ATL06 Product Data Dictionary

Date Generated : 2020-10-24T09:47:25

description	(Attribute)	This data set (ATL06) provides geolocated, land-ice surface heights (above the WGS 84 ellipsoid, ITRF2014 reference frame), plus ancillary parameters that can be used to interpret and assess the quality of the height estimates. The data were acquired by th
level	(Attribute)	L3A
short_name	(Attribute)	ATL06
title	(Attribute)	ATLAS/ICESat-2 L3A Land Ice Height
Group: /		This data set (ATL06) provides geolocated, land-ice surface heights (above the WGS 84 ellipsoid, ITRF2014 reference frame), plus ancillary parameters that can be used to interpret and assess the quality of the height estimates. The data were acquired by th
Conventions	(Attribute)	CF-1.6
citation	(Attribute)	SET_BY_META
contributor_name	(Attribute)	Thomas E Neumann (thomas.neumann@nasa.gov), Thorsten Markus (thorsten.markus@nasa.gov), Suneel Bhardwaj (suneel.bhardwaj@nasa.gov) David W Hancock III (david.w.hancock@nasa.gov)
contributor_role	(Attribute)	Instrument Engineer, Investigator, Principle Investigator, Data Producer, Data Producer
creator_name	(Attribute)	SET_BY_META
data_rate	(Attribute)	Data within this group pertain to the granule in its entirety.
date_created	(Attribute)	SET_BY_PGE
date_type	(Attribute)	UTC
featureType	(Attribute)	trajectory
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)	ATL06
hdfversion	(Attribute)	SET_BY_PGE
history	(Attribute)	SET_BY_PGE
identifier_file_uuid	(Attribute)	SET_BY_PGE
identifier_product_doi	(Attribute)	10.5067/ATLAS/ATL06.001
identifier_product_doi_authority	(Attribute)	http://dx.doi.org
identifier_product_format_version	(Attribute)	SET_BY_PGE
identifier_product_type	(Attribute)	ATL06
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)	L3A
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
Group: /ancillary_data		Contains information ancillary to the data product. This may include product characteristics, instrument characteristics and/or processing constants.
data_rate	(Attribute)	Data within this group pertain to the granule in its entirety.

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 COMPACT	INTEGER([1])	Ending Cycle None	1	The ending 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)
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)
qa_at_interval COMPACT	DOUBLE([1])	QA Along-Track Interval None	seconds/cell	Statistics time interval for along-track QA data. (Source: control)
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)

ATL06 Product Data Dictionary

Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
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/land_ice			Contains land-ice-specific 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
t_dead COMPACT	FLOAT([6])	Dead Time None	seconds	Dead time, in ATLAS spot order (1-6). Calculated as the average of the CAL42 per-channel dead times, using the appropriate channels for strong and weak spots. (Source: Operations)
dt_hist COMPACT	DOUBLE([1])	Histogram Bin Size None	seconds	Bin size for histograms (sec) (Source: Operations)
fit_maxiter COMPACT	INTEGER([1])	Maximum Iterations of Fit None	1	Maximum number of iterations in at_seg_fit (Source: Operations)
fpb_maxiter COMPACT	INTEGER([1])	Maximum Iterations for FPB None	1	Maximum number of iterations in fpb_corr (Source: Operations)
max_res_ids COMPACT	INTEGER([1])	Max Segments None	1	Maximum number of segment ids in each residual_histogram (Source: Operations)
min_dist COMPACT	FLOAT([1])	Minimum Distance None	meters	Min dist between first and last selected PEs

