

# GLA15 Records: Release 34

See the [GLAS Altimetry Data Dictionary](#) for details of each record, including units and scaling factors. The GLAS science team created this dictionary. Units and scaling factors with a "d" indicate double-precision constants; for example, a value of "1.0d5" is equivalent to 100,000. Nearly all integers are signed; exceptions are noted below.

The following codes are used to denote data types throughout the remainder of this document.

i1b: 1-byte integer

i2b: 2-byte (short) integer

i4b: 4-byte (long) integer

r4b: 4-byte real

r8b: 8-byte real

Values in parentheses indicate the record size, for example:

i2b(39): 39 records of 2-byte integers

i1b(48,40): 48-record x 40-record array of 1-byte integers

When comparing data from different products, the record index is consistent as long as all products represent the same release of data. If you want to compare different products with different releases, you should update your oldest product to the latest release. For example, if you want to compare data from a GLA05 Release-12 file and GLA12 Release-18 file, you should order a new GLA05 Release-18 file to replace the older release. The [ICESat/GLAS Data Releases](#) page describes characteristics and temporal coverage of each version of data.

Table 1. GLA15 Records

Name	Short Description	Byte Offset	Data Type	Total Bytes
i_rec_ndx	GLAS record index	0	i4b	4
i_UTCTime	Transmit time of first shot in frame in J2000	4	i4b(2)	8
i_transtime	One-way transmit time	12	i2b	2
i_Spare1	Spares	14	i1b(2)	2
i_deltagpstmcor	Delta GPS time correction	16	i4b	4
i_dShotTime	Laser shot time deltas (shots 2-40)	20	i4b(39)	156
i_lat	Coordinate data, latitude, specific to ocean range	176	i4b(40)	160

Name	Short Description	Byte Offset	Data Type	Total Bytes
i_lon	Coordinate data, longitude, specific to ocean range	336	i4b(40)	160
i_elev	Ocean surface elevation	496	i4b(40)	160
i_campaign	Campaign	656	i1b(2)	2
i_spare40	i_spare40	658	i2b	2
i_cycTrk	Cycle and Track	660	i4b	4
i_localSolarTime	Local apparent solar time	664	i4b	4
i_spare41	Spare 41	668	i4b(7)	28
i_deltaEllip	Delta Ellipsoid	696	i2b(40)	80
i_beamCoelv	Co-elevation	776	i4b(40)	160
i_beamAzimuth	Azimuth	936	i4b(40)	160
i_d2refTrk	Distance to the reference ground track	1096	i4b(40)	160
i_SigBegOff	Signal Begin Range Increment	1256	i4b(40)	160
i_spare45	Spare 45	1416	i1b(40)	40
i_spare46	Spare 46	1456	i2b(9,40)	720
i_ElevBiasCorr	Elevation Bias Correction	2176	i2b(40)	80
i_GmC	GmC	2256	i2b(40)	80
i_spare42	Spare 42	2336	i2b(3,40)	240
i_sigmaatt	Attitude quality indicator	2576	i2b(40)	80
i_Azimuth	Local azimuth	2656	i4b	4
i_SolAng	Solar incidence angle	2660	i4b	4
i_tpintensity_avg	Transmit pulse intensity - frame average	2664	i4b	4
i_tpazimuth_avg	Transmit pulse azimuth - frame average	2668	i2b	2
i_tpeccentricity_avg	Transmit pulse eccentricity - frame average	2670	i2b	2
i_tpmajoraxis_avg	Transmit pulse major axis - frame average	2672	i2b	2
i_poleTide	Pole Tide	2674	i1b(2)	2
i_gdHt	Geoid	2676	i2b(2)	4
i_erElv	Solid earth tide elevation (at first and last shot)	2680	i2b(2)	4
i_spElv	Tide elevations, specific	2684	i2b(4)	8
i_ldElv	Load tide elevation	2692	i2b(4)	8

