DUT/SSR&T Crossover Minimization File Formats

Edwin Wisse, Marc Naeije, and Remko Scharroo

March 5, 2007

Table 1: Abridged data records

field	bytes	type	description
			header
1	1–4	A4	File descriptor (= 'aADR')
2	5–12	A8	Satellite
3	13–14	I2	Lower longitude boundary (degrees)
4	15–16	I2	Higher longitude boundary (degrees)
5	17–18	I2	Lower latitude boundary (degrees)
6	19–20	I2	Higher latitude boundary (degrees)
7	21–24	I4	Number of data records
			data records
1	1–4	I4	Time in UTC seconds from 1985.0
2	5–8	I4	idem, microsecond part
3	9–12	I4	Latitude in microdegrees
4	13–16	I4	Longitude in microdegrees
5	17–20	I4	Orbital altitude in millimeters
6	21–22	I2	Relative sea height in millimeters
7	23–24	I2	Sea height sigma in millimeters

Table 2: Track file format

field	bytes	type	description
			header
1	1–4	A4	File descriptor (= '@XTB')
2	5–8	I4	Number of data records
3	9–12	I4	Number of orbit parameters (3 or 5)
			data records
1	1–2	I2	Track number
2	3–4	I2	Satellite ID (1=GEOS-3, 2=Seasat, 3=Geosat, 4=ERS–1, 5=TOPEX, 6=Poseidon, 7=ERS–2)
3	5–6	I2	Number of crossovers on this track
4	7–8	I2	Number of altimeter measurements on this track
5	9–12	I4	Inclination in microdegrees
6	13–16	I4	Start argument of latitude in microdegrees
7	17–20	I4	Time of the nodal passage in Sec85
8	21–24	I4	Longitude of the node in microdegrees
9	25–28	I4	Start time of the track in Sec85
10	29–32	I4	Stop time of the track in Sec85
11–13	33–44	3*I4	3 Orbit parameter values in microns (coefficients to a constant, a sine and cosine of 1-cpr, and a sine and cosine of 2-cpr)
14–16	45–56	3*I4	Sigmas to the 3 orbit parameters in microns
17	57–58	B2	Flag bits: bit 1 = ascending track, bit 2 = short track, bit 8 = valid track
11–15	33–52	5*I4	5 Orbit parameter values in microns (coefficients to a constant, a sine and cosine of 1-cpr, and a sine and cosine of 2-cpr)
16–20	53–72	5*I4	Sigmas to the 5 orbit parameters in microns
21	73–74	B2	Flag bits: bit 1 = ascending track, bit 2 = short track, bit 8 = valid track

Table 3: Altimeter file format

field	bytes	type	description
			header
1	1–4	A4	File descriptor (= '@XAB')
2	5–8	I4	Number of data records
			data records
1	1–4	I4	Measurement time in Sec85
2	5–8	I4	Latitude of the measurement in microdegrees
3	9–12	I4	Longitude of the measurement in microdegrees
4	13–16	I4	A priori measurement sea surface height in microns
5	17–20	I4	A posteriori measurement sea surface height in microns
6	21–24	I4	Argument of latitude of the measurement in microns
7	25–26	I2	Measurement sigma in millimeters
8	27–28	I2	Track number

Table 4: Crossover file format

field	bytes	type	description
			header
1	1–4	A4	File descriptor (= '@XXB')
2	5–8	I4	Number of data records
			data records
1	1–4	I4	Latitude of crossover in microdegrees
2	5–8	I4	Longitude of crossover in microdegrees
3	9–12	I4	Time of measurement A in Sec85
4	13–16	I4	Time of measurement B in Sec85
5	17–18	I2	Track number A
6	19–20	I2	Track number B
7	21–24	I4	A priori sea height A in microns
8	25–28	I4	A priori sea height B in microns
9	29–32	I4	A posteriori sea height A in microns
10	33–36	I4	A posteriori sea height B in microns
11	36–40	I4	Argument of latitude A in microdegrees
12	41–44	I4	Argument of latitude B in microdegrees
13	45–46	I2	Measurement sigma A in millimeters
14	47–48	I2	Measurement sigma B in millimeters

Table 5: Crossover file format (with orbit)

field	bytes	type	description
			header
1	1–4	A4	File descriptor (= '@XXO')
2	5–8	I4	Number of data records
			data records
1	1–4	I4	Latitude of crossover in microdegrees
2	5–8	I4	Longitude of crossover in microdegrees
3	9–12	I4	Time of measurement A in Sec85
4	13–16	I4	idem, microsecond part
5	17–20	I4	Time of measurement B in Sec85
6	21–24	I4	idem, microsecond part
7	25–26	I2	Track number A
8	27–28	I2	Track number B
9	29–32	I4	Sea height A in microns
10	33–36	I4	Sea height B in microns
11	37–40	I4	Orbital altitude A in millimeters
12	41–44	I4	Orbital altitude B in millimeters

Table 6: Normal point file format

field	bytes	type	description
			header
1	1–4	A4	File descriptor (= '@XGF' or '@TIM')
2	5–8	I4	Number of data records
			data records
1	1–2	I2	Satellite ID (negative is descending)
2	3–4	I2	Number of points for this normal point
3	5–8	I4	Latitude of normal point in microdegrees
4	9–12	I4	Longitude of normal point in microdegrees
5	13–16	I4	Mean sea level in microns
6	17–18	I4	Sea surface variability in millimeters
			time serie records following each data record (only for type '@TIM')
1	1–4	I4	Measurement epoch in Sec85
2	5–8	I4	Latitude of measurement in microdegrees
3	9–12	I4	Longitude of measurement in microdegrees
4	13–16	I4	Relative sea level in microns
5	17–18	I4	Negative order number