IDS

Meeting minutes

IDS AWG - Washington

Reference: [Reference]

Issue: 3.0

Date: Oct.17, 2013

Participants:

R. Biancale (CNES), L. Cerri (CNES), A. Couhert (CNES), G. Moreaux (CLS), P. Ferrage (CNES), M. Otten (ESA), L. Soudarin (CLS), C. Tourain (CNES), P. Willis (IGN), N. Zelensky (SGT, Inc), Z. Altamimi (IGN), D. Chinn (SGT, Inc), J. Saunier (IGN)

Invited:

J. Beall (Emergent Space Tech, Inc), J. DiMarzio (SGT, Inc), S. Melachroinos (SGT, Inc), D. Pavlis (SGT, Inc)

Distribution:

H. Capdeville (CLS), S. Kuzin (INASAN), F. Lemoine (NASA), P. Schaeffer (CLS), P. Stepanek (GOP)

	Written by:	*Approved by:*
Names:	G. Moreaux	
Signature: (Visa or ref.)		[Approver]

Agenda (optional):

1. Context

Hereafter are the minutes of the IDS AWG meeting held at SGT Inc. – Washington on October 15-16th.

The main objective of this meeting was to finalize models, standards and options for the next ITRF2013 reprocessing.

All the slides displayed during this meeting will be available at http://ids-doris.org/report/meeting-presentations/ids-awg-10-2013.html

2. Day 1 – October 15th

2.1. DORIS satellites constellation update

By Pascale Ferrage

DORIS mission news: Spot-4 and Jason-1 are ended ➔ 5 operational missions

Spot-5 will be ended in 2015

6 future missions (4 are under approval)

2.2. DORIS network status

By Jérôme Saunier

Current network: 58 stations

Socorro upgrades/return to operations is underway; Goldstone is set for reinstallation in 2014, pending final NASA approvals.

New station in Martinique: Le Lamentin

Through IDS, IGN has sent an official letter to CNES to suggest to add to the ongoing design of a new beacon the design of a new antenna. A formal answer has not been received yet but some technical points were informally provided by Albert Auriol.

IGN has also proposed to CNES different options for a better account taken of the surveying of DORIS antennas. One option would be to give in addition to the "up eccentricity" of the 2GHz centre phase wrt the 400MHz centre phase, East and North eccentricities.

2.3. Jason POD Status

By Lucas Cerri

Saral: cross track differences could be checked by one month of SINEX

New SRP models could be made available to all the ACs but may require more complex implementations than the current models.

2.4. ACs updates

ESA

08/07: new models – Spot-5 SAA corrected data – SAA stations were downweighted by a factor of 10 for Jason-1 only

GOP

Series 50/40

GSC

- GSC 20 / GSC 18 ➔ recommendations from last AWG
- SAA stations are downweighted according to strategy from H. Capdeville.
- Delete stations with less than 250 observations/week
- DORIS week timing bias wrt Laser is applied for TOPEX only.
- New series are in preparation: 22 (new gravity field) and 23 (22+Jason-1)

IGN

- Suggests to put Spot-5 and Jason-1 SAA corrected data into the "official" repositories.
- Satellite overlaps: Jason-1 bad results could be due to files which are not SAA corrected
- IGN: cutoff at 5-8° of elevation with downweighting
- INA: cutoff at 12-15° of elevation and no downweighting – Different gravity field than IGN one's
-

LCA

- Standards are adopted: EIGEN-6S2 and FES2012 (both available at http://grgs.obs-mip.fr/grace), 3-h dealiasing models for the atmospheric and oceanic gravitational perturbation (available at http://grgs.obs-mip.fr/grace/atm_ocean; contact Jean-Michel Lemoine or IDS CB for password), GPT2-VMF1 + horizontal gradients; DTM2012 not adopted (see presentation about standards assessment on this AWG meeting's page)
- Reminds to rename position and tropospheric parameters of SAA stations for Jason-1 before multi-satellite combination in case of renaming
- Reminds that mass files have been recently updated at Data centers for Spot-4 and Spot-5 (all records after early 2010 were missing)

2.5. Acceleration comparisons

By Nikita

Jason-1 & Envisat: GSC uses a UCL model; Previous high acceleration amplitudes for Envisat (gscwd15) due to errors in directions of solar array normal vectors (fixed in gscwd18, 20). Preliminary test results with LCA show that SPOT-5/LCA accelerations are quite high and GSC/SPOT-5/2012 – the solar array pitch bias changes have not been properly accommodated.

It is strongly recommend to the ACs to deliver to Frank and Nikita empirical acceleration amplitudes for comparisons. We suggest years 1995 (all satellites), 2011 (all satellites), 2005 (Jason-1 only) and 2012 (SPOT-5, HY-2A, only). Feedbacks from Frank could be very useful to prioritize remaining work items that should be shared with Frank and IDS CC.