				(Source: Operations)
min_gain_th COMPACT	FLOAT([1])	Minimum Gain Threshold None	1	Minimum estimated gain threshold (3.1.6) (Source: Operations)
min_n_pe COMPACT	INTEGER([1])	Minimum Photons None	1	Minimum # PEs for fit (Source: Operations)
min_n_sel COMPACT	INTEGER([1])	Mininum Number of Photons None	1	Minimum number of selected PEs in pe_select (Source: Operations)
min_signal_conf COMPACT	INTEGER([1])	Minimum Signal Confidence None	1	Minimum signal confidence level for a photon to be considered valid. (Source: Operations)
n_hist COMPACT	INTEGER([1])	Number of Histogram Bins None	1	Number of bins in a histogram (Source: Operations)
n_sigmas COMPACT	FLOAT([1])	Number of Sigmas None	1	Multiplied by sigma_expected to get h_win (Source: Operations)
nhist_bins COMPACT	INTEGER([1])	Number of Bins None	1	Number of bins in residual histogram (Source: Operations)
proc_interval COMPACT	INTEGER([1])	Processing Interval None	seconds	Processing interval in number of geolocation segments.. (Source: Operations)
qs_lim_bsc COMPACT	INTEGER([1])	Blowing Snow Confidence QS Limit None	1	atl06_quality_summary limit for testing Blowing Snow Confidence. (Source: Operations)
qs_lim_hrs COMPACT	FLOAT([1])	Height Robust Spread QS Limit None	meters	atl06_quality_summary limit for testing Height Robust Spread. (Source: Operations)
qs_lim_hsigma COMPACT	FLOAT([1])	Height Sigma QS Limit None	1	atl06_quality_summary limit for testing Height Sigma. (Source: Operations)
qs_lim_msw COMPACT	INTEGER([1])	Multiple Scattering Warning QS Limit None	1	atl06_quality_summary limit for testing Multiple Scattering Warning. (Source: Operations)
qs_lim_snr COMPACT	FLOAT([1])	SNR Significance QS Limit None	1	atl06_quality_summary limit for testing SNR Significance. (Source: Operations)
qs_lim_sss COMPACT	INTEGER([1])	Signal Selection Source QS Limit None	1	atl06_quality_summary limit for testing Signal Selection Source. (Source: Operations)
rbin_width COMPACT	FLOAT([1])	Bin Size None	meters	Residual histogram bin size (Source: Operations)
sigma_beam COMPACT	FLOAT([1])	Sigma of Gaussian Footprint None	meters	Spatial sigma of the Gaussian footprint (m) (Source: Operations)
sigma_tx COMPACT	FLOAT([6])	Sigma Tx None	seconds	RDE of the Tx pulse in ATLAS Spot order (1-6). Calculated as half the difference between the 84th and 16th percentiles of the signal bins. (Source: Operations)
txp_maxiter COMPACT	INTEGER([1])	Maximum Iterations None	counts	Maximum number of iterations in tx_shape_corr (Source: Operations)
Group: /gtx			Contains subgroups organized by Ground Track (gt1l, gt1r, gt2l, gt2r, gt3l and gt3r)	
Group: /gtx/land_ice_segments			The land_ice_height group contains the primary set of derived ATL06 products. This	

		includes geolocation, height, and standard error and quality measures for each segment. This group is sparse, meaning that parameters are provided only for pairs of segments for which at least one beam has a valid surface-height measurement.		
data_rate	(Attribute)	Data within this group are sparse. Data values are provided only for those ICESat-2 20m segments where at least one beam has a valid land ice height measurement.		

Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
atl06_quality_summary CHUNKED	INTEGER_1(['Unlimited'])	ATL06_Quality_Summary None	1	The ATL06_quality_summary parameter indicates the best-quality subset of all ATL06 data. A zero in this parameter implies that no data-quality tests have found a problem with the segment, a one implies that some potential problem has been found. Users who select only segments with zero values for this flag can be relatively certain of obtaining high-quality data, but will likely miss a significant fraction of usable data, particularly in cloudy, rough, or low-surface-reflectance conditions. (Source: section 4.3); (Meanings: [0 1]) (Values: ['best_quality' 'potential_problem'])
delta_time CHUNKED	DOUBLE(['Unlimited'])	Elapsed GPS seconds time	seconds since 2018-01-01	Number of GPS seconds since the ATLAS SDP 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: section 4.4)
h_li CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Land Ice height None	meters	Standard land-ice segment height determined by land ice algorithm, corrected for first-photon bias, representing the median- based height of the selected PEs (Source: section 4.4)
h_li_sigma CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Expected RMS segment misfit None	meters	Propagated error due to sampling error and FPB correction from the land ice algorithm (Source: section 4.4)
latitude CHUNKED	DOUBLE(['Unlimited'])	Latitude latitude	degrees_north	Latitude of segment center, WGS84, North=+, (Source: section 3.10)
longitude CHUNKED	DOUBLE(['Unlimited'])	Longitude longitude	degrees_east	Longitude of segment center, , WGS84, East=+ (Source: section 3.10)
segment_id CHUNKED	INTEGER(['Unlimited']) 0	Reference Point, m None	1	Segment number, counting from the equator. Equal to the segment_id for the second of the two 20m ATL03 segments included in the 40m ATL06 segment (Source: section 3.1.2.1)
sigma_geo_h CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Vertical Geolocation Error None	meters	Total vertical geolocation error due to PPD and POD, including the effects of

