

	C	D	E	F	G	H	I	J	K	L	M	N									
1	Retracked GDR Data Record			Copyright 2011, California Institute of Technology. Government sponsorship is acknowledged.																	
2	Release 4.0			Date: 2011/01/05 T 1310		File: retrk-gdr-data-rec-r5-d1.101202.xls															
3	Including net CDF names and relation to Jason-2 data																				
4																					
5																					
6																					
7																					
8																					
9																					
10	byte meas_ind(meas_ind), shape = [20]																				
11					meas_ind:long_name = "elementary measurement index"																
12					meas_ind:units = "count"																
13					meas_ind:comment = "Set to be compliant with the CF-1.1 convention"																
14																					
15	byte wvf_ind(wvf_ind), shape = [104]				wvf_ind:long_name = "waveform index"	Original MGDR Size + byte alignment =	228														
16					wvf_ind:units = "count"	(M)GDR Size w/ Proposed Del =	224														
17	meas_ind_ku = 10: Ddimesion				wvf_ind:comment = "Set to be compliant with the CF-1.1 convention"	Retrk Size =	236														
18	meas_ind_c = 5: Ddimesion of					Updated TMR Size =	20														
19						Total Size =	480														
20																					
21	Note: A few variable names have been changed from MGDR.																				
22	Jason-2 Variables	RGDR netCDF Variable	Field Number	Start Byte	Parameter Name	Content	Type	Dim.	Size	Units	Source	Comment									
23																					
24	Time Tag	Time Tag			Time Tag	Time Tag					60										
25	time:long_name = "time (sec. since 2000-01-01)"	time	-	-	Time	Time, seconds past epoch (2000/01/01 T000000)	SI	1	8	sec	Calc	Calculated in making netCDF									
26																					
27	tim_moy_1	1	1	Tim_Moy_1	Time, days past epoch	SI	1	2	Days	MGDR	MGDR copied from PODAAC/TOPEX										
28	tim_moy_2	2	3	Tim_Moy_2	Time, millisec in day	SI	1	4	10-3s	MGDR											
29	tim_moy_3	3	7	Tim_Moy_3	Time, microsec	SI	1	2	10-6s	MGDR											
30	dtime_mil	4	9	Dtim_Mil	Time shift midframe	SI	1	4	10-6s	MGDR											
31	dtime_bias	5	13	Dtim_Bias	Net timetag correction	SI	1	4	10-6s	MGDR											
32	time_20hz(time,meas_ind)	dtime_pac	6	17	Dtim_Pac	10 per sec timing	SI	1	4	10-6s	MGDR										
33	Location	Location			Location	Location															
34	lat	lat	7	21	Lat	Latitude	SI	1	4	10-4deg	New POE	New POE. GSFC std0905. See Release notes.									
35	ion	ion	8	25	Lon	Longitude	SI	1	4	10-4deg	New POE	New POE. GSFC std0905. See Release notes.									
36	Altitude	Altitude			Altitude	Altitude															
37	alt	sat_alt_1	9	29	Sat_Alt_1	Altitude above ref ellipsoid POD#1	SI	1	4	10-3m	MGDR PO	Copied from MGDR POD#1 (MGDR: HP_Sat_Alt)									
38	--'	sat_alt_2	10	33	Sat_Alt_2	Altitude above ref ellipsoid POD#2	SI	1	4	10-3m	New POE	New POE. GSFC std0905. See Release notes.									
39	alt_20hz	sat_alt_hi_rate	11	37	Sat_Alt_Hi_Rate	Difference of 10/sec sat alt from Sat_Alt_2	SI	10	2	10-3m	New POE										
40	Off Nadir Angle																				
41	off_nadir_angle_wf_ku	off_nadir_angle_wf_ku	12	57	Att_Wvf	Waveform attitude	SI	1	2	10-2deg	MGDR	MGDR copied from TOPEX (changed to 2B). Retrack Att reported in Retrk section									
42	off_nadir_angle_pf	off_nadir_angle_pf	13	59	Att_Ptf	Platform attitude	SI	1	2	10-2deg	MGDR										
43	Altimeter Range				Altimeter Range	Altimeter Range					36										
44	range_ku	range_ku	14	61	H_Alt	One per frame (second) altimeter range	SI	1	4	10-3m	MGDR	MGDR copied from PODAAC/TOPEX. Retracked Range in Retrak section. Items rearranged to improve bye alignment.									
