ATL20 Product Data Dictionary

Date Generated : 2021-07-27T12:33:42

description	(Attribute)	This data set (ATL20) contains daily and monthly gridded sea ice freeboards.
level	(Attribute)	L3B
short_name	(Attribute)	ATL20
title	(Attribute)	SET_BY_META
Group: /		This data set (ATL20) contains daily and monthly gridded sea ice freeboards.
Conventions	(Attribute)	CF-1.7
citation	(Attribute)	SET_BY_META
contributor_name	(Attribute)	Alek Petty (alek.a.petty@nasa.gov), Ron Kwok (rkwok01@uw.edu), Marco Bagnardi (marco.bagnardi@nasa.gov), Alvaro Ivanoff (alvaro.ivanoff-1@nasa.gov), Nathan Kurtz (nathan.t.kurtz@nasa.gov), Jeff Lee (jeffrey.e.lee@nasa.gov), Jesse Wimert (jesse.wimert@us.kbr.com), David Hancock (david.w.hancock@nasa.gov)
contributor_role	(Attribute)	Investigator, Investigator, Investigator, Investigator, Investigator, Algorithm Developer, Algorithm Developer, Algorithm Developer
creator_name	(Attribute)	SET_BY_META
date_created	(Attribute)	SET_BY_PGE
date_type	(Attribute)	UTC
geospatial_lat_max	(Attribute)	0.0
geospatial_lat_min	(Attribute)	0.0
geospatial_lat_units	(Attribute)	degrees_north
geospatial_lon_max	(Attribute)	0.0
geospatial_lon_min	(Attribute)	0.0
geospatial_lon_units	(Attribute)	degrees_east
granule_type	(Attribute)	ATL20
hdfversion	(Attribute)	SET_BY_PGE
history	(Attribute)	SET_BY_PGE
identifier_product_doi	(Attribute)	10.5067/ATLAS/ATL20.001
identifier_product_doi_authority	(Attribute)	http://dx.doi.org
identifier_product_format_version	(Attribute)	SET_BY_PGE
identifier_product_type	(Attribute)	ATL20
institution	(Attribute)	SET_BY_META
instrument	(Attribute)	SET_BY_META
keywords	(Attribute)	SET_BY_META
keywords_vocabulary	(Attribute)	SET_BY_META
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
platform	(Attribute)	SET_BY_META
processing_level	(Attribute)	L3B
project	(Attribute)	SET_BY_META
publisher_email	(Attribute)	SET_BY_META

publisher_name	(Attribute)	SET_BY_META		
publisher_url	(Attribute)	SET_BY_META		
references	(Attribute)	SET_BY_META		
source	(Attribute)	SET_BY_META		
spatial_coverage_type	(Attribute)	Horizontal		
standard_name_vocabulary	(Attribute)	CF-1.6		
summary	(Attribute)	SET_BY_META		
time_coverage_duration	(Attribute)	SET_BY_PGE		
time_coverage_end	(Attribute)	SET_BY_PGE		
time_coverage_start	(Attribute)	SET_BY_PGE		
time_type	(Attribute)	CCSDS UTC-A		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
grid_lat CHUNKED	DOUBLE(:,:)	gridded latitude None	degrees_north	gridded latitude (Source: Sea Ice ATBD)
grid_lon CHUNKED	DOUBLE(:,:)	gridded longitude None	degrees_east	gridded longitude (Source: Sea Ice ATBD)
grid_x CHUNKED	DOUBLE(:)	gridded x projection_x_coordinate	meters	Center of grid cell X values (Source: Sea Ice ATBD)
axis	(Attribute)	X		
grid_mapping	(Attribute)	crs		
grid_y CHUNKED	DOUBLE(:)	gridded y projection_y_coordinate	meters	Center of grid cell Y values (Source: Sea Ice ATBD)
axis	(Attribute)	Y		
grid_mapping	(Attribute)	crs		
land_mask_map CHUNKED	INTEGER(:,:) INVALID_I4B	land mask map None	1	Provides a gridded map which describes each grid cell as land (=1) or ocean/sea ice (=0) (Source: Sea Ice ATBD)
Group: /ancillary_data		Contains information ancillary to the data product. This may include product characteristics, instrument characteristics and/or processing constants.		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
atlas_sdp_gps_epoch COMPACT	DOUBLE(1)	ATLAS Epoch Offset None	seconds since 1980-01-06T00:00:00.000000Z	Number of GPS seconds between the GPS epoch (1980-01-06T00:00:00.000000Z UTC) and the ATLAS Standard Data Product (SDP) epoch (2018-01-01:T00.00.00.000000 UTC). Add this value to delta time parameters to compute full gps_seconds (relative to the GPS epoch) for each data point. (Source: Operations)
control CONTIGUOUS	STRING(1)	Control File None	1	PGE-specific control file used to generate this granule. To re-use, replace breaks (BR) with linefeeds. (Source: Operations)
data_end_utc COMPACT	STRING(1)	End UTC Time of Granule (CCSDS-A, Actual) None	1	UTC (in CCSDS-A format) of the last data point within the granule. (Source: Derived)
data_start_utc COMPACT	STRING(1)	Start UTC Time of Granule (CCSDS-A, Actual) None	1	UTC (in CCSDS-A format) of the first data point within the granule. (Source: Derived)
end_cycle	INTEGER(1)	Ending Cycle	1	The ending cycle number associated with the data

