTHORITY["EPSG","8901"]],UNIT["degree",0.0174532925199433,AUTHORITY["EPSG","9122"]],AUTHORITY["EPSG","4326"]],PROJECTION["Polar_Stereographic"],PARAMETER["latitude_of_origin",70],PARAMETER["central_meridian",-45],PARAMETER["scale_factor",1],PARAMETER["false_easting",0],PARAMETER["false_northing",0],UNIT["metre",1,AUTHORITY["EPSG","9001"]],AXIS["X",EAST],AXIS["Y",NORTH],AUTHORITY["EPSG","3413"]]		
standard_parallel	(Attribute)	[70.]		
straight_vertical_longitude_from_pole	(Attribute)	[-45.]		
cell_area CHUNKED	FLOAT(:,:) INVALID_R4B	ice covered area at 40 km None	meters^2	Ice-covered area of each 40x40 km grid cell, accounting for the area distortion in the polar-stereographic projections (Source: ATBD section 3.4)
_Netcdf4Coordinates	(Attribute)	[3 2]		
_Netcdf4Dimid	(Attribute)	3		
datatype	(Attribute)	float32		
dimensions	(Attribute)	y,x		
grid_mapping	(Attribute)	Polar_Stereographic		
least_significant_digit	(Attribute)	4		
delta_h CHUNKED	FLOAT(:,:,:) INVALID_R4B	quarterly height change at 40 km None	meters	40x40 km average height change relative to the datum (Jan 1, 4040) surface (Source: ATBD section 3.4)
_Netcdf4Coordinates	(Attribute)	[4 3 2]		
_Netcdf4Dimid	(Attribute)	4		
datatype	(Attribute)	float32		
dimensions	(Attribute)	time,y,x		
grid_mapping	(Attribute)	Polar_Stereographic		
least_significant_digit	(Attribute)	4		
delta_h_sigma CHUNKED	FLOAT(:,:,:) INVALID_R4B	quarterly height change uncertainty at 40 km None	meters	Uncertainty in the 40x40 km average height change relative to the datum (Jan 1, 4040) surface (Source: ATBD section 3.4)
_Netcdf4Coordinates	(Attribute)	[4 3 2]		
_Netcdf4Dimid	(Attribute)	4		
datatype	(Attribute)	float32		
dimensions	(Attribute)	time,y,x		
grid_mapping	(Attribute)	Polar_Stereographic		
least_significant_digit	(Attribute)	4		
time CHUNKED	DOUBLE(:) INVALID_R8B	quarterly h(t) time None	days since 2018-01-01	Time for each node, in days since 2018-01-01:T00.00.00 UTC (Source: ATBD section 4.2)
_Netcdf4Dimid	(Attribute)	4		
datatype	(Attribute)	float64		
dimensions	(Attribute)	time		
x CHUNKED	DOUBLE(:) INVALID_R8B	polar stereographic x at 40 km projection_x_coordinate	meters	x coordinate of the 40-km cell centers, in projected coordinates (Source: ATBD section 3.2)
_Netcdf4Dimid	(Attribute)	2		
datatype	(Attribute)	float64		
dimensions	(Attribute)	x		
grid_mapping	(Attribute)	Polar_Stereographic		
y CHUNKED	DOUBLE(:) INVALID_R8B	polar stereographic y at 40 km projection_y_coordinate	meters	y coordinate of the 40-km cell centers, in projected coordinates (Source: ATBD section 3.2)
_Netcdf4Dimid	(Attribute)	3		
datatype	(Attribute)	float64		
dimensions	(Attribute)	y		
grid_mapping	(Attribute)	Polar_Stereographic		
Group: /dhdt_lag1				
description	(Attribute)	dhdt_lag1 group includes variables describing height difference rates, at a resolution of 40 km, between subsequent quarterly height-difference surfaces.		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
Polar_Stereographic CONTIGUOUS	INTEGER_1([]) -127	None Polar_Stereographic	None	None (Source: None)
GeoTransform	(Attribute)	[-1520000. 40000. 0. -520000. 0. -40000.]		