45	range_20hz_ku	range_hi_rate_ku	15	65	H_Alt_Hi_Rate	Difference of altimeter ranges from H_Alt	SI	10	2	10-3m	MGDR	(MGDR: H_Alt_SME)									
46	range_rms_ku	range_deriv	16	85	RMS_H_Alt	RMS from compression from 10 to 1 value per frame	SI	1	2	10-3m	MGDR										
47	net_instr_corr_range_ku	net_instr_corr_range_ku	17	87	Range_Deriv	Range derivative	SI	1	2	10-2m/s	MGDR	Could be calculated from orbit (as Jason) or by TOPEX algorithm. Could also be deleted.									
48	net_instr_corr_range_c	net_instr_corr_range_c	18	89	Net_Instr_R_Corr_K	Net instrument correction to range (Ku)	SI	1	2	10-3m	MGDR										
49		cg_range_corr	19	91	Net_Instr_R_Corr_C	Net instrument correction to range (C)	SI	1	2	10-3m	MGDR										
50	range_numval_ku	range_numval	20	93	CG_Range_Corr	Center of gravity movement correction to range	SI	1	1	10-3m	MGDR										
		range_numval	21	94	Nval_H_Alt	Number of valid points for 1 frame range	SI	1	1	/	MGDR	(MGDR description changed from "altitude" to "range" for consistency)									

	C	D	E	F	G	H	I	J	K	L	M	N
51		--			X[RMS_Range_Deriv]X	X[RMS of high rate values of Range_Deriv]X	SI	1	2	10 ⁻² m/s	MGDR	Delete - Not normally produced by TOPEX algorithm. Not really meaningful for orbit calculation.
52		--	22	95	Spare	For 4 byte alignment	BF	1	2			Added Ver 2
53	Environmental Corrections	Environmental Corrections									24	
54	model_dry_tropo_corr	model_dry_tropo_corr	23	97	Dry_Corr	Dry tropo corr. - met fields interpol. to measurement time	SI	1	2	10 ⁻³ m	MGDR	MGDR copied from PODAAC/TOPEX. (To be replaced w/ CNES/Jason value.)
55	model_dry_tropo_corr_1	model_dry_tropo_corr_1	24	99	Dry1_Corr	Dry tropo correction - early met field	SI	1	2	10 ⁻³ m	MGDR	Should this be deleted? Will we have this for new Dry_Corr?
56	model_dry_tropo_corr_2	model_dry_tropo_corr_2	25	101	Dry2_Corr	Dry tropo correction - late met field	SI	1	2	10 ⁻³ m	MGDR	Should this be deleted? Will we have this for new Dry_Corr?
57	inv_bar_corr	inv_bar_corr	26	103	INV_BAR	Inverse barometer correction at measurement time	SI	1	2	10 ⁻³ m	MGDR	
58	model_wet_tropo_corr	model_wet_tropo_corr	27	105	Wet_Corr	Wet tropo corr. - met fields interpol. to measurement time	SI	1	2	10 ⁻³ m	MGDR	MGDR copied from PODAAC/TOPEX. (To be replaced w/ CNES/Jason value.)
59	model_wet_tropo_corr_1	model_wet_tropo_corr_1	28	107	Wet1_Corr	Wet tropo correcting - early met field	SI	1	2	10 ⁻³ m	MGDR	
60	model_wet_tropo_corr_2	model_wet_tropo_corr_2	29	109	Wet2_Corr	Wet tropo correction - late met field	SI	1	2	10 ⁻³ m	MGDR	
61	rad_wet_tropo_corr	rad_wet_tropo_corr	30	111	Wet_H_Rad	Radiometer wet tropo correction	SI	1	2	10 ⁻³ m	MGDR	Original value. Value corrected for Tb drift, antenna pattern, yaw in Retracking section, Wet_H_Rad_Corr. (*Final version will probably have only corrected value.)