COMPACT		None		contained within this granule. The cycle number is the counter of the number of 91-day repeat cycles completed by the mission. (Source: Derived)
end_delta_time COMPACT	DOUBLE(1)	ATLAS End Time (Actual) time	seconds since 2018-01-01	Number of GPS seconds since the ATLAS SDP epoch at the last data point in the file. The ATLAS Standard Data Products (SDP) epoch offset is defined within /ancillary_data/atlas_sdp_gps_epoch as the number of GPS seconds between the GPS epoch (1980-01-06T00:00:00.000000Z UTC) and the ATLAS SDP epoch. By adding the offset contained within atlas_sdp_gps_epoch to delta time parameters, the time in gps_seconds relative to the GPS epoch can be computed. (Source: Derived)
end_geoseg COMPACT	INTEGER(1)	Ending Geolocation Segment None	1	The ending geolocation segment number associated with the data contained within this granule. ICESat granule geographic regions are further refined by geolocation segments. During the geolocation process, a geolocation segment is created approximately every 20m from the start of the orbit to the end. The geolocation segments help align the ATLAS strong a weak beams and provide a common segment length for the L2 and higher products. The geolocation segment indices differ slightly from orbit-to-orbit because of the irregular shape of the Earth. The geolocation segment indices on ATL01 and ATL02 are only approximate because beams have not been aligned at the time of their creation. (Source: Derived)
end_gpssow COMPACT	DOUBLE(1)	Ending GPS SOW of Granule (Actual) None	seconds	GPS seconds-of-week of the last data point in the granule. (Source: Derived)
end_gpsweek COMPACT	INTEGER(1)	Ending GPSWeek of Granule (Actual) None	weeks from 1980-01-06	GPS week number of the last data point in the granule. (Source: Derived)
end_orbit COMPACT	INTEGER(1)	Ending Orbit Number None	1	The ending orbit number associated with the data contained within this granule. The orbit number increments each time the spacecraft completes a full orbit of the Earth. (Source: Derived)
end_region COMPACT	INTEGER(1)	Ending Region None	1	The ending product-specific region number associated with the data contained within this granule. ICESat-2 data products are separated by geographic regions. The data contained within a specific region are the same for ATL01 and ATL02. ATL03 regions differ slightly because of different geolocation segment locations caused by the irregular shape of the Earth. The region indices for other products are completely independent. (Source: Derived)
end_rgt COMPACT	INTEGER(1)	Ending Reference Groundtrack None	1	The ending reference groundtrack (RGT) number associated with the data contained within this granule. There are 1387 reference groundtrack in the ICESat-2 repeat orbit. The reference groundtrack increments each time the spacecraft completes a full orbit of the Earth and resets to 1 each time the spacecraft completes a full cycle. (Source: Derived)
granule_end_utc COMPACT	STRING(1)	End UTC Time of Granule (CCSDS-A, Requested) None	1	Requested end time (in UTC CCSDS-A) of this granule. (Source: Derived)