crs_wkt	(Attribute)	PROJCS["WGS 84 / NSIDC Sea Ice Polar Stereographic North",GEOGCS["WGS 84",DATUM["WGS_1984",SPHEROID["WGS 84",6378137,298.257223563,AUTHORITY["EPSG","7030"]],AUTHORITY["EPSG","6326"]],PRIMEM["Greenwich",0,AUTHORITY["EPSG","8901"]],UNIT["degree",0.0174532925199433,AUTHORITY["EPSG","9122"]],AUTHORITY["EPSG","4326"]],PROJECTION["Polar_Stereographic"],PARAMETER["latitude_of_origin",70],PARAMETER["central_meridian",-45],PARAMETER["scale_factor",1],PARAMETER["false_easting",0],PARAMETER["false_northing",0],UNIT["metre",1,AUTHORITY["EPSG","9001"]],AXIS["X",EAST],AXIS["Y",NORTH],AUTHORITY["EPSG","3413"]]		
false_easting	(Attribute)	[0.]		
false_northing	(Attribute)	[0.]		
grid_mapping_name	(Attribute)	polar_stereographic		
inverse_flattening	(Attribute)	[298.25722356]		
latitude_of_projection_origin	(Attribute)	[90.]		
scale_factor_at_projection_origin	(Attribute)	[1.]		
semi_major_axis	(Attribute)	[6378.137]		
semi_minor_axis	(Attribute)	[6356.752]		
spatial_epsg	(Attribute)	3413		
spatial_ref	(Attribute)	PROJCS["WGS 84 / NSIDC Sea Ice Polar Stereographic North",GEOGCS["WGS 84",DATUM["WGS_1984",SPHEROID["WGS 84",6378137,298.257223563,AUTHORITY["EPSG","7030"]],AUTHORITY["EPSG","6326"]],PRIMEM["Greenwich",0,AUTHORITY["EPSG","8901"]],UNIT["degree",0.0174532925199433,AUTHORITY["EPSG","9122"]],AUTHORITY["EPSG","4326"]],PROJECTION["Polar_Stereographic"],PARAMETER["latitude_of_origin",70],PARAMETER["central_meridian",-45],PARAMETER["scale_factor",1],PARAMETER["false_easting",0],PARAMETER["false_northing",0],UNIT["metre",1,AUTHORITY["EPSG","9001"]],AXIS["X",EAST],AXIS["Y",NORTH],AUTHORITY["EPSG","3413"]]		
standard_parallel	(Attribute)	[70.]		
straight_vertical_longitude_from_pole	(Attribute)	[-45.]		
dhdt CHUNKED	FLOAT(:,:,:) INVALID_R4B	quarterly height-change rate at 40 km None	meters years^-1	40x40 km average quarterly height change rate (Source: ATBD section 3.4)
_Netcdf4Coordinates	(Attribute)	[7 6 5]		
_Netcdf4Dimid	(Attribute)	7		
datatype	(Attribute)	float32		
dimensions	(Attribute)	time,y,x		
grid_mapping	(Attribute)	Polar_Stereographic		
least_significant_digit	(Attribute)	4		
dhdt_sigma CHUNKED	FLOAT(:,:,:) INVALID_R4B	quarterly height-change rate uncertainty at 40 km None	meters years^-1	Uncertainty in the 40x40 km average quarterly height change rate (Source: ATBD section 3.4)
_Netcdf4Coordinates	(Attribute)	[7 6 5]		
_Netcdf4Dimid	(Attribute)	7		
datatype	(Attribute)	float32		
dimensions	(Attribute)	time,y,x		

grid_mapping	(Attribute)	Polar_Stereographic		
least_significant_digit	(Attribute)	4		
time CHUNKED	DOUBLE(:) INVALID_R8B	quarterly dh/dt time None	days since 2018-01-01	Time for the midpoint of each quarterly height-change rate, in days since 2018-01-01:T00.00.00 UTC (Source: ATBD section 4.2)
_Netcdf4Dimid	(Attribute)	7		
datatype	(Attribute)	float64		
dimensions	(Attribute)	time		
x CHUNKED	DOUBLE(:) INVALID_R8B	polar stereographic x at 40 km projection_x_coordinate	meters	x coordinate of the 40-km cell centers, in projected coordinates (Source: ATBD section 3.2)
_Netcdf4Dimid	(Attribute)	5		
datatype	(Attribute)	float64		
dimensions	(Attribute)	x		
grid_mapping	(Attribute)	Polar_Stereographic		
y CHUNKED	DOUBLE(:) INVALID_R8B	polar stereographic y at 40 km projection_y_coordinate	meters	y coordinate of the 40-km cell centers, in projected coordinates (Source: ATBD section 3.2)
_Netcdf4Dimid	(Attribute)	6		
datatype	(Attribute)	float64		
dimensions	(Attribute)	y		
grid_mapping	(Attribute)	Polar_Stereographic		
Group: /dhdt_lag4				
description	(Attribute)	dhdt_lag4 group includes variables describing annual height-change-rate estimates, at a resolution of 40 km.		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
Polar_Stereographic CONTIGUOUS	INTEGER_1([]) -127	None Polar_Stereographic	None	None (Source: None)
GeoTransform	(Attribute)	[-1520000. 40000. 0. -520000. 0. -40000.]		