Group: /gtx/land_ice_segments/bias_correction		The bias_correction group contains information about the estimated first-photon bias, and the transmit-pulse-shape bias.		
data_rate	(Attribute)	Data within this group are stored at the land_ice segment rate.		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
fpb_mean_corr CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	first photon bias mean correction None	meters	Estimated first-photon bias (fpb) correction to mean segment height (Source: section 3.4.3.1)
fpb_mean_corr_sigma CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	fpb mean corr sigma None	meters	Estimated error in fpb_mean_corr (Source: section 3.4.3.1)
fpb_med_corr CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	fpb median corr None	meters	First-photon-bias correction giving the difference between the mean segment height and the corrected median height (Source: section 3.4.3.2)
fpb_med_corr_sigma CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	fpb median corr sigma None	meters	Estimated error in fpb_med_corr (Source: section 3.4.3.2)
fpb_n_corr CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	fpb number photons corr None	counts	Estimated window photon count after first-photon-bias correction (Source: section 4.3.3.3)
med_r_fit CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	mean median residual None	meters	Difference between uncorrected mean and median of linear fit residuals (Source: section 3.3.5)
tx_mean_corr CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	tx shape mean correction None	meters	Estimate of the difference between the mean of the full-waveform transmit-pulse and the mean of a broadened, truncated waveform consistent with the received pulse (Source: section 3.5)
tx_med_corr CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	tx shape median correction None	meters	Estimate of the difference between the median of the full-waveform transmit-pulse mean and the median of a broadened, truncated waveform consistent with the received pulse (Source: section 3.5)
Group: /gtx/land_ice_segments/dem		Contains reference DEM and geoid heights.		
data_rate	(Attribute)	Data within this group are stored at the land_ice segment rate.		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
dem_flag CHUNKED	INTEGER_1(['Unlimited'])	DEM Source Flag None	1	Indicates source of the DEM height. Values: 0=None, 1=Arctic, 2=Global, 3=MSS, 4=Antarctic. (Source: ATL03); (Meanings: [0 1 2 3 4]) (Values: ['none' 'arctic' 'global' 'mss' 'antarctic'])
dem_h CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	DEM Height None	meters	Height of the DEM, interpolated by cubic-spline interpolation in the DEM coordinate system to the PE location. (Best available DEM value in priority of Arctic/Antarctic/Global/MSS) (Source: ATL06 ATBD)
geoid_free2mean CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Geoid Free-to-Mean conversion None	meters	Additive value to convert geoid heights from the tide-free system to the mean-tide system. (Add to geoid to get the geoid heights in the mean-tide system.) (Source: ATL03)

The first row shown at top of page (continuation):

| | | | | horizontal geolocation error on the segment vertical error. (Source: ATBD Section 3.10) |

Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
geoid_h CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Geoid Height None	meters	Geoid height above WGS-84 reference ellipsoid (range -107 to 86m) in the tide-free system. (Source: EGM2008)

Group: /gtx/land_ice_segments/fit_statistics		The fit_statistics subgroup contains a variety of parameters that might indicate the quality of the fitted segment data. Data in this group are sparse, with dimensions matching the land_ice_height group.		
data_rate	(Attribute)	Data within this group are stored at the land_ice_height segment rate.		

Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
dh_fit_dx CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Along Track Slope None	meters/meters	Along-track slope from along-track segment fit (Source: section 3.3.5.1)
dh_fit_dx_sigma CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Sigma of Along Track Slope None	meters/meters	Propagated error in the along-track segment slope (Source: section 3.6.4)
dh_fit_dy CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Across Track Slope None	meters/meters	Across track slope from segment fits to weak and strong beam; the same slope is reported for both laser beams in each pair (Source: section 3.7)
h_expected_rms CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Expected RMS misfit None	meters	Expected RMS misfit between PE heights and along-track segment fit (Source: section 3.6.3)
h_mean CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Height Mean None	meters	Mean surface height, not corrected for first-photon bias or pulse truncation. (Source: ATL06 ATBD)
h_rms_misfit CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	RMS Misfit None	meters	RMS misfit between PE heights and along- track segment fit (Source: section 3.6.3)
h_robust_sprd CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Robust Spread None	meters	RDE of misfit between PE heights and the along-track segment fit. (Source: section 3.6.3)
n_fit_photons CHUNKED	INTEGER(['Unlimited']) INVALID_I4B	Number of Photons in Fit None	1	Number of PEs used in determining h_li, after editing (Source: section 3.3.5.2)
n_seg_pulses CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Number potential segment pulses None	counts	The number of pulses potentially included in the segment (Source: section 3.3.3)
sigma_h_mean CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Height Error None	meters	Propagated height error due to PE-height sampling error for height from the along-track fit, not including geolocation-induced error (Source: section 3.6.4)
signal_selection_source CHUNKED	INTEGER_1(['Unlimited'])	Signal Selection Source None	1	Indicates the last algorithm attempted to select the signal for ATL06 fitting. 0=Signal selection succeeded using ATL03 detected PE; 1=Signal selection failed using ATL03 detected PE but succeeded using all flagged ATL03 PE; 2=Signal selection failed using all flagged ATL03 PE, but succeeded using the backup algorithm; 3=All signal-finding strategies failed. (Source: section 3.3.3); (Meanings: [0 1 2 3]) (Values: ['succeeded_using_pe' 'succeeded_using_flagged_pe' 'succeeded_using_backup' 'failed'])
signal_selection_source_status	INTEGER_1(['Unlimited'])	Signal Selection Source	1	Indicates the status of the last signal

Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
CHUNKED		Status None		selection algorithm attempted (see signal_selection_source). The definition of flag is different for each source and are defined in each of the signal_selection_status flags. (See Land Ice ATBD Table 3-2). (Source: section 3.3.3)
snr CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	SNR None	1	Signal-to-noise ratio in the final refined window (Source: section 3.6.2)
snr_significance CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	SNR Significance None	1	Probability that signal-finding routine would converge to at least the observed SNR for a random-noise input. Small values indicate a small likelihood of a surface-detection blunder. (Source: section 3.6.2)
w_surface_window_final CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Surface Window Width None	meters	Width of the surface window, top to bottom (Source: section 3.3.5.2)
Group: /gtx/land_ice_segments/geophysical		The sun_and_clouds group contains parameters related to solar background and parameters indicative of the presence or absence of clouds.		
data_rate	(Attribute)	Data within this group are stored at the land_ice_height segment rate.		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
bckgrd CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Background count rate None	hz	Background count rate, derived from the ATL03 50-shot-average, interpolated to the segment center. (Source: section 3.6.1)
bsnow_conf CHUNKED	INTEGER_1(['Unlimited']) INVALID_I1B	Blowing Snow confidence None	1	Confidence flag for presence of blowing snow (Source: ATL09)
bsnow_h CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Blowing Snow Layer Top Height None	meters	Blowing snow layer top height (Source: ATL09)
bsnow_od CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Blowing snow OD None	1	Optical thickness of blowing snow layer. (Source: ATL09)
cloud_flg_asr CHUNKED	INTEGER_1(['Unlimited']) INVALID_I1B	Cloud Flag ASR None	1	Cloud flag (probability) from apparent surface reflectance. 0=clear with high confidence; 1=clear with medium confidence; 2=clear with low confidence; 3=cloudy with low confidence; 4=cloudy with medium confidence; 5=cloudy with high confidence (Source: ATL09); (Meanings: [0 1 2 3 4 5]) (Values: ['clear_with_high_confidence' 'clear_with_medium_confidence' 'clear_with_low_confidence' 'cloudy_with_low_confidence' 'cloudy_with_medium_confidence' 'cloudy_with_high_confidence'])
cloud_flg_atm CHUNKED	INTEGER_1(['Unlimited']) INVALID_I1B	Cloud Flag ATM None	1	Number of layers found from the backscatter profile using the DDA layer finder. (Source: ATL09)
dac CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Dynamic Atmosphere Correction None	meters	Dynamic Atmospheric Correction (DAC) includes inverted barometer (IB) effect. (Source: ATL03, 6.3.2)
e_bckgrd	FLOAT(['Unlimited'])	Expected background	hz	Expected background count rate based