granule_start_utc COMPACT	STRING(1)	Start UTC Time of Granule (CCSDS-A, Requested) None	1	Requested start time (in UTC CCSDS-A) of this granule. (Source: Derived)
release COMPACT	STRING(1)	Release Number None	1	Release number of the granule. The release number is incremented when the software or ancillary data used to create the granule has been changed. (Source: Operations)
start_cycle COMPACT	INTEGER(1)	Starting Cycle None	1	The starting cycle number associated with the data contained within this granule. The cycle number is the counter of the number of 91-day repeat cycles completed by the mission. (Source: Derived)
start_delta_time COMPACT	DOUBLE(1)	ATLAS Start Time (Actual) time	seconds since 2018-01-01	Number of GPS seconds since the ATLAS SDP epoch at the first data point in the file. The ATLAS Standard Data Products (SDP) epoch offset is defined within /ancillary_data/atlas_sdp_gps_epoch as the number of GPS seconds between the GPS epoch (1980-01-06T00:00:00.000000Z UTC) and the ATLAS SDP epoch. By adding the offset contained within atlas_sdp_gps_epoch to delta time parameters, the time in gps_seconds relative to the GPS epoch can be computed. (Source: Derived)
start_geoseg COMPACT	INTEGER(1)	Starting Geolocation Segment None	1	The starting geolocation segment number associated with the data contained within this granule. ICESat granule geographic regions are further refined by geolocation segments. During the geolocation process, a geolocation segment is created approximately every 20m from the start of the orbit to the end. The geolocation segments help align the ATLAS strong a weak beams and provide a common segment length for the L2 and higher products. The geolocation segment indices differ slightly from orbit-to-orbit because of the irregular shape of the Earth. The geolocation segment indices on ATL01 and ATL02 are only approximate because beams have not been aligned at the time of their creation. (Source: Derived)
start_gpssow COMPACT	DOUBLE(1)	Start GPS SOW of Granule (Actual) None	seconds	GPS seconds-of-week of the first data point in the granule. (Source: Derived)
start_gpsweek COMPACT	INTEGER(1)	Start GPSWeek of Granule (Actual) None	weeks from 1980-01-06	GPS week number of the first data point in the granule. (Source: Derived)
start_orbit COMPACT	INTEGER(1)	Starting Orbit Number None	1	The starting orbit number associated with the data contained within this granule. The orbit number increments each time the spacecraft completes a full orbit of the Earth. (Source: Derived)
start_region COMPACT	INTEGER(1)	Starting Region None	1	The starting product-specific region number associated with the data contained within this granule. ICESat-2 data products are separated by geographic regions. The data contained within a specific region are the same for ATL01 and ATL02. ATL03 regions differ slightly because of different geolocation segment locations caused by the irregular shape of the Earth. The region indices for other products are completely independent. (Source: Derived)
start_rgt COMPACT	INTEGER(1)	Starting Reference Groundtrack None	1	The starting reference groundtrack (RGT) number associated with the data contained within this granule. There are 1387 reference groundtrack in the

				ICESat-2 repeat orbit. The reference groundtrack increments each time the spacecraft completes a full orbit of the Earth and resets to 1 each time the spacecraft completes a full cycle. (Source: Derived)
version COMPACT	STRING(1)	Version None	1	Version number of this granule within the release. It is a sequential number corresponding to the number of times the granule has been reprocessed for the current release. (Source: Operations)
Group: /ancillary_data/beam_selection		These parameters control which beams from ATL10 are included in the output ATL20. Note that beams 1, 3, and 5 are strong beams, and beams 2, 4, and 6 are weak beams.		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
proc_atl20_spot_1 COMPACT	INTEGER_1(1)	Processing Flag for Spot 1 for ATL20 None	1	Indicates if spot 1 is processed for the ATL20 product (Source: Operations); (Meanings: [0 1]) (Values: ['not_processed', 'processed'])
proc_atl20_spot_2 COMPACT	INTEGER_1(1)	Processing Flag for Spot 2 for ATL20 None	1	Indicates if spot 2 is processed for the ATL20 product (Source: Operations); (Meanings: [0 1]) (Values: ['not_processed', 'processed'])
proc_atl20_spot_3 COMPACT	INTEGER_1(1)	Processing Flag for Spot 3 for ATL20 None	1	Indicates if spot 3 is processed for the ATL20 product (Source: Operations); (Meanings: [0 1]) (Values: ['not_processed', 'processed'])
proc_atl20_spot_4 COMPACT	INTEGER_1(1)	Processing Flag for Spot 4 for ATL20 None	1	Indicates if spot 4 is processed for the ATL20 product (Source: Operations); (Meanings: [0 1]) (Values: ['not_processed', 'processed'])
proc_atl20_spot_5 COMPACT	INTEGER_1(1)	Processing Flag for Spot 5 for ATL20 None	1	Indicates if spot 5 is processed for the ATL20 product (Source: Operations); (Meanings: [0 1]) (Values: ['not_processed', 'processed'])
proc_atl20_spot_6 COMPACT	INTEGER_1(1)	Processing Flag for Spot 6 for ATL20 None	1	Indicates if spot 6 is processed for the ATL20 product (Source: Operations); (Meanings: [0 1]) (Values: ['not_processed', 'processed'])
Group: /daily		gridded daily averages		
Group: /daily/dayxx		Gridded daily averages		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
delta_time_beg COMPACT	DOUBLE(1)	Elapsed GPS seconds time	seconds since 2018-01-01	Center time of the first freeboard height segment used in this gridded composite in seconds since the ATLAS SDP GPS Epoch. The ATLAS Standard Data Products (SDP) epoch offset is defined within /ancillary_data/atlas_sdp_gps_epoch as the number of GPS seconds between the GPS epoch (1980-01-06T00:00:00.000000Z UTC) and the ATLAS SDP epoch. By adding the offset contained within atlas_sdp_gps_epoch to delta time parameters, the time in gps_seconds relative to the GPS epoch can be computed. (Source: Derived via Time Tagging)
delta_time_end COMPACT	DOUBLE(1)	Elapsed GPS seconds time	seconds since 2018-01-01	Center time of the last freeboard height segment used in this gridded composite in seconds since the ATLAS SDP GPS Epoch. The ATLAS Standard Data Products (SDP) epoch offset is defined within /ancillary_data/atlas_sdp_gps_epoch as the number of GPS seconds between the GPS epoch (1980-01-06T00:00:00.000000Z UTC) and the ATLAS SDP epoch. By adding the offset contained within atlas_sdp_gps_epoch to delta time parameters, the time in gps_seconds relative to the GPS epoch can be computed. (Source: Derived via Time Tagging)