crs_wkt	(Attribute)	PROJCS["WGS 84 / NSIDC Sea Ice Polar Stereographic North",GEOGCS["WGS 84",DATUM["WGS_1984",SPHEROID["WGS 84",6378137,298.257223563,AUTHORITY["EPSG","7030"]],AUTHORITY["EPSG","6326"]],PRIMEM["Greenwich",0,AUTHORITY["EPSG","8901"]],UNIT["degree",0.0174532925199433,AUTHORITY["EPSG","9122"]],AUTHORITY["EPSG","4326"]],PROJECTION["Polar_Stereographic"],PARAMETER["latitude_of_origin",70],PARAMETER["central_meridian",-45],PARAMETER["scale_factor",1],PARAMETER["false_easting",0],PARAMETER["false_northing",0],UNIT["metre",1,AUTHORITY["EPSG","9001"]],AXIS["X",EAST],AXIS["Y",NORTH],AUTHORITY["EPSG","3413"]]		
false_easting	(Attribute)	[0.]		
false_northing	(Attribute)	[0.]		
grid_mapping_name	(Attribute)	polar_stereographic		
inverse_flattening	(Attribute)	[298.25722356]		
latitude_of_projection_origin	(Attribute)	[90.]		
scale_factor_at_projection_origin	(Attribute)	[1.]		
semi_major_axis	(Attribute)	[6378.137]		
semi_minor_axis	(Attribute)	[6356.752]		
spatial_epsg	(Attribute)	3413		
spatial_ref	(Attribute)	PROJCS["WGS 84 / NSIDC Sea Ice Polar Stereographic North",GEOGCS["WGS 84",DATUM["WGS_1984",SPHEROID["WGS 84",6378137,298.257223563,AUTHORITY["EPSG","7030"]],AUTHORITY["EPSG","6326"]],PRIMEM["Greenwich",0,AUTHORITY["EPSG","8901"]],UNIT["degree",0.0174532925199433,AUTHORITY["EPSG","9122"]],AUTHORITY["EPSG","4326"]],PROJECTION["Polar_Stereographic"],PARAMETER["latitude_of_origin",70],PARAMETER["central_meridian",-45],PARAMETER["scale_factor",1],PARAMETER["false_easting",0],PARAMETER["false_northing",0],UNIT["metre",1,AUTHORITY["EPSG","9001"]],AXIS["X",EAST],AXIS["Y",NORTH],AUTHORITY["EPSG","3413"]]		
standard_parallel	(Attribute)	[70.]		
straight_vertical_longitude_from_pole	(Attribute)	[-45.]		