<b>Name</b>	<b>Short Description</b>	<b>Byte Offset</b>	<b>Data Type</b>	<b>Total Bytes</b>
i_bathyElv	Bathymetry Elevation	2700	i4b	4
i_wTrop	Range correction - wet troposphere	2704	i2b(2)	4
i_dTrop	Range correction - dry troposphere	2708	i2b(40)	80
i_surfType	Region type	2788	i1b	1
i_Spare3	Spares	2789	i1b(3)	3
i_MSS_elv	Mean Sea Surface Elevation	2792	i4b(40)	160
i_refRng	Reference range	2952	i4b(40)	160
i_TrshRngOff	Threshold retracker range offset	3112	i4b(40)	160
i_ocRngOff	Ocean range offset	3272	i4b(40)	160
i_SigEndOff	Signal end range offset	3432	i4b(40)	160
i_cntRngOff	Centroid range offset	3592	i4b(40)	160
i_reflctUC	reflctUC	3752	i4b(40)	160
i_reflCor_atm	Reflectance correction, atmosphere	3912	i4b	4
i_maxSmAmp	Peak amplitude of smoothed received echo	3916	i2b(40)	80
i_ocElv	Ocean tide elevation (at first and last shot)	3996	i2b(40)	80
i_numPk	Number of peaks found in the return	4076	i1b(40)	40
i_skew2	Skewness	4116	i2b(40)	80
i_OcRufRMS	RMS of elevations used for 1-sec mean elevation	4196	i4b	4
i_OcMeanElev	Mean elevation over 1 sec	4200	i4b	4
i_lowElev	Lowest elevation	4204	i4b(40)	160
i_highElev	Highest elevation	4364	i4b(40)	160
i_OceanVar	Standard deviation of the ocean Gaussian fit	4524	i2b(40)	80
i_ElvuseFlg	Elevation use flag	4604	i1b(5)	5
i_atm_avail	Atmosphere availability flag	4609	i1b	1
i_spare16	Spare 16	4842	i1b(4)	4
i_cld1_mswf	Cloud multiple scattering warning flag	4614	i1b	1
i_MRC_af	Medium resolution cloud availability flag	4615	i1b	1
i_spare9	spares	4616	i1b(40)	40
i_ElvFlg	Elevation definition flag	4656	i1b(40)	40
i_rng_UQF	Range offset quality/use flag.	4696	i2b(40)	80

Name	Short Description	Byte Offset	Data Type	Total Bytes
i_spare49	Spare 49	4776	i1b(10)	10
i_timecorflg	Time correction flag	4786	i2b	2
i_APIID_AvFlg	APID data availability flag	4788	i1b(8)	8
i_AttFlg2	Attitude flag 2	4796	i1b(20)	20
i_spare5	Spares	4816	i1b	1
i_FrameQF	Altimeter frame quality flag	4817	i1b	1
i_OrbFlg	POD flag (orbit flag)	4818	i1b(2)	2
i_rngCorrFlg	Range correction flag	4820	i1b(2)	2
i_CorrStatFlg	Correction status flag	4822	i1b(2)	2
i_spare15	Spare 15	4824	i1b(8)	8
i_AttFlg1	Attitude flag 1	4832	i2b	2
i_Spare6	Spares	4834	i1b(2)	2
i_satNdx	Saturation Index	4836	i1b (40)	40
i_satElevCorr	Saturation Elevation Correction	4876	i2b (40)	80
i_satCorrFlg	Saturation Correction Flag	4956	i1b (40)	40
i_satNrgCorr	Saturation Energy Correction	4996	i2b (40)	80
i_kurt2	Kurtosis of the Received Echo (standard)	5076	i2b (40)	80
i_gval_rcv	Gain Value used for Received Pulse	5156	i2b (40)	80
i_RecNrgAll	Received Energy signal begin to signal end	5236	i2b (40)	80
i_FRir_cldtop	Full Resolution 1064 Cloud Top	5316	i2b (40)	80
i_FRir_qaFlag	Full Resolution 1064 Quality Flag	5396	i1b (40)	40
i_atm_char_flag	Atmosphere Characterization Flag	5436	i2b	2
i_atm_char_conf	Atmosphere Characterization Flag Confidence	5438	i2b	2
i_spare48	Spare 48	5440	i1b(36)	36
i_FRir_intsig	Full Resolution 1064 Integrated Signal	5476	i2b (40)	80
i_spare14	Spares	5556	i1b (120)	120
i_Surface_temp	Surface Temperature	5676	i2b	2
i_Surface_pres	Surface Pressure	5678	i2b	2
i_Surface_relh	Relative Humidity	5680	i2b	2
i_Surface_wind	Surface Wind Speed	5682	i2b	2
i_Surface_wdir	Surface Wind Direction Azimuth from North	5684	i2b	2

<b>Name</b>	<b>Short Description</b>	<b>Byte Offset</b>	<b>Data Type</b>	<b>Total Bytes</b>
i_maxRecAmp	Max Amplitude of Received Echo	5686	i2b (40)	80
i_sDevNsOb1	Standard deviation of 1064 nm background noise (alternate)	5766	i2b (40)	80
i_spare4	Spares	5846	i1b (160)	160
i_pctSAT	Percent saturation	6006	i1b (40)	40
i_TxNrg	1064 nm laser transmit energy	6046	i2b (40)	80
i_eqElv	Equilibrium tide elevation (at first and last shot)	6126	i2b (2)	4
i_spare2	Spare 2	6130	i1b (2)	2
i_gASP	Global Mean Atmospheric Pressure	6132	i4b	4
i_Spare7	Spare 7	6136	i1b (144)	144

Document last updated: 01 November 2013