62	iono_corr_alt_ku	iono_corr_alt_ku	31	113	Iono_Corr	TOPEX dual-frequency ionospheric correction	SI	1	2	10 ⁻³ m	MGDR	Original value. Value corrected with retracking in Iono_Retrk.
63	iono_corr_gim_ku	iono_corr_dor_ku	32	115	Iono_Dor	Ionospheric correction from DORIS	SI	1	2	10-3m	MGDR	Will be replaced by GPS iono (GIM) when available.
64	iono_corr_ben_ku	iono_corr_ben_ku	33	117	Iono_Ben	Ionospheric correction from Bent model	SI	1	2	10-3m	MGDR	
65	--	--	34	119	Spare	For 4 byte alignment	BF	1	2	/		
66	Significant Wave Height & Backscatter Coefficient	Significant Wave Hieght & Backscatter Coefficient									40	
67	swh_ku	swh_ku	35	121	SWH_K	Significant Wave Height (Ku)	SI	1	2	10 ⁻² m	MGDR	MGDR copied from PODAAC/TOPEX. Original value. Retracked SWH (1/frame fit) in Retracking section.
68	swh_c	swh_c	36	123	SWH_C	Significant Wave Height (C)	SI	1	2	10 ⁻² m	MGDR	MGDR copied from PODAAC/TOPEX. Original value. Retracked SWH (1/frame fit) in Retracking section.
69	swh_rms_ku	swh_rms_ku	37	125	SWH_RMS_K	RMS of SWH (Ku)	SI	1	2	10 ⁻² m	MGDR	MGDR copied from PODAAC/TOPEX (Changed to 2 byte SI)
70	swh_rms_c	swh_rms_c	38	127	SWH_RMS_C	RMS of SWH (C)	SI	1	2	10 ⁻² m	MGDR	MGDR copied from PODAAC/TOPEX (Changed to 2 byte SI)
71	swh_numval_ku	swh_numval_ku	39	129	SWH_Pts_Avg	Number of valid points used to compute SWH	SI	1	1	/	MGDR	
72	net_instr_corr_swh_ku	net_instr_corr_swh_ku	40	130	Net_Instr_SWH_Corr_K	Net instrument correction to SWH (Ku)	SI	1	1	10 ⁻¹ m	MGDR	
73	net_instr_corr_swh_c	net_instr_corr_swh_c	41	131	Net_Instr_SWH_Corr_C	Net instrument correction to SWH (C)	SI	1	1	10 ⁻¹ m	MGDR	
74	--	--	42	132	Spare	For 4 byte alignment	BF	1	1	/		
75	n/a	dr_swh_att_ku	43	133	DR_SWH_Att_K	Attitude correction (Ku)	SI	1	2	10 ⁻³ m	MGDR	
76	n/a	dr_swh_att_c	44	135	DR_SWH_Att_C	Attitude correction (C)	SI	1	2	10 ⁻³ m	MGDR	
77	sea_state_bias_ku	sea_state_bias_ku	45	137	EMB_Gaspar	Electromagnetic bias correction (Ku) (Gaspar)	SI	1	2	10 ⁻³ m	MGDR	
78	sea_state_bias_c (no second ku)	sea_state_bias_ku_walsh	46	139	EMB_Walsh	Electromagnetic bias correction (Ku) (Walsh)	SI	1	2	10 ⁻³ m	MGDR	
79	sig0_ku	sig0_ku	47	141	Sigma0_K	Backscatter coefficient (Ku)	SI	1	2	10 ⁻² dB	MGDR +final WFF cal	Sigma0 corrected with final WFF calibration.
80	sig0_c	sig0_c	48	143	Sigma0_C	Backscatter coefficient (C)	SI	1	2	10 ⁻² dB	MGDR +final WFF cal	Sigma0 corrected with final WFF calibration.
81	agc_ku	agc_ku	49	145	AGC_K	Automatic gain control (Ku)	SI	1	2	10 ⁻² dB	MGDR	
82	agc_c	agc_c	50	147	AGC_C	Automatic gain control (C)	SI	1	2	10 ⁻² dB	MGDR	
83	agc_rms_ku	agc_rms_ku	51	149	AGC_RMS_K	RMS of Automatic gain control (Ku)	SI	1	2	10 ⁻² dB	MGDR	
84	agc_rms_c	agc_rms_c	52	151	AGC_RMS_C	RMS of Automatic gain control (C)	SI	1	2	10 ⁻² dB	MGDR	
85	agc_numval_ku_c	agc_numval_ku	53	153	AGC_Pts_Avg	Number of valid points used to compute AGC (Ku)	SI	1	1	/	MGDR	Moved here from 56 for byte alignment, consistency with SWH layout.