dhdt CHUNKED	FLOAT(:,:,:) INVALID_R4B	annual height-change rate at 40 km None	meters years^-1	40x40 km average annual height change rate (Source: ATBD section 3.4)
_Netcdf4Coordinates	(Attribute)	[10 9 8]		
_Netcdf4Dimid	(Attribute)	10		
datatype	(Attribute)	float32		
dimensions	(Attribute)	time,y,x		
grid_mapping	(Attribute)	Polar_Stereographic		
least_significant_digit	(Attribute)	4		
dhdt_sigma CHUNKED	FLOAT(:,:,:) INVALID_R4B	annual height-change rate uncertainty at 40 km None	meters years^-1	Uncertainty in the 40x40 km average annual height change rate (Source: ATBD section 3.4)
_Netcdf4Coordinates	(Attribute)	[10 9 8]		
_Netcdf4Dimid	(Attribute)	10		
datatype	(Attribute)	float32		
dimensions	(Attribute)	time,y,x		
grid_mapping	(Attribute)	Polar_Stereographic		
least_significant_digit	(Attribute)	4		
time CHUNKED	DOUBLE(:) INVALID_R8B	annual dh/dt time None	days since 2018-01-01	Time for the midpoint of each annual height-change rate, in days since 2018-01-01:T00.00.00 UTC (Source: ATBD section 4.2)
_Netcdf4Dimid	(Attribute)	10		
datatype	(Attribute)	float64		
dimensions	(Attribute)	time		
x CHUNKED	DOUBLE(:) INVALID_R8B	polar stereographic x at 40 km projection_x_coordinate	meters	x coordinate of the 40-km cell centers, in projected coordinates (Source: ATBD section 3.2)
_Netcdf4Dimid	(Attribute)	8		
datatype	(Attribute)	float64		
dimensions	(Attribute)	x		
grid_mapping	(Attribute)	Polar_Stereographic		
y CHUNKED	DOUBLE(:) INVALID_R8B	polar stereographic y at 40 km projection_y_coordinate	meters	y coordinate of the 40-km cell centers, in projected coordinates (Source: ATBD section 3.2)
_Netcdf4Dimid	(Attribute)	9		
datatype	(Attribute)	float64		
dimensions	(Attribute)	y		
grid_mapping	(Attribute)	Polar_Stereographic		
Group: /dhdt_lag8				
description	(Attribute)	dhdt_lag8 group includes variables describing biennial height-change-rate estimates, at a resolution of 40 km.		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
Polar_Stereographic CONTIGUOUS	INTEGER_1([]) -127	None Polar_Stereographic	None	None (Source: None)
GeoTransform	(Attribute)	[-1520000. 40000. 0. -520000. 0. -40000.]		
crs_wkt	(Attribute)	PROJCS["WGS 84 / NSIDC Sea Ice Polar Stereographic North",GEOGCS["WGS 84",DATUM["WGS_1984",SPHEROID["WGS 84",6378137,298.257223563,AUTHORITY["EPSG","7030"]],AUTHORITY["EPSG","6326"]],PRIMEM["Greenwich",0,AUTHORITY["EPSG","8901"]],UNIT["degree",0.0174532925199433,AUTHORITY["EPSG","9122"]],AUTHORITY["EPSG","4326"]],PROJECTION["Polar_Stereographic"],PARAMETER["latitude_of_origin",70],PARAMETER["central_meridian",-45],PARAMETER["scale_factor",1],PARAMETER["false_easting",0],PARAMETER["false_northing",0],UNIT["metre",1,AUTHORITY["EPSG","9001"]],AXIS["X",EAST],AXIS["Y",NORTH],AUTHORITY["EPSG","3413"]]		
false_easting	(Attribute)	[0.]		
false_northing	(Attribute)	[0.]		
grid_mapping_name	(Attribute)	polar_stereographic		
inverse_flattening	(Attribute)	[298.25722356]		
latitude_of_projection_origin	(Attribute)	[90.]		
scale_factor_at_projection_origin	(Attribute)	[1.]		
