

Analysis Center		
Name	ESA / ESOC	CNES/CLS
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Software		
Name and version	NAPEOS 3.4.1	GINs v 9.2
Satellite		
satellites included in weekly SINEX	SPOT-2, -4, and -5, ENVISAT, JASON-2	Spot-2,-4,-5, Envisat, Jason-2
Arc cut		
Arc lengths	7-day	3.5 days nominally (minimum 1 day)
Handle of Manoeuvres		half day containing manoeuver not taken into account
Handle of Data lacks		half day containing data lacks higher than 3hrs not taken into account
Additional margins		3h
Reference System		
Polar motion and UT1 a priori	IERS2003 IAU2000A + dX and dY from Bulletin A	satellite orbite
Polar motion and UT1 approach	IERS2003 diurnal/semidiurnal variations (ortho_eop.f), and prograde diurnal polar motion (Pmsdnut.f).	IERS bulletin C04 consistent with ITRF2005, with IERS 1996 sub-daily corrections
Nutation	UT1 fixed. Other 5 estimated	piece wise linear polygon
Station coordinates and velocities	LPOD2005v15	DPOD2005 v1.4
Displacement of reference		
Earth tides	IERS2003 (dehanttideinel.f routine)	Wahr model (IERS Conventions 2003)
Atmospheric loading	No	ECMWF-derived 3D pressure field at 6 hr interval
Ocean loading	IERS2003 Chapter 7 (using hardips.f) FES2004 + CMC values from Ocean Loading service	FES 2004 (all principal constituents, with admittance)

Hydrology loading	No	none
Pole tides	IERS2003 using mean pole (Chapter 7 eqn 23a and 23b)	Solid Earth Pole tide from IERS2003
Satellite reference		
Mass and center of gravity		Post-Launch values + variations generated by Control Center
Satellite center of mass - antenna phase center correction		applied from CDDIS data files
Attitude Model		Nominal law for Jason2 and ENVISAT; SPOT satellites orientation is geocentric
Gravity		
Gravity field (static)	EIGEN-GLO5C 120x120	EIGEN-GL04S up to degree 99
Gravity field (time varying)	None in EIGEN-GLO5C, C21 and S21 according to IERS2003 p.57	Drift+Annual+Semiannual 50x50 from EIGEN-GL04S-ANNUAL
Earth tides	IERS2003 Chapter 6.1 anelastic Earth Tables 6.1, 6.3a, 6.3b, and 6.3c implemented	IERS 2003 Solid Earth tides
Pole tide	IERS2003 Chapter 6.2	Solid Earth Pole tide from IERS2003
Ocean tides	IERS2003 Chapter 6.4 using FES2004 spherical harmonics Same order/degree as gravity field	FES 2004 (all principal constituents, with admittance)
Atmospheric tides	No	derived from ECMWF model
Atmospheric gravity	Yes, from 6 hourly AGRA files from NCEP	ECMWF-derived 3D pressure field at 6 hr interval over land, inverted barometer model over the ocean
Third bodies	JPL DE405 Sun, Moon, and all planets	Sun, Moon, Venus, Mars, Saturn, Uranus, Neptune and Jupiter
Surface forces and empiricals		
Radiation Pressure model	Tailored model for ENVISAT Box-wing for all others	Thermo-optical coefficient from pre-launch box and wing model, with smoothed Earth shadow model

Earth radiation	Both Direct and IR modeled	Albedo and IR pressure values interpolated from ECMWF 6hr grids
Atmospheric density model	MSIS-90	DTM 94, with best available solar activity
Empirical forces	6 parameters per day: Ac, As, Cs, Cc Drag: 10 per day for Spot and Envisate. 4 per day for Jason-2	1/rev normal to the orbital plan ; 1/rev along track

Measurements		
Troposphere correction	Apriori: GPT + 0% humidity + Saastamoinen for Zenith delay. GMF-dry mapping function Estimation: Zenith delay every pass. GMF-wet mapping function	ZTD: derived from ECMWF; Mapping Function: Guo&Langley
Frequency		1 frequency bias per pass
Relativity		Schwarzschild model + Lense-Thirring + geodetic precession
Weight	0.5 mm/s for DORIS 50 mm for one-way SLR ranges	models: 0.3 mm/s; measurements: derived from observation standard deviation in data files
Elevation angle cutoff	10	12 degrees
Downweighting law	None	weight=weight*(elevation_in_degrees)**2/400
vector from center of mass to center of phase	Station Specific	none
Datation bias (to compensate for along-track inconsistency of Doris orbits wrt SLR/GPS measurements)	TBD	none

Reduced Parameters		
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Orbital elements	Yes, free of constraints	initial position (X,Y,Z) and velocity (Vx, Vy,Vz) in J2000 inertial frame
Clocks		-
Frequency		1 frequency bias adjusted per pass
Troposphere	Yes, free of constraints	-
Solar Radiation Pressure	Yes, free of constraints	one scale coefficient adjusted per arc
Earth Radiation Pressure		
Drag coefficients	Yes, free of constraints	Adjusted; Spots, Envisat: 1 coef/4 hours ; Topex,Jason: 1 coef/half day
empirical bias	Yes, free of constraints	-
empirical periodic	Yes, free of constraints	2 coeff cos-sin at the orbital period in normal direction per day; 2 coeff cos-sin at the orbital period in tangential direction per day

Parameters in SINEX		
Orbital elements		-
Clocks		-
Frequency		-
Troposphere		1 zenithal tropospheric bias adjusted per pass
Solar Radiation Pressure		-
Earth Radiation Pressure		-
Drag coefficients		-
1/rev empiricals		-
Station Positions	Yes	weekly X,Y,Z on Wednesday at 12:00
Station Velocities		-

Range biases	Yes	Xp, Yp per 6hrs (0:00, 6:00, 12:00, 18:00)
Polar Motion	Yes	UT1 per 6hrs (0:00, 6:00, 12:00, 18:00)
UT1		Nutation per 12hrs (0:00, 12:00)
Nutation		-
Quasar coordinates		-
Gravity field		
List of Stations (DOMES and site, e.g. 10000M000 AAAA or 9999)	Will be provided when processing is done	