DORIS Analysis Working Group Meeting

Status of POD Standards for altimeter satellites orbits

CNES POD TEAM

May 31st, 2012

COSMC, Prague, Czech Republic

GDR-C → GDR-D

- **Gravity**
  - EIGEN-GL04S-ANNUAL with drifts in deg.2,3,4 zonals + C21/S21 → **EIGEN-GRGS_RL02bis_MEAN-FIELD including 50x50 drifts**
  - Horwitz-Cowley atmospheric tide → **Biancale- Bode atm. tide**
- **Reference Frame and Earth Orientation**
  - **DORIS:** DPOD2005 → **DPOD2008**
  - **SLR:** SLRF/LPOD2005 → **ITRF2008**
  - **GPS:** IGS00/05 → **IGS08 (JPL solution @ IGS)**
  - **Earth Orientation :** IERS2003 → **IERS2010**
- **Models for propagation delays**
  - **DORIS Troposphere Correction :** CNET → **GPT/GMF (for DGXX receivers)**
  - **GPS PCO/PCV maps :** JPL06b for Jason-1 → **JPL11a maps for Jason-1/Jason-2**
- **Weight of tracking data**
  - DORIS 1.5 mm/s , SLR 10 cm , GPS LC/PC 10 cm/10 m → DORIS 1.5 mm/s , **SLR 15 cm , GPS LC/PC 2 cm/ 2 m**

Implementation Status

- **HY2A** : first POE started in GDRD standards from arc 1 (Oct 2011)
- **Cryosat-2** : POEs from arc 094 (Jan. 21, 2012) are in GDRD; previous arcs have been reprocessed and delivered to ESA and IDS
- **Envisat** : POEs from arc 516 (Jan. 20, 2012) are in GDRD previous arcs have been reprocessed and delivered to ESA and IDS
- **Jason-2** : switch to new POE standards will be phased with new altimeter GDRD processing (reprocessed cycles 001 – 120 already delivered)
- **Jason-1** : the first POE on the new geodetic orbit will use the GDRD standards. Reprocessed orbits will be delivered within end of June 2012

POD Splinter at the OSTST

- Orbits from all POD groups processed in ITRF2008
  - Better N/S consistency between Doris/SLR-based and GPS-based orbits
- Benefit of the new gravity field over the 2002-2011 time span
  - All POD metrics improve
  - Significant improvement of SSH consistency between Envisat and Jason
- Main issue is the extrapolation of GRACE-derived drifts outside this time span
- Annual signal in the Z-offset between DORIS/SLR based orbits and dynamic GPS-orbits correlates well with geocenter motion
- Presentation and splinter summary report available on the AVISO website
  http://www.aviso.oceanobs.com/fileadmin/documents/OSTST/2011/OSTST_2011_SanDiego_final_report.pdf