semi_major_axis	(Attribute)	[6378.137]		
semi_minor_axis	(Attribute)	[6356.752]		
spatial_epsg	(Attribute)	3413		
spatial_ref	(Attribute)	PROJCS["WGS 84 / NSIDC Sea Ice Polar Stereographic North",GEOGCS["WGS 84",DATUM["WGS_1984",SPHEROID["WGS 84",6378137,298.257223563,AUTHORITY["EPSG","7030"]],AUTHORITY["EPSG","6326"]],PRIMEM["Greenwich",0,AUTHORITY["EPSG","8901"]],UNIT["degree",0.0174532925199433,AUTHORITY["EPSG","9122"]],AUTHORITY["EPSG","4326"]],PROJECTION["Polar_Stereographic"],PARAMETER["latitude_of_origin",70],PARAMETER["central_meridian",-45],PARAMETER["scale_factor",1],PARAMETER["false_easting",0],PARAMETER["false_northing",0],UNIT["metre",1,AUTHORITY["EPSG","9001"]],AXIS["X",EAST],AXIS["Y",NORTH],AUTHORITY["EPSG","3413"]]		
standard_parallel	(Attribute)	[70.]		
straight_vertical_longitude_from_pole	(Attribute)	[-45.]		
dhdt CHUNKED	FLOAT(:,:,:) INVALID_R4B	biennial height-change rate at 40 km None	meters years^-1	40x40 km average biennial height change rate (Source: ATBD section 3.4)
_Netcdf4Coordinates	(Attribute)	[13 12 11]		
_Netcdf4Dimid	(Attribute)	13		
datatype	(Attribute)	float32		
dimensions	(Attribute)	time,y,x		
grid_mapping	(Attribute)	Polar_Stereographic		
least_significant_digit	(Attribute)	4		
dhdt_sigma CHUNKED	FLOAT(:,:,:) INVALID_R4B	biennial height-change rate uncertainty at 40 km None	meters years^-1	Uncertainty in the 40x40 km average biennial height change rate (Source: ATBD section 3.4)
_Netcdf4Coordinates	(Attribute)	[13 12 11]		
_Netcdf4Dimid	(Attribute)	13		
datatype	(Attribute)	float32		
dimensions	(Attribute)	time,y,x		
grid_mapping	(Attribute)	Polar_Stereographic		
least_significant_digit	(Attribute)	4		
time CHUNKED	DOUBLE(:) INVALID_R8B	biennial dh/dt time None	days since 2018-01-01	Time for the midpoint of each biennial height-change rate, in days since 2018-01-01:T00.00.00 UTC (Source: ATBD section 4.2)
_Netcdf4Dimid	(Attribute)	13		

datatype	(Attribute)	float64		
dimensions	(Attribute)	time		
x CHUNKED	DOUBLE(:) INVALID_R8B	polar stereographic x at 40 km projection_x_coordinate	meters	x coordinate of the 40-km cell centers, in projected coordinates (Source: ATBD section 3.2)
_Netcdf4Dimid	(Attribute)	11		
datatype	(Attribute)	float64		
dimensions	(Attribute)	x		
grid_mapping	(Attribute)	Polar_Stereographic		
y CHUNKED	DOUBLE(:) INVALID_R8B	polar stereographic y at 40 km projection_y_coordinate	meters	y coordinate of the 40-km cell centers, in projected coordinates (Source: ATBD section 3.2)
_Netcdf4Dimid	(Attribute)	12		
datatype	(Attribute)	float64		
dimensions	(Attribute)	y		
grid_mapping	(Attribute)	Polar_Stereographic		
Group: /orbit_info				
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
bounding_polygon_dim1 CONTIGUOUS	INTEGER(4) -2147483647	None None	None	None (Source: None)
_Netcdf4Dimid	(Attribute)	15		
bounding_polygon_lat1 CONTIGUOUS	FLOAT(4) 9.9692099683868690e+36	None None	None	None (Source: None)
_Netcdf4Dimid	(Attribute)	15		