length_sum CHUNKED	FLOAT(:,:) INVALID_R4B	daily accumulated freeboard lengths None	meters	sum of freeboard height segment lengths for each daily grid cell (Source: sea ice atbbd)
grid_mapping	(Attribute)	../../crs: ../../grid_x ../../crs: ../../grid_y		
mean_fb CHUNKED	FLOAT(:,:) INVALID_R4B	daily mean freeboard None	meters	Mean sea ice freeboard for each daily grid cell, calculated using the raw beam freeboards from the given beams (ancillary_data/beam_selection) weighted by segment length. (Source: Sea Ice ATBD)
grid_mapping	(Attribute)	../../crs: ../../grid_x ../../crs: ../../grid_y		
n_segs CHUNKED	INTEGER(:,:) INVALID_I4B	daily population count None	1	Number of sea ice segments for each daily grid cell (Source: Sea Ice ATBD)
grid_mapping	(Attribute)	../../crs: ../../grid_x ../../crs: ../../grid_y		
sigma CHUNKED	FLOAT(:,:) INVALID_R4B	daily standard deviation None	meters	Standard deviation of daily gridded freeboard height, computed following ATBD section 6.2. (Source: Sea Ice ATBD)
grid_mapping	(Attribute)	../../crs: ../../grid_x ../../crs: ../../grid_y		
Group: /monthly		Gridded Monthly averages		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
delta_time_beg COMPACT	DOUBLE(1)	Elapsed GPS seconds time	seconds since 2018-01-01	Center time of the first freeboard height segment used in this gridded composite in seconds since the ATLAS SDP GPS Epoch. The ATLAS Standard Data Products (SDP) epoch offset is defined within /ancillary_data/atlas_sdp_gps_epoch as the number of GPS seconds between the GPS epoch (1980-01-06T00:00:00.000000Z UTC) and the ATLAS SDP epoch. By adding the offset contained within atlas_sdp_gps_epoch to delta time parameters, the time in gps_seconds relative to the GPS epoch can be computed. (Source: Derived via Time Tagging)
delta_time_end COMPACT	DOUBLE(1)	Elapsed GPS seconds time	seconds since 2018-01-01	Center time of the last freeboard height segment used in this gridded composite in seconds since the ATLAS SDP GPS Epoch. The ATLAS Standard Data Products (SDP) epoch offset is defined within /ancillary_data/atlas_sdp_gps_epoch as the number of GPS seconds between the GPS epoch (1980-01-06T00:00:00.000000Z UTC) and the ATLAS SDP epoch. By adding the offset contained within atlas_sdp_gps_epoch to delta time parameters, the time in gps_seconds relative to the GPS epoch can be computed. (Source: Derived via Time Tagging)
length_sum CHUNKED	FLOAT(:,:) INVALID_R4B	monthly accumulated freeboard lengths None	meters	Sum of freeboard height segment lengths for each monthly grid cell (Source: Sea Ice ATBD)
grid_mapping	(Attribute)	../crs: ../grid_x ../crs: ../grid_y		
mean_fb CHUNKED	FLOAT(:,:) INVALID_R4B	Monthly mean freeboard None	meters	Mean sea ice freeboard for each monthly grid cell, calculated using all available daily mean freeboards and weighted by mean segment length. (Source: Sea Ice ATBD)
grid_mapping	(Attribute)	../crs: ../grid_x ../crs: ../grid_y		
n_segs CHUNKED	INTEGER(:,:) INVALID_I4B	Monthly population count None	1	number of sea ice segments for each monthly grid cell (Source: Sea Ice ATBD)
grid_mapping	(Attribute)	../crs: ../grid_x ../crs: ../grid_y		