CHUNKED	INVALID_R4B	count rate None		on sun angle, surface slope, for unit surface reflectance (Source: section 3.6.1)
layer_flag CHUNKED	INTEGER_1(['Unlimited']) INVALID_I1B	Consolidated cloud flag None	1	This flag is a combination of multiple flags (cloud_flag_atm, cloud_flag_asr, and bsnow_con) and takes daytime/nighttime into consideration. A value of 1 means clouds or blowing snow are likely present. A value of 0 indicates the likely absence of clouds or blowing snow. (Source: ATL09); (Meanings: [0 1]) (Values: ['likely_clear' 'likely_cloudy'])
msw_flag CHUNKED	INTEGER_1(['Unlimited']) INVALID_I1B	Multiple Scattering Warning Flag None	1	Multiple Scattering warning flag. The multiple scattering warning flag (ATL09 parameter msw_flag) has values from -1 to 5 where zero means no multiple scattering and 5 the greatest. If no layers were detected, then msw_flag = 0. If blowing snow is detected and its estimated optical depth is greater than or equal to 0.5, then msw_flag = 5. If the blowing snow optical depth is less than 0.5, then msw_flag = 4. If no blowing snow is detected but there are cloud or aerosol layers detected, the msw_flag assumes values of 1 to 3 based on the height of the bottom of the lowest layer: < 1 km, msw_flag = 3; 1-3 km, msw_flag = 2; > 3km, msw_flag = 1. A value of -1 indicates that the signal to noise of the data was too low to reliably ascertain the presence of cloud or blowing snow. We expect values of -1 to occur only during daylight. (Source: ATL09); (Meanings: [-1 0 1 2 3 4 5]) (Values: ['cannot_determine' 'no_layers' 'layer_gt_3km' 'layer_between_1_and_3_km' 'layer_lt_1km' 'blow_snow_od_lt_0.5' 'blow_snow_od_gt_0.5'])
neutat_delay_total CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Total Neutral Atmospheric Delay None	meters	Total neutral atmosphere delay correction (wet+dry). (Source: ATL03a ATBD)
r_eff CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Effective uncorrected reflectance None	1	Effective reflectance, uncorrected for atmospheric effects. (Source: section 3.1.5.4)
solar_azimuth CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	solar azimuth None	degrees_east	The direction, eastwards from north, of the sun vector as seen by an observer at the laser ground spot. (Source: ATL03)
solar_elevation CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	solar elevation None	degrees	Solar Angle above or below the plane tangent to the ellipsoid surface at the laser spot. Positive values mean the sun is above the horizon, while negative values mean it is below the horizon. The effect of atmospheric refraction is not included. This is a low-precision value, with approximately TBD degree accuracy. (Source: ATL03)
tide_earth CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Earth Tide None	meters	Solid earth tides in the tide-free system. (Source: ATL03 ATBD, Section 6.3.3)
tide_earth_free2mean	FLOAT(['Unlimited'])	Earth Tide Free-to-Mean	meters	Additive value to convert solid earth tide

Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
CHUNKED	INVALID_R4B	conversion None		from the tide-free system to the mean tide system. (Add to tide_earth to get solid earth tides in the mean-tide system.) (Source: ATL03)
tide_equilibrium CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Equilibrium Tide None	meters	Long period equilibrium tide self-consistent with the ocean tide model (+-0.04m). (Source: ATL03 ATBD, Section 6.3.1)
tide_load CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Load Tide None	meters	Load Tide - Local displacement due to Ocean Loading (-6 to 0 cm). (Source: ATL03 ATBD, Section 6.3.4)
tide_ocean CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Ocean Tide None	meters	Ocean Tides including diurnal and semi-diurnal (harmonic analysis), and longer period tides (dynamic and self-consistent equilibrium). (Source: ATL03 ATBD, Section 6.3.1)
tide_pole CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Solid Earth Pole Tide None	meters	Solid Earth Pole Tide -Rotational deformation due to polar motion (-1.5 to 1.5 cm). (Source: ATL03 ATBD, Section 6.3.5)
Group: /gtx/land_ice_segments/ground_track		The ground_track group contains parameters describing the GT and RGT for each land ice segment, as well as angular information about the beams.		
data_rate	(Attribute)	Data within this group are stored at the land_ice_height segment rate.		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
ref_azimuth CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Azimuth None	radians	The direction, eastwards from north, of the laser beam vector as seen by an observer at the laser ground spot viewing toward the spacecraft (i.e., the vector from the ground to the spacecraft). (Source: ATL03g, Section 3.3)
ref_coelv CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Co-elevation None	radians	Coelevation (CE) is direction from vertical of the laser beam as seen by an observer located at the laser ground spot. (Source: ATL03g, Section 3.3)
seg_azimuth CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Segment Azimuth None	degrees	Azimuth of the pair-track, east of local north. (Source: section 3.1.2.2)
sigma_geo_at CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Along Track Geolocation Error None	meters	Along-track component of the geolocation error. (Source: section 3.10)
sigma_geo_r CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Radial Orbit Error None	meters	Radial orbit component of the geolocation error. (Source: ATBD Section 3.10, (ATL03 sigma_h))
sigma_geo_xt CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Across Track Geolocation Error None	meters	Across-track component of the geolocation error. (Source: section 3.10)
x_atc CHUNKED	DOUBLE(['Unlimited']) INVALID_R8B	X Along Track None	meters	The along-track x-coordinate of the segment, measured parallel to the RGT, measured from the ascending node of the equatorial crossing of a given RGT. (Source: section 3.1.2.2)
y_atc CHUNKED	FLOAT(['Unlimited']) INVALID_R4B	Y Along Track None	meters	Along-track y coordinate of the segment, relative to the RGT,

Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
				measured along the perpendicular to the RGT, positive to the right of the RGT. (Source: section 3.1.2.2)
Group: /gtx/residual_histogram		This group contains histograms of the residuals between PE heights and the least-squares fit segment heights, at 200-meter along-track resolution.		
data_rate	(Attribute)	Data within this group are stored at the 200-meter along-track rate.		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
bckgrd_per_m CHUNKED	FLOAT(['Unlimited'])	Expected background PEs None	1	Number of background PE expected for each vertical meter of the histogram based on the observed background rate (bckgrd). (Source: Section 4.11)
bin_top_h CONTIGUOUS	FLOAT([748])	Bin Top Height None	meters	Height of the top of each histogram bin, listed in increasing order. The bottom of each bin is equal to the top of the next-lowest bin. (Source: Section 4.11)
count CHUNKED	INTEGER(['Unlimited', 748]) INVALID_I4B	Bin Counts None	counts	Residual count falling with each histogram bin. The top height of each histogram bin may be found in the bin_top_h dataset. (Source: Section 4.11)
delta_time CHUNKED	DOUBLE(['Unlimited'])	Elapsed GPS seconds time	seconds since 2018-01-01	Number of GPS seconds since the ATLAS SDP 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: section 4.4)
ds_segment_id CONTIGUOUS	INTEGER_1([10])	Segment ID Index None	1	Relative index of each segment_id used in the derivation of the histogram. (Source: Section 4.11)
lat_mean CHUNKED	DOUBLE(['Unlimited'])	Latitude Mean latitude	degrees_north	Mean latitude of the segments included in the histogram (Source: Section 4.11)
lon_mean CHUNKED	DOUBLE(['Unlimited'])	Longitude Mean longitude	degrees_east	Mean longitude of the segments included in the histogram (Source: Section 4.11)
pulse_count CHUNKED	FLOAT(['Unlimited'])	Number of Histogram Segment Pulses None	counts	Number of pulses potentially included in the histogram (pulses are counted if they are in the central 20 m of each segment, even if no PE from the pulse are selected). (Source: Section 4.11)
segment_id_list CHUNKED	INTEGER(['Unlimited', 10]) INVALID_I4B	Segment ID List None	1	Segments ids included in each column of the histogram (Source: Section 4.11)
x_atc_mean CHUNKED	DOUBLE(['Unlimited'])	Along Track Coordinate Mean None	1	Mean along-track coordinate of the segments included in the histogram. (Source: Section 4.11)