86	atmos_sig0_corr_ku_c (not in TPX)	atmos_sig0_corr_ku	54	154	Atm_Att_Sig0_Corr	Atmospheric attenuation correction to sigma0	SI	1	1	10 ⁻² dB	MGDR	Treated as SI – no realistic values over 127.
87	net_instr_sig0_corr_ku	net_instr_sig0_corr_ku	55	155	Net_Instr_Sig0_Corr	Net instrument correction to sigma0	SI	1	2	10 ⁻² dB	MGDR	(POSEIDON only; TOPEX default)

	C	D	E	F	G	H	I	J	K	L	M	N
88	net_instr_sig0_corr_ku (notAGC)	net_instr_agc_corr_ku	56	157	Net_Instr_AGC_Corr_K	Net instrument correction to AGC (Ku)	SI	1	2	10 ⁻² dB	MGDR	Not updated in v3.0
89	net_instr_sig0_corr_c (notAGC)	net_instr_agc_corr_c	57	159	Net_Instr_AGC_Corr_C	Net instrument correction to AGC (C)	SI	1	2	10 ⁻² dB	MGDR	Not updated in v3.0
90		--			X[AGC_Pts_Avg]X	X[Number of valid points used to compute AGC]X	SI	0	1	/	MGDR	Moved to 53 for byte alignment
91	Geophysical Quantity		Geophysical Quantity									
92	mss	mss	58	161	H_MSS	Mean sea surface height	SI	1	4	10 ⁻³ m	MGDR/Jas	Updated to Jason/CLS01 = MGDR + GSFC00.1
93	geoid	geoid	59	165	H_Geo	Geoid height	SI	1	4	10 ⁻³ m	MGDR/Jas	MGDR copied from PODAAC/TOPEX. (To be replaced w/ CNES/Jason value.)
94	not yet included; has mean_topo (dynamic)	--			H_Geo_Xtrk	Cross-track geoid gradient	SI	0	4	10 ⁻³ m	MGDR/Jas	Will be added when Jason algorithm defined.
95	ocean_tide_sol1	ocean_tide_sol1	60	169	H_EOT_CSR	Elastic ocean tide#1	SI	1	2	10 ⁻³ m	MGDR	MGDR
96	ocean_tide_sol2		61	171	H_EOT_GOT47	Elastic ocean tide#2	SI	1	2	10 ⁻³ m	Computed	MGDR replaced w/ GOT 4.7
97	load_tide_sol2	ocean_tide_non_eq_uil; also has _equil	62	173	H_LT	Loading tide effect, Tide#1	SI	1	2	10 ⁻³ m	MGDR/Jas	Loading tide from TBD[Tide#1]
98			63	175	H_LP_Noneq	Non-equilibrium correction to equilibrium long period tide included in ocean tides	SI	1	2	10 ⁻³ m	MGDR/Jas	This correction should be added to H_EOT_* as a correction. *Not computed in Rel 3.0 - defaulted. (Will be updated to Jason.)
99	solid_earth_tide	solid_earth_tide	64	177	H_Set	Solid earth tide	SI	1	2	10 ⁻³ m	MGDR/Jas	
100	pole_tide		65	179	H_Pol	Geocentric pole tide	SI	1	2	10 ⁻³ m	MGDR	Changed to 2 bytes for alignment, SI.
101	bathymetry	bathymetry	66	181	H_Ocn_Depth	Ocean depth	SI	1	2	m	MGDR/Jas	MGDR copied from PODAAC/TOPEX. (To be replaced w/ CNES/Jason value.)
102	hf_fluctuations_corr		67	183	IB_Corr_HF	High frequency pressure induced SSH correction	SI	1	2	10 ⁻³ m	MGDR/Jas	Not updated in Rel 3.0. (Will be updated to Jason in Rel 3.1.)