2.6. Jason-1 test

By Guilhem

From the evaluation results it seems that including Jason-1 improves stability of the Helmert parameters as well as week-to-week repeatability. Nevertheless, we leave to AC's decision as to include satellite or not. If satellite is included, the following steps should apply:

a) Apply downweighting for Jason-1/SAA stations at the least. (e.g. H. Capdeville strategy, downweight SAA stations by 10X in POD)
b) If feasible exclude Jason-1/SAA stations from weekly combination.
c) Recommended period: November 2004 – July 2008.
d) Use Jason-1 (SAA) DORIS data.

e) If data from first DORIS oscillator processed (Jan 2002 – June 2004) – verify separately with combination center that solution in that time frame is not deleteriously affected by inclusion of data from first Jason1 DORIS oscillator

Moreover, all the ACs are invited to send to IDS CC solutions with and without Jason-1 for tests.

Action 1 (to GM): For comparisons, zoom over 2011 only for gsc

Action 2 (to GM): Discriminate repeatability between SAA and non SAA stations

2.7. Phase laws

Based on GOP, GSC and LCA contributions, we first notice that the impact of including the phase laws is the same for all the 3 ACs. The major impact of the phase laws is on the scale. Then, we do also observe a small impact on the other Helmert parameters as well, but no effect on week-to-week repeatability. Since IGN (and INASAN) are not sure to be able to implement and test the phase laws in time, we have decided that its use is up to each AC. Moreover, since the use of the phase law significantly shift the scale (12mm), those who will not use the phase law, will participate in the combination but not for the combined scale from DORIS (an additional parameter will be estimated in CATREF).

Action 3 (to GM): plots over the same time period (1995 and 2011 separately) GOP, GSC and LCA Helmert parameters.

Action 4 (to GM): make repeatability plots over same time period

Action 5 (to GM): add to the graphs time evolution of the proportion of Starec and Alcatel antennas

2.8. New satellites

As some ACs have already introduced Saral (and HY-2A), the ACs are free to include or not these missions in their combined solution as soon as it does not degrade their solution.

3. Day 2 – October 16th

At the end of Day 1, all the ACs were asked to prioritize remaining (critical) work items before starting the ITRF2013 processing.

3.1. Priorities per AC

ESA

1. Implement antex corrections ➔ in the next 2 weeks and then processing and delivery of new series
2. Saral including

Remark: Jason-1 will be included between Topex and Jason-2

GSC

1. Implement any corrections to wd20/wd21 processing. Complete quality control of delivered SINEX's.
2. Obtain from Guilhem, list of anomalous weeks in wd21 (where WRMS or repeatability is degraded with phase law). Look at these weeks in wd21 closely.
3. Examine SPOT-3, Cryosat-2 implementation in wd20 & wd21. Verify implementation, including application of CoM.
4. Redeliver any fixes for wd20, wd21 to combination center (by mid-November?)

5. Minor point: Examine Jason-1 nonconservative modeling.
6. During or after AGU. Start final reprocessing.

wd22 = wd21 + use new TVG (5x5) SLR-DORIS based gravity series; wd23 = wd22 + Jason-1

Remark: GSC solutions will not include both Saral and HY-2A

IGN

1. Implement the phase laws. If it cannot be done in the next 2 weeks, IGN and INA solutions will not include it.
2. Deliver to Frank orbit empirical acceleration amplitudes (1995, 1998 and 2011).
3. Deliver to Guilhem Moreaux single-satellite weekly SINEX solutions (1995, 1998 and 2011).
4. Investigate improvements in current satellite physical models (Jason-2 and SPOT-5)

Remarks:

- No Jason-1 excepted if IDS CC sees any impact on including this mission
- Full series should be available mid February

LCA

1. Check modeling of Spot-5 and Envisat.

Remark: time period 1993-2001 will be delivered to IDS CC early December and 2002-2012 early January.

3.2. EIGEN6-S2

Richard Biancale informs us that drifts are set to 0 in and after 2012 so CNES proposes an update until end of October. This new release will be available through GRGS website.

Action 6 (to RB): make available new release of EIGEN6-S2

3.3. Phase laws news

By Cédric

CNES has addressed the question of azimuth dependence of Starec antennas phase law. According to the analysis results, it can be assumed no azimuth dependence. CNES is already building a test set of Alcatel antennas to perform phase law analysis as done with Starec antennas.

3.4. Plottool

By Laurent

A brand new version of the visualization tools (named as Plottool) for STCD, POE and Helmert parameters has been presented. The three tools are gathered under a common banner. The major evolutions concern the possibility to superimpose DORIS coordinates time series together with GNSS series from IGS for collocated sites either from STCDtool or from a new global interactive map. ITRF2008 and DPOD2008 velocities can be also displayed. This new version should be first available to the ACs for testing before being opened to any visitor of the IDS website.

3.5. Next Telecon

Tuesday November 19th 2:00pm Paris local time

3.6. Next AWG

AWG in March 2013 in Paris, hosted by CNES Paris (To be confirmed)