Group: /gtx/segment_quality		The segment_quality group contains a dense record (i.e. for every possible segment in the granule) of the success or failure of the surface-finding strategies, and gives the locations of the reference points on the RPTs. For segments with adequate data quality (i.e. with more than 10 PE) it also contains offsets into the data structures for the other groups that allow each segment to be efficiently located within the file.		
data_rate	(Attribute)	Data within this group are stored at the ICESat-2 20m segment rate.		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
delta_time CHUNKED	DOUBLE(['Unlimited'])	Elapsed GPS seconds time	seconds since 2018-01-01	Number of GPS seconds since the ATLAS SDP 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: ATL03)
record_number CHUNKED	INTEGER(['Unlimited'])	Land Ice Height Index None	1	For those segments that have adequate signal strength, this parameter gives the record for the pair within the other groups in the granule. (Source: section 4.2)
reference_pt_lat CHUNKED	DOUBLE(['Unlimited'])	Latitude latitude	degrees_north	Latitude of the reference segment location on the RPT (Source: section 3.1.9)
reference_pt_lon CHUNKED	DOUBLE(['Unlimited'])	Longitude longitude	degrees_east	Longitude of the reference segment location on the RPT (Source: section 3.1.9)
segment_id CHUNKED	INTEGER(['Unlimited'])	Reference Point, m None	1	Segment number corresponding to the second of two ATL03 segments in the ATL06 segment, counted from the RGT equator crossing (Source: section 3.1.2.1)
signal_selection_source CHUNKED	INTEGER_1(['Unlimited'])	Signal Selection Source None	1	Indicates the last algorithm attempted to select the signal for ATL06 fitting. 0=Signal selection succeeded using ATL03 detected PE; 1=Signal selection failed using ATL03 detected PE but succeeded using all flagged ATL03 PE; 2=Signal selection failed using all flagged ATL03 PE, but succeeded using the backup algorithm; 3=All signal-finding strategies failed. (Source: section 3.3.3); (Meanings: [0 1 2 3]) (Values: ['succeeded_using_pe' 'succeeded_using_flagged_pe' 'succeeded_using_backup' 'failed'])
Group: /gtx/segment_quality/signal_selection_status		The signal selection status subgroup contains the success or failure for each surface-finding strategies		
data_rate	(Attribute)	Data within this group are stored at the ICESat-2 20m segment rate.		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
signal_selection_status_all CHUNKED	INTEGER_1(['Unlimited'])	Signal Selection Status Flag None	1	Indicates confidence of the signal-selection algorithm using all ATL03-flagged PEs. 0=Signal selection

Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
				succeeded using all ATL03-flagged PEs (or algorithm not attempted); 1=Signal selection using all ATL03-flagged PEs failed the 20-meter-spread test; 2=Signal selection using all ATL03-flagged PEs failed the 10-photon-count test; 3=Signal selection using all ATL03-flagged PEs failed both tests (Source: section 3.3.3); (Meanings: [0 1 2 3]) (Values: ['succeeded' 'failed_20' 'failed_10' 'failed_both'])
signal_selection_status_backup CHUNKED	INTEGER_1(['Unlimited'])	Signal Selection Backup Flag None	1	Indicates confidence of the signal-selection algorithm using the backup signal finder. 0=Signal selection succeeded using the backup signal finder after centering the window on flagged PE (or backup signal finder not attempted); 1=Signal selection succeeded using the backup signal finder after searching for the strongest-signal window using four adjacent ATL03 segments; 2=Signal selection using the backup signal finder failed the 20-meter spread test; 3=Signal selection using the backup signal finder failed the 10-photon count test; 4=Signal selection using the backup signal finder failed both tests (Source: section 3.3.3); (Meanings: [0 1 2 3 4]) (Values: ['succeeded' 'failed_widen' 'failed_20' 'failed_10' 'failed_both'])
signal_selection_status_confident CHUNKED	INTEGER_1(['Unlimited'])	Signal Selection Confident Flag None	1	Indicates confidence of the signal-selection algorithm using low or better PEs. 0=Signal selection succeeded using ATL03 low-or-better confidence PEs; 1=Signal selection using ATL03 low-or-better confidence PEs failed the 20-meter-spread test; 2=Signal selection using ATL03 low-or-better confidence PEs failed the 10-photon-count test; 3=Signal selection using ATL03 low-or-better confidence PEs failed both tests (Source: section 3.3.3); (Meanings: [0 1 2 3]) (Values: ['succeeded' 'failed_20' 'failed_10' 'failed_both'])
Group: /orbit_info		Contains data that are common among all beams for the granule. These parameters are constants for a given granule.		
data_rate	(Attribute)	These parameters are constant for a given granule.		
Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
crossing_time CHUNKED	DOUBLE(['Unlimited'])	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(['Unlimited'])	Cycle Number None	counts	Tracks the number of 91-day cycles in the mission, beginning with 01. A unique orbit number can be determined by subtracting 1 from the cycle_number, multiplying by 1387 and adding the rgt value. (Source: POD/PPD)
lan CHUNKED	DOUBLE(['Unlimited'])	Ascending Node Longitude None	degrees_east	Longitude at the ascending node crossing. (Source: POD/PPD)
orbit_number CHUNKED	UINT_2_LE(['Unlimited'])	Orbit Number None	1	Unique identifying number for each planned ICESat-2 orbit. (Source: Operations)
rgt CHUNKED	INTEGER_2(['Unlimited'])	Reference Ground track None	counts	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 GT2L and GT2R. 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(['Unlimited'])	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(['Unlimited'])	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

Label (Layout)	Datatype(Dims) Fillvalue	long_name standard_name	units	description
				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'])
Group: /quality_assessment/gtx		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
delta_time CHUNKED	DOUBLE(['Unlimited'])	Elapsed GPS seconds time	seconds since 2018-01-01	Mean number of GPS seconds since the ATLAS SDP epoch for the 10km segment. 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: ATL03)
lat_mean CHUNKED	DOUBLE(['Unlimited'])	Latitude Mean latitude	degrees_north	Mean latitude of the 10km segment. (Source: Section 4.11)
lon_mean CHUNKED	DOUBLE(['Unlimited'])	Longitude Mean longitude	degrees_east	Mean longitude of the 10km segment. (Source: Section 4.11)
signal_selection_source_fraction_0 CHUNKED	FLOAT(['Unlimited'])	Signal Selection Source Fraction 0 None	1	The fraction of 20m segments with signal_selection_source equal to zero. (Source: section 7.2)
signal_selection_source_fraction_1 CHUNKED	FLOAT(['Unlimited'])	Signal Selection Source Fraction 1 None	1	The fraction of 20m segments with signal_selection_source equal to 1. (Source: section 7.2)
signal_selection_source_fraction_2 CHUNKED	FLOAT(['Unlimited'])	Signal Selection Source Fraction 2 None	1	The fraction of 20m segments with signal_selection_source equal to 2. (Source: section 7.2)
signal_selection_source_fraction_3 CHUNKED	FLOAT(['Unlimited'])	Signal Selection Source Fraction 3 None	1	The fraction of 20m segments with signal_selection_source equal to 3. (Source: section 7.2)