103	wind_speed_alt	wind_speed_alt	68	185	Wind_Sp	Wind speed from Jason model for corrected sigma0_K and retracked SWH_K	SI	1	2	0.1 m/s	MGDR/Jas	Jason ver. B from Vandemark et al. model w/ corrected sigma0. (Range= 0 to 250, 255=flag. (Max val in EMB table =20.75) (TOPEX max was 21.73 (=217).) Changed to 2 bytes for alignment, SI.
104	n/a		69	187	Spare	For 4 byte alignment	BF	1	2			
105	TMR Brightness Temperatures		TMR Brightness Temperatures									
106	tb_187	tb_18	70	189	Tb_18	TMR brightness temperature 18 GHz	SI	1	2	10 ⁻² deg K	MGDR	MGDR copied from PODAAC/TOPEX. Value from antenna, drift, cal correction after Retracking section.
107	tb_234		71	191	Tb_21	TMR brightness temperature 21 GHz	SI	1	2	10 ⁻² deg K	MGDR	MGDR copied from PODAAC/TOPEX. Value from antenna, drift, cal correction after Retracking section.
108	tb340	tb_37	72	193	Tb_37	TMR brightness temperature 37 GHz	SI	1	2	10 ⁻² deg K	MGDR	MGDR copied from PODAAC/TOPEX. Value from antenna, drift, cal correction after Retracking section.
109	n/a		73	195	Spare	For 4 byte alignment	BF	1	2	/		
110	Flags		Flags									
111		alton instr_state_topex instr_state_tmr instr_state_doris imanv	74	197	ALTON	Altimeter flag (0=POSEIDON, 1=TOPEX)	BF	1	1	/	MGDR	MGDR copied from PODAAC/TOPEX. Retain splitting of TOPEX flags as on MGDR.
112			75	198	Instr_State_TOPEX	State of TOPEX altimeter	BF	1	1	/	MGDR	
113			76	199	Instr_State_TMR	State of TMR	BF	1	1	/	MGDR	
114			77	200	Instr_State_DORIS	State of DORIS instrument	SI	1	1	/	MGDR	
115			78	201	IMANV	Maneuver indicator	BF	1	1	/	MGDR	
116		lat_err lon_err val_att_ptf current_mode_1	79	202	Lat_Err	Quality flag of the latitude	BF	1	1	/	Computed	=0 Diff Lat POD#1 - POD#2 < 10 microdeg. =1 Differ > 10 microdeg
117			80	203	Lon_Err	Quality flag of the longitude	BF	1	1	/	Computed	=0 Diff Lon POD#1 - POD#2 < 10 microdeg. =1 Differ > 10 microdeg
118			81	204	Val_Att_Ptf	Platform attitude validity	BF	1	1	/	MGDR	
119			82	205	Current_Mode_1	Altimeter current mode (TOPEX first half frame)	BF	1	1	/	MGDR	
120			83	206	Current_Mode_2	Altimeter current mode (POSEIDON or TOPEX second half frame)	BF	1	1	/	MGDR	
121		gate_index ind_phd ssh_bad alt_bad_1	84	207	Gate_Index	TOPEX gate index	BF	1	1	/	MGDR	K and C values packed in byte
122			85	208	Ind_PhA	POSEIDON indicator on tracker processing	BF	1	1	/	MGDR	
123			86	209	SSH_Bad	State of 10 per second values	BF	1	2	/	MGDR	MGDR (Poseidon) = Rang_SME
124			87	211	Alt_Bad_1	TOPEX and POSEIDON measurement conditions #1	BF	1	1	/	MGDR	
125			88	212	Alt_Bad_2	TOPEX and POSEIDON measurement conditions #2	BF	1	1	/	MGDR	
126		fl_att dry_err	89	213	Fl_Att	Attitude flag	BF	1	1	/	MGDR	
127			90	214	Dry_Err	Quality flag on Dry_Corr, Dry1_Corr, Dry2_Corr	BF	1	1	/	MGDR	Not computed. (Update to combine MGDRB flags into 1 item.)