bounding_polygon_lon1 CONTIGUOUS	FLOAT(4) 9.9692099683868690e+36	None None	None	None (Source: None)
_Netcdf4Dimid	(Attribute)	15		
Group: /quality_assessment				
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
phony_dim_1 CONTIGUOUS	None(1)	None None	None	None (Source: None)
_Netcdf4Dimid	(Attribute)	14		
qa_granule_fail_reason CONTIGUOUS	INTEGER(1) -2147483647	None None	None	None (Source: None)
_Netcdf4Dimid	(Attribute)	14		
qa_granule_pass_fail CONTIGUOUS	INTEGER(1) -2147483647	None None	None	None (Source: None)
_Netcdf4Dimid	(Attribute)	14		
Group: /tile_stats				
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
N_bias CHUNKED	INTEGER(:,:) INVALID_I4B	N_bias None	counts	number of bias values solved for (Source: 4.1.2.1)
_Netcdf4Coordinates	(Attribute)	[0 1]		
_Netcdf4Dimid	(Attribute)	0		
datatype	(Attribute)	int32		
dimensions	(Attribute)	y, x		
grid_mapping	(Attribute)	Polar_Stereographic		
N_data CHUNKED	INTEGER(:,:) INVALID_I4B	N_data None	counts	number of data used in fit (Source: 4.1.2.1)
_Netcdf4Coordinates	(Attribute)	[0 1]		
_Netcdf4Dimid	(Attribute)	0		
datatype	(Attribute)	int32		
dimensions	(Attribute)	y, x		
grid_mapping	(Attribute)	Polar_Stereographic		
Polar_Stereographic CONTIGUOUS	INTEGER_1([]) -127	None Polar_Stereographic	None	None (Source: None)
crs_wkt	(Attribute)	PROJCS["WGS 84 / NSIDC Sea Ice Polar Stereographic North",GEOGCS["WGS 84",DATUM["WGS_1984",SPHEROID["WGS 84",6378137,298.257223563,AUTHORITY["EPSG","7030"]],AUTHORITY["EPSG","6326"]],PRIMEM["Greenwich",0,AUTHORITY["EPSG","8901"]],UNIT["degree",0.0174532925199433,AUTHORITY["EPSG","9122"]],AUTHORITY["EPSG","4326"]],PROJECTION["Polar_Stereographic"],PARAMETER["latitude_of_origin",70],PARAMETER["central_meridian",-45],PARAMETER["scale_factor",1],PARAMETER["false_easting",0],PARAMETER["false_northing",0],UNIT["metre",1,AUTHORITY["EPSG","9001"]],AXIS["X",EAST],AXIS["Y",NORTH],AUTHORITY["EPSG","3413"]]		
false_easting	(Attribute)	[0.]		
false_northing	(Attribute)	[0.]		
grid_mapping_name	(Attribute)	polar_stereographic		
inverse_flattening	(Attribute)	[298.25722356]		
latitude_of_projection_origin	(Attribute)	[90.]		
scale_factor_at_projection_origin	(Attribute)	[1.]		
semi_major_axis	(Attribute)	[6378.137]		
semi_minor_axis	(Attribute)	[6356.752]		
spatial_epsg	(Attribute)	3413		
spatial_ref	(Attribute)	PROJCS["WGS 84 / NSIDC Sea Ice Polar Stereographic North",GEOGCS["WGS 84",DATUM["WGS_1984",SPHEROID["WGS 84",6378137,298.257223563,AUTHORITY["EPSG","7030"]],AUTHORITY["EPSG","6326"]],PRIMEM["Greenwich",0,AUTHORITY["EPSG","8901"]],UNIT["degree",0.0174532925199433,AUTHORITY["EPSG","9122"]],AUTHORITY["EPSG","4326"]],PROJECTION["Polar_Stereographic"],PARAMETER["latitude_of_origin",70],PARAMETER["central_meridian",-45],PARAMETER["scale_factor",1],PARAMETER["false_easting",0],PARAMETER["false_northing",0],UNIT["metre",1,AUTHORITY["EPSG","9001"]],AXIS["X",EAST],AXIS["Y",NORTH],AUTHORITY["EPSG","3413"]]		
standard_parallel	(Attribute)	[70.]		
straight_vertical_longitude_from_pole	(Attribute)	[-45.]		
