CONTO8 COL campaign 2008/08/10-2008/08/30	SLR	SLR	SLR	SLR	SLR
Analysis Center					
Name	**AIUB and BKG**	**ESA / ESOC**	**DGFI**	**OCA**	**GFZ German Research Centre for Geosciences**
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Software					
Name and version	Bernese GPS Software, SLR	NAPEOS 3.4.1	DOGS-OC 5.0	GINS v 9.2	EPOS-OC 06.61
Satellite					
satellites included in weekly SINEX	Lageos-1 and -2	Lageos-1 and -2, Etalon-1, and -2	Lageos-1/2, Etalon-1/2	LA1, LA1 (ET1, ET2, STA, STE)	GRACE-A, GRACE-B, GPS-5, GPS-6
Arc cut					
Arc lengths	7-day	7-day	7 days	7days	1 d
Handle of Manoeuvers	-		n.a.	N.A.	
Handle of Data lacks	no special handling		use stations with min. 10 obs. Only	N.A.	
Additional margins				1day	
Reference System					
Polar motion and UT1 a priori	IERS C04 linearly interpolated for PM and UT1R (sub-daily model: IERS2003)	IERS2003 IAU2000A + dX and dY from Bulletin A		satellite orbite	

Polar motion and UT1 approach	piece-wise linear polygon	IERS2003 diurnal/semidiurnal variations (ortho_eop.f), and prograde diurnal polar motion (Pmsdnut.f).	IERS 05 C04, USNO finals daily	IERS bulletin C04 consistent with ITRF2005 use of IERS 2003 Conventions	EOP05C04
Nutation	IAU2000A (w/o free-core nutation)	UT1 fixed. Other 5 estimated	pole offsets, LOD (per day)	piece wise linear polygon	Piece-wise linear and continuous
Station coordinates and velocities	a priori: SLRF2005	LPOD2005v15	SLRF2005	ITRF2005 (SLR rescaled)	ITRF2000
Displacement of					
Earth tides	IERS Conventions 2003	IERS2003 (dehanttideinel.f routine)	IERS Conventions 2003	Wahr model (IERS Conventions 2003)	IERS Conventions 2003
Atmospheric loading	not applied	No	no	None	not applied
Ocean loading	FES2004	IERS2003 Chapter 7 (using hardips.f) FES2004 + CMC values from Ocean Loading service	GOT00b (Scherneck)	FES 2004 (all principal constituents, with admittance)	not applied
Hydrology loading	not applied	No	no	none	not applied
Pole tides	IERS Conventions 2003	IERS2003 using mean pole (Chapter 7 eqn 23a and 23b)	applied, linear mean pole	Solid Earth tide from IERS2003	IERS Conventions 2003
Satellite reference					
Mass and center of gravity			acc. ILRS table	No variations	see SINEX
Satellite center of mass - antenna phase center correction	station-dependent CoM values for both Lageos	Lageos = 0.251 m (for HERS/7840 0.245 m) Etalon = 0.576 m	acc. ILRS table	ILRS AWG recommendations	

Attitude Model	-	None	no	N.A.	GPS: standard. GRACE-A/-B: measured
Gravity					
Gravity field (static)	EIGEN-GL04C up to degree/order 50	EIGEN-GLO5C 20x20	GGM02S, up to 30/30	EIGEN-GL04S up to degree 40	EIGEN-GL04C (120x120)
Gravity field (time varying)	C20, C30, C40 according to EIGEN specs	None in EIGEN-GLO5C, C21 and S21 according to IERS2003 p.57	J2	Drift+Annual+Semiannual 40x40 from EIGEN-GL04S_annual	AOD1B GRACE RL04
Earth tides	TIDE2000	IERS2003 Chapter 6.1 anelastic Earth Tables 6.1, 6.3a, 6.3b, and 6.3c implemented	Wahr model	IERS 2003 Conventions	IERS Conventions 2003
Pole tide	IERS Conventions 2003	IERS2003 Chapter 6.2	applied	IERS 2003 Conventions	IERS Conventions 2003
Ocean tides	CSR4.0	IERS2003 Chapter 6.4 using FES2004 spherical harmonics	GOT.00b	FES 2004 (all principal constituents, with admittance)	FES2004
Atmospheric tides	not applied	No		N.A.	Bode&Biancale 2003
Atmospheric gravity	not applied	No		N.A.	AOD1B GRACE RL04
Third bodies	Sun, moon, Jupiter, Venus, Mars according to JPL DE405	JPL DE405 Sun, Moon, and all planets	Sun,Moon, Planets to Jupiter, JPL DE405	Sun, Moon, and major planets (de421)	Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptun; JPL DE405
Surface forces and empiricals					