128					X[Dry1_Err]X	Quality flag on Dry1_Corr	SI	1	1	/	MGDR	X[Combine MGDRB flag into 1 item: Dry_Corr]X
129		--			X[Dry2_Err]X	Quality flag on Dry2_Corr	SI	1	1	/	MGDR	X[Combine MGDRB flag into 1 item: Dry_Corr]X

C	D	E	F	G	H	I	J	K	L	M	N	
130	wet_flag	91	215	Wet_Flag	Interpolation flag on Wet_Corr, Wet1_Corr, Wet2_Corr	BF	1	1	/	MGDR		
131	wet_h_err	92	216	Wet_H_Err	Quality flag on Wet_Corr, Wet1_Corr, Wet2_Corr	BF	1	1	/	MGDR		
132	iono_bad	93	217	Ion_Bad	Quality flag on Iono_Cor	BF	1	2	/	MGDR		
133	iono_dor_bad	94	219	Ion_Dor_Bad	Quality flag on Iono_Dor	BF	1	1	/	MGDR		
134	geo_bad_1	95	220	Geo_Bad_1	Ocean/land/ice flag	BF	1	1	/	MGDR		
135	geo_bad_2	96	221	Geo_Bad_2	Rain/radar flag	BF	1	1	/	MGDR		
136	tmr_bad	97	222	TMR_Bad	Brightness temperature flags	BF	1	1	/	TRP	Updated from TMR Replacement Product	
137	ind_retrk	98	223	Ind_RTK	POSEIDON ground retracking indicator	BF	1	1	/	MGDR	(POSEIDON only; TOPEX default)	
138	--	99	224	Spare	For 4 byte alignment	BF	1	1	/			
139	Jason-2		Field Number	Record Location	Parameter Name		Content	Type	Dim.	Size	Source	Comment
140	Variable											
141											All Retrack	<-- Byte counts -->
142	Retracking 1 - Least Squares (LSE, Retrk1)		Retracking 1 - Least Squares (LSE, Retrk1)								236	44
143	h_retrk1_ku	100	225	H_Retrk1_K	One per frame total retracked range correction K band, LSE (includes instrument corrections)	SI	1	4	10^{-3} m	RDR	See RGDR usage notes for application to SSH.	
144	h_retrk1_ku_hi_rate	101	229	H_Retrk1K_Hi_Rate	10/frame differences from compressed value (H_Retrk1_K) K band, LSE	SI	10	2	10^{-3} m	RDR	Retrack equivalent of H_Alt_Hi_Rate	
145	h_retrk1_ku_rms	102	249	H_Retrk1K_RMS	RMS from compression from 10 to 1 value per frame K band, LSE	SI	1	2	10^{-3} m	RDR	Retrack equivalent of RMS_H_Alt	
146	swh_retrk1_ku	103	251	SWH_Retrk1_K	Retracked Significant Wave Height K band, LSE	SI	1	2	10^{-2} m	RDR	Retrack equivalent of SWH_K	
147	att_retrk1_ku	104	253	Att_Retrk1_K	Retracked attitude^2, K band, LSE	SI	1	2	10^{-4} deg^2	RDR	Retrack equivalent to Att_Wvf. Retracking produces Attitude^2.	
148	skew_retrk1_ku	105	255	Skew_Retrk1_K	Retracked height skewness K band, LSE	SI	1	2	10^{-3}	RDR	Retracked skewness averaged over TBD[20] frames. Note: height.	
149	scale_retrk1_ku	106	257	Scale_Retrk1_K	WF amplitude estimated in retracking K band, LSE	SI	1	2	/	RDR	Could be related to sigma0 with calibration	
150	noise_retrk1_ku	107	259	Noise_Retrk1_K	Noise estimated in retracking K band, LSE	SI	1	2	/	RDR		
151	slope_retrk1_ku	108	261	Slope_Retrk1_K_compre	Slope of fit used to compress 10/frame values to 1/frame	SI	1	2	10^{-4} m / fram	RDR	Compression fit done with LS bisquare weight	
152	wf_bad_retrk1_ku	109	263	WF_Bad_Retrk1_K	K band WF determined unfittable in Retrak	BF	1	2	/	Computed	Not in Rel 3.0 . Bits 0-9: 0 = OK, 1 = Bad	
153	numval_retrk1_ku	110	265	Nval_Retrk1_K	Number of valid points for 1 second retracked range K band, LSE	SI	1	1	/	Computed	Not in Rel 3.0 . Retrack equivalent of Nval_H_Alt.	
