

5th COL Working Group Meeting



Combination at the
Observation Level
IERS Working Group

DORIS GRGS contribution to the COL campaigns CONT08 and CONT11

CNES/CLS Analysis Center

L. Soudarin¹, J.M. Lemoine², H. Capdeville¹

¹ CLS, Collecte Localisation Satellites, Ramonville, France

² CNES, Toulouse, France



We provides 6 weekly normal equations

CONT08 (weeks 1492 1493 1494) spot-2, spot-4, spot-5, envisat, jason-2

CONT11 (weeks 1653 1654 1655) cryosat-2, spot-4, spot-5, envisat, jason-2

Weekly normal equation content:

- Station coordinates for all stations: weekly parameters, epoch Wednesday 12:00
- X-pole, Y-pole, UT1UTC: 6h-parameters at 00:00, 06:00, 12:00, 18:00 (piece-wise linear polygon)
- Nutation angles X, Y : 12h-parameters at 00:00 and 12:00
- tropospheric zenithal bias per satellite pass:
 - only for GREB, HBMB, KOLB, MSPB, SPJB
 - a priori dry zenithal delay derived from GPT
 - equations stacked for passes of all satellites in the same 1h time span

What's new in our DORIS processing?

We use GINS 11.2d1 version including:

- revised attitude laws for TOPEX/JASON-1/JASON-2, Envisat and Cryosat-2
- fixed bug related to the frequency bias
- phase wind-up effect (not applied for Envisat)

Solar Radiation Pressure coefficients (SRP) are kept fixed to mean values while the matrices are reduced:

0.98 for Topex	1.15 for Spot-2
1.29 for Envisat	1.16 for Spot-3
0.97 for Jason-2	1.16 for Spot-4
0.85 for Cryosat-2	1.17 for Spot-5

DORIS wrms of orbit fit residuals

		CONT08	CONT11	
SPOT2	6 arcs	0.381 mm/s		-----
<i>previous solution</i>		<i>0.381</i>		
SPOT4	7 arcs	0.370 mm/s	6 arcs	0.385 mm/s
		<i>0.387</i>		
SPOT5	6 arcs	0.335 mm/s	6 arcs	0.348 mm/s
		<i>0.353</i>		
Envisat	7 arcs	0.365 mm/s	7 arcs	0.376 mm/s
		<i>0.364</i>		
JASON2	6 arcs	0.307 mm/s	7 arcs	0.312 mm/s
		<i>0.319</i>		
Cryosat-2		-----	6 arcs	0.338 mm/s

List of DORIS stations

Code	Domes
TLSB	10003S005 Toulouse
REZB	10202S003 Reykjavik
SPJB	10317S005 Ny-Alesund
METB	10503S015 Metsahovi
KIUB	12334S006 Kitab
BADB	12338S002 Badary
KRBB	12349S002 Krasnoyarsk (CONT11)
DIOB	12602S012 Dionysos
EVEB	21501S001 Everest (CONT11)
JIUB	21602S005 Jiufeng
MANB	22006S002 Manille
MALB	22901S002 Male (CONT08 & 11)
CICB	23101S002 Cibirong → CIDB 23101S003 (CONT11)
HBMB	30302S008 Hartebeesthoek
MATB	30313S003 Marion-Island
ASDB	30602S004 Ascension → ASEB 30602S005 (CONT11)
HEMB	30606S004 St-Helena
PDMB	31906S002 Ponta-Delgada
LICB	32809S004 Libreville
SALB	39601S002 Sal
MAHB	39801S005 Mahe
DJIB	39901S003 Djibouti
STJB	40101S002 St-Johns
YEMB	40127S009 Yellowknife
FAIB	40408S005 Fairbanks (CONT08)
KOLB	40424S009 Kauai
GREB	40451S176 Greenbelt
MOOB	40497S009 Monument Peak (CONT08)
SODB	40503S004 Socorro (CONT08)

Code	Domes
RIQB	41507S006 Rio-Grande
CADB	41609S002 Cachoeira
EASB	41703S009 Easter-Island
SANB	41705S009 Santiago
ARFB	42202S007 Arequipa
THUB	43001S005 Thule
COBB	49804S004 Cold Bay (CONT11)
MIAB	49914S003 Miami
YASB	50107S011 Yarragadee
MSPB	50119S004 Mount-Stromlo
CHAB	50207S001 Chatam
BETB	50305S001 Betio (CONT08 & 11)
SYPB	66006S003 Syowa
ROUB	66007S003 Rothera → ROVB 66007S004 (CONT11)
BEMB	66018S002 Belgrano
KETB	91201S005 Kerguelen
CRPB	91301S002 Crozet → CRQB 91301S003 (CONT11)
AMUB	91401S004 Amsterdam-Island → AMVB 91401S003 (CONT11)
ADFB	91501S003 Terre-Adelie → ADGB 91501S004 (CONT11)
PATB	92201S010 Papeete → PAUB 92201S010 (CONT11)
RIKB	92301S002 Rikitea (CONT08) → RIMB 92301S004 (CONT11)
NOWB	92701S003 Noumea → NOXB 92701S004 (CONT11)
FUTB	92902S001 Futuna
KRVB	97301S004 Kourou → KRWB 97301S006 (CONT11)
REUB	97401S002 La-Reunion

same DOMES number!!