sigma CHUNKED	FLOAT(:,:) INVALID_R4B	Monthly standard deviation None	meters	Standard deviation of monthly gridded freeboard height, computed following ATBD section 6.2. (Source: Sea Ice ATBD)
grid_mapping	(Attribute)	../crs: ../grid_x ../crs: ../grid_y		
Group: /orbit_info		Contains orbit information.		
data_rate	(Attribute)	Varies. Data are only provided when one of the stored values (besides time) changes.		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
crossing_time CHUNKED	DOUBLE(:)	Ascending Node Crossing Time time	seconds since 2018-01-01	The time, in seconds since the ATLAS SDP GPS Epoch, at which the ascending node crosses the equator. The ATLAS Standard Data Products (SDP) epoch offset is defined within /ancillary_data/atlas_sdp_gps_epoch as the number of GPS seconds between the GPS epoch (1980-01-06T00:00:00.000000Z UTC) and the ATLAS SDP epoch. By adding the offset contained within atlas_sdp_gps_epoch to delta time parameters, the time in gps_seconds relative to the GPS epoch can be computed. (Source: POD/PPD)
cycle_number CHUNKED	INTEGER_1(:)	Cycle Number None	1	A count of the number of exact repeats of this reference orbit. (Source: Operations)
lan CHUNKED	DOUBLE(:)	Ascending Node Longitude None	degrees_east	Longitude at the ascending node crossing. (Source: POD/PPD)
orbit_number CHUNKED	UINT_2_LE(:)	Orbit Number None	1	Unique identifying number for each planned ICESat-2 orbit. (Source: Operations)
rgt CHUNKED	INTEGER_2(:)	Reference Ground track None	1	The reference ground track (RGT) is the track on the earth at which a specified unit vector within the observatory is pointed. Under nominal operating conditions, there will be no data collected along the RGT, as the RGT is spanned by GT3 and GT4. During slews or off-pointing, it is possible that ground tracks may intersect the RGT. The ICESat-2 mission has 1387 RGTs. (Source: POD/PPD)
sc_orient CHUNKED	INTEGER_1(:)	Spacecraft Orientation None	1	This parameter tracks the spacecraft orientation between forward, backward and transitional flight modes. ICESat-2 is considered to be flying forward when the weak beams are leading the strong beams; and backward when the strong beams are leading the weak beams. ICESat-2 is considered to be in transition while it is maneuvering between the two orientations. Science quality is potentially degraded while in transition mode. (Source: POD/PPD); (Meanings: [0 1 2]) (Values: ['backward', 'forward', 'transition'])
sc_orient_time CHUNKED	DOUBLE(:)	Time of Last Spacecraft Orientation Change time	seconds since 2018-01-01	The time of the last spacecraft orientation change between forward, backward and transitional flight modes, expressed in seconds since the ATLAS SDP GPS Epoch. ICESat-2 is considered to be flying forward when the weak beams are leading the strong beams; and backward when the strong beams are leading the weak beams. ICESat-2 is considered to be in transition while it is maneuvering between the two orientations. Science quality is potentially degraded while in transition mode. The ATLAS Standard Data Products (SDP) epoch offset is defined within /ancillary_data/atlas_sdp_gps_epoch as the number of GPS seconds between the GPS

				epoch (1980-01-06T00:00:00.000000Z UTC) and the ATLAS SDP epoch. By adding the offset contained within atlas_sdp_gps_epoch to delta time parameters, the time in gps_seconds relative to the GPS epoch can be computed. (Source: POD/PPD)
Group: /quality_assessment		Contains quality assessment data. This may include QA counters, QA along-track data and/or QA summary data.		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
qa_granule_fail_reason COMPACT	INTEGER(1)	Granule Failure Reason None	1	Flag indicating granule failure reason. 0=no failure; 1=processing error; 2=Insufficient output data was generated; 3=TBD Failure; 4=TBD_Failure; 5=other failure. (Source: Operations); (Meanings: [0 1 2 3 4 5]) (Values: ['no_failure', 'PROCESS_ERROR', 'INSUFFICIENT_OUTPUT', 'failure_3', 'failure_4', 'OTHER_FAILURE'])
qa_granule_pass_fail COMPACT	INTEGER(1)	Granule Pass Flag None	1	Flag indicating granule quality. 0=granule passes automatic QA. 1=granule fails automatic QA. (Source: Operations); (Meanings: [0 1]) (Values: ['PASS', 'FAIL'])