154	--	111	266	Spare	4 Byte alignment	BF	3	1	/		Number of fittable WF in WF_Bad_Retrk1_K	
155	h_retrk1_c	112	269	H_Retrk1_C	One per second retracked altimeter range C band, LSE (includes instrument corrections)	SI	1	4	10^{-3} m	RDR		32
156	h_retrk1_c_hi_rate	113	273	H_Retrk1C_Hi_Rate	10/frame Differences from compressed value C band, LSE	SI	5	2	10^{-3} m	RDR		
157	h_retrk1_c_rms	114	283	H_Retrk1C_RMS	RMS from compression from 10 to 1 value per frame, C band, LSE	SI	1	2	10^{-3} m	RDR		
158	swh_retrk1_c	115	285	SWH_Retrk1_C	Retracked Significant Wave Height C band, LSE	SI	1	2	10^{-2} m	RDR		
159	att_retrk1_c	116	287	Att_Retrk1_C	Retracked attitude^2, C band, LSE	SI	1	2	10^{-4} deg^2	RDR	Retrack equivalent to Att_Wvf. Retracking produces Attitude^2.	
160	skew_retrk1_c	117	289	Skew_Retrk1_C	Retracked height skewness C band, LSE	SI	1	2	10^{-3}	RDR	Retracked skewness averaged over TBD[20] frames. Note: height.	
161	scale_retrk1_c	118	291	Scale_Retrk1_C	WF amplitude estimated in retracking C band, LSE	SI	1	2	/	RDR		
162	noise_retrk1_c	119	293	Noise_Retrk1_C	Noise floor estimated in retracking C band, LSE	SI	1	2	/	RDR		
163	slope_retrk1_c	120	295	Slope_Retrk1_C_compre	Slope of fit used to compress 10/frame values to 1/frame	SI	1	2	10^{-4} m / fram	RDR	Compression fit done with LS bisquare weight	
164	wf_bad_retrk1_c	121	297	WF_Bad_Retrk1_C	K band WF determined unfittable in Retrak	BF	1	2	/	Computed	Not in Rel 3.0 . Bits 0-4: 0 = OK, 1 = Bad	
165	numval_retrk1_c	122	299	Nval_Retrk1_C	Number of valid points for 1 second retracked range C band, LSE	SI	1	1	/	Computed	Not in Rel 3.0 . Retrack equivalent of Nval_H_Alt.	
166	--	123	300	Spare	For 4 byte alignment	BF	1	1	/		Number of fittable WF in WF_Bad_Retrk1_C.	
167	Retracking 2 - Maximum A Posteriori Estimate (MAP)		Retracking 2 - Maximum A Posteriori Estimate (MAP) - Note: this should be used with care; Retrk1/LSE recommended for most applications							140	74	
168												
169	h_retrk2_ku	124	301	H_Retrk2_K	One per frame total retracked range correction K band, MAP (includes instrument corrections)	SI	1	4	10^{-3} m	RDR	See RGDR usage notes for application to SSH.	
170	h_retrk2_ku_hi_rate	125	305	H_Retrk2K_Hi_Rate	10/frame differences from compressed value (H_Retrk2_K) K band, MAP	SI	10	2	10^{-3} m	RDR	Retrack equivalent of H_Alt_Hi_Rate	

	C	D	E	F	G	H	I	J	K	L	M	N
253					bit0	TOPEX rain flag from recalc with corrected Tb18 g1257.						
254					bit1	New TOPEX rain flag different than original TOPEX rain flag (Geo_Bad bit 3) (0= No, 1= Yes)						
255					bit2	Jason rain flag using K-C sigma0 diff and liquid water						
256					bit3	Jason ice flag						
257					bit4	Jason tide1, GOT00.2 0= OK. 1= Not available						
258					bit5	spare						
259					bit6	Jason tide2, FES2004, 2-bit (b6,b7) flag based on number grid pts found. 0= 4 pts used						
260					bit7	Jason tide2 flag (cont'd). 1(10)= 3 pts. 2(01)= 1 or 2 pts. 3(11)= out of gridded area						