RMS_bias CHUNKED	FLOAT(:,:) INVALID_R4B	RMS_bias None	meters	root mean of squared, scaled bias values (Source: 4.1.2.1)
_Netcdf4Coordinates	(Attribute)	[0 1]		
_Netcdf4Dimid	(Attribute)	0		
datatype	(Attribute)	float32		
dimensions	(Attribute)	y, x		
grid_mapping	(Attribute)	Polar_Stereographic		
RMS_d2z0dx2 CHUNKED	FLOAT(:,:) INVALID_R4B	RMS_d2z0dx2 None	meters^-1	root mean square of the constraint equation residuals for the second spatial derivative of z0 (Source: 4.1.2.1)
_Netcdf4Coordinates	(Attribute)	[0 1]		
_Netcdf4Dimid	(Attribute)	0		
datatype	(Attribute)	float32		
dimensions	(Attribute)	y, x		
grid_mapping	(Attribute)	Polar_Stereographic		
RMS_d2zdt2 CHUNKED	FLOAT(:,:) INVALID_R4B	RMS_d2zdt2 None	meters years^2	root mean square of the constraint equation residuals for the second temporal derivative of dz (Source: 4.1.2.1)
_Netcdf4Coordinates	(Attribute)	[0 1]		
_Netcdf4Dimid	(Attribute)	0		
datatype	(Attribute)	float32		
dimensions	(Attribute)	y, x		
grid_mapping	(Attribute)	Polar_Stereographic		
RMS_d2zdx2dt CHUNKED	FLOAT(:,:) INVALID_R4B	RMS_d2zdx2dt None	meters^-1 years^-1	root mean square of the constraint equation residuals for the second temporal derivative of dz/dt (Source: 4.1.2.1)
_Netcdf4Coordinates	(Attribute)	[0 1]		
_Netcdf4Dimid	(Attribute)	0		
datatype	(Attribute)	float32		
dimensions	(Attribute)	y, x		
grid_mapping	(Attribute)	Polar_Stereographic		
RMS_data CHUNKED	FLOAT(:,:) INVALID_R4B	RMS_data None	meters	root mean of squared, scaled data misfits (Source: 4.1.2.1)
_Netcdf4Coordinates	(Attribute)	[0 1]		
_Netcdf4Dimid	(Attribute)	0		
datatype	(Attribute)	float32		
dimensions	(Attribute)	y, x		
grid_mapping	(Attribute)	Polar_Stereographic		
sigma_tt CHUNKED	FLOAT(:,:) INVALID_R4B	sigma_tt None	meters years^-2	weighting values for the constraint equations on the second temporal derivatives of the surface height (Source: 4.1.2.1)
_Netcdf4Coordinates	(Attribute)	[0 1]		
_Netcdf4Dimid	(Attribute)	0		
datatype	(Attribute)	float32		
dimensions	(Attribute)	y, x		
grid_mapping	(Attribute)	Polar_Stereographic		
sigma_xx0 CHUNKED	FLOAT(:,:) INVALID_R4B	sigma_xx0 None	meters^-1	weighting values for the constraint equations on the second spatial derivatives of the DEM (Source: 4.1.2.1)

_Netcdf4Coordinates	(Attribute)	[0 1]		
_Netcdf4Dimid	(Attribute)	0		
datatype	(Attribute)	float32		
dimensions	(Attribute)	y, x		
grid_mapping	(Attribute)	Polar_Stereographic		
sigma_xxt CHUNKED	FLOAT(:,:) INVALID_R4B	sigma_xxt None	meters^-1 years^-1	weighting values for the constraint equations on the second spatial derivatives of the height-change rate (Source: 4.1.2.1)
_Netcdf4Coordinates	(Attribute)	[0 1]		
_Netcdf4Dimid	(Attribute)	0		
datatype	(Attribute)	float32		
dimensions	(Attribute)	y, x		
grid_mapping	(Attribute)	Polar_Stereographic		
x CHUNKED	DOUBLE(:) INVALID_R8B	x None	meters	tile-center x-coordinate, in projected coordinates (Source: 4.1.2.1)
_Netcdf4Dimid	(Attribute)	1		
datatype	(Attribute)	float64		
dimensions	(Attribute)	x		
grid_mapping	(Attribute)	Polar_Stereographic		
y CHUNKED	DOUBLE(:) INVALID_R8B	y None	meters	tile-center y-coordinate, in projected coordinates (Source: 4.1.2.1)
_Netcdf4Dimid	(Attribute)	0		
datatype	(Attribute)	float64		
dimensions	(Attribute)	y		
grid_mapping	(Attribute)	Polar_Stereographic		