Radiation Pressure model	apriori: Cr = 1.13; constant correction estimated	Lageos Cr = 1.13 Etalon-1 Cr = 1.25 Etalon-2 Cr = 1.28	applied	spherical model	GPS: standard. GRACE-A/-B: accelerometer measurements
Earth radiation	not applied		Knocke CSR	Albedo and IR pressure values interpolated from ECMWF 6hr grids	GPS: non. GRACE-A/-B: accelerometer measurements
Atmospheric density model	not applied	n/a		N.A.	GPS: non. GRACE-A/-B: accelerometer measurements
Empirical forces	estimated: along-track (constant, once-per-rev), cross-track (once-per-rev)	Lageos 5 parameters per week: A0, Ac, As, C0, Cc, Cs Etalon 3 parameters per week: A0, Ac, As	along-, cross track	Radial direction: 1 bias + 1/rev, Normal direction: 1 bias / arc	applied

Measurements					
Troposphere correction	Mendes-Pavlis model; using meteorology data delivered within quicklook files	Mendis-Pavlis with meteo data from SLR quicklook data	Mendes-Pavlis	Mendes-Pavlis correction - **ZTD ?**	Mendes-Pavlis 2004
Frequency	according to stations			Station bias: ILRS AWG recommendation	no
Relativity	Periodic, dynamical (IERS 2003) and Shapiro		IERS Conventions 2003	Schwarzschild model + Lense-Thirring + geodetic precession	applied
Weight	1 cm	50 mm for one-way SLR ranges		N.A. **(1 cm ?)**	0.010 m

Elevation angle cutoff	3 degree	10	not used	10 degrees	10 deg
Downweighting law	no	None	no	N.A.	
vector from center of mass to center of phase	ILRS specifications	Station Specific	acc. ILRS table	N.A.	
Datation bias (to compensate for along-track inconsistency of Doris orbits wrt SLR/GPS		n/a		N.A.	

Reduced Parameters					
Orbital elements	yes	Yes, free of constraints	x	initial position (X,Y,Z) and velocity (Vx, Vy, Vz) in J2000 inertial frame	yes
Clocks				N.A.	
Frequency				N.A.	
Troposphere				N.A.	
Solar Radiation Pressure	yes		x	one scale coefficient adjusted per arc	
Earth Radiation Pressure				N.A.	
Drag coefficients				N.A.	
empirical bias	yes	Yes, free of constraints	x	Radial direction: 1 bias + 1/rev, Normal direction: 1 bias	

empirical periodic	yes	Yes, free of constraints	x	N.A.	

Parameters in SINEX					
Orbital elements					
Clocks					
Frequency					
Troposphere				**?**	
Solar Radiation Pressure					
Earth Radiation Pressure					
Drag coefficients					
1/rev empiricals					
Station Positions	yes	Yes	x	weekly X,Y,Z on Wednesday at 12:00	yes
Station Velocities					
Range biases	yes	Yes	x	Xp, Yp per 6hrs (0:00, 6:00, 12:00, 18:00)	yes
Polar Motion	yes	Yes	LOD	UT1 per 6hrs (0:00, 6:00, 12:00, 18:00)	yes
UT1	yes			Nutation per 12hrs (0:00, 12:00)	
Nutation					
Quasar coordinates					

Gravity field		

List of Stations (DOMES and site, e.g. 10000M000 AAAA or 9999)	25 sites	Will be provided when processing is done		ILRS AWG recommendations	
	1831 12368S001		10002S002		1873
	1884 12302S002		11001S002		1893
	1893 12337S006		12000S000		7080
	7090 50107M001		12205S001		7090
	7105 40451M105		12302S002		7105
	7110 40497M001		12337S003		7237
	7119 40445M004		12337S006		7501
	7124 92201M007		12340S002		7810
	7237 21611S001		12341S001		7832
	7308 21704S002		12356S001		7839
	7403 42202M003		12368S001		7840
	7405 41719M001		12372S001		7941
	7406 41508S003		12734S008		8834
	7501 30302M003		13212S001		
	7810 14001S007		13402S007		
	7811 12205S001		14001S007		
	7821 21605S010		14106S011		
	7824 13402S007		14201S018		
	7825 50119S003		20101S001		
	7832 20101S001		21601S004		
	7839 11001S002		21605S010		
	7840 13212S001		21609S002		
	7841 14106S011		21611S001		
	7941 12734S008		21704S002		
	8834 14201S018		21726S001		
			21749S001		
			30302M003		

40442M006
40445M004
40451M105
40497M001
41508S003
41719M001
42202M003
50107M001
50119S003
92201M007