ESOC activities within the IDS ESA/ESOC

Michiel Otten

ESA/ESOC

Navigation Support Office at ESOC

- The Navigation Support Office at ESOC is an IGS analysis centre since the beginning (1992)

- Further we are an associate analysis centre for the ILRS (and IDS)

- Are responsible for the POD activities within ESOC for all ESA altimeter missions

- Contributed to several non ESA mission POD validation activities (T/P, Jason-1, Metop)

Software

- Since beginning of 2008 the Navigation Support Office is using one common software package (NAPEOS) for all these activities

- NAPEOS has been in development for several years and has been used within the Navigation Support Office since 2002

REFERENCE SYSTEM:

- polar motion and UT1: IERS bulletin C04 with IERS 2003 daily and sub-daily corrections

- stations coordinates: ITRF-2005 reference for Doris Stations

- ITRF 2005 rescaled for SLR. Appended with ITRF-2000 for station not in ITRF-2005 (both DORIS & SLR)

- satellite reference: Post-Launch value of Mass + variations generated by Control Center, attitude model: Nominal Yaw Steering Law

FORCE MODELS:

- EIGEN-GL04C gravity field model (degree and order 120)

- IERS 2003 Solid Earth tides

- FES-2004, 99 major constituents to order and degree 30

- Sun, Moon, and all Planets

- ANGARA model for drag, solar, infrared and albedo radiation

- MSIS-90 model for atmospheric density

PARAMETERS:

- 7-Day arcs

- estimated Satellite State Vector

- Solar radiation pressure per arc (constrained)

- ten drag coefficient per day

- two 1/rev along-track and cross-track CPRs per 24 hours.

TRACKING DATA (CDDIS):

DORIS:

- Frequency: Bias per pass adjusted
- Weight: 0.5 mm/s

LASER:

- Troposphere correction: Mendes-Pavlis following IERS 2003 update,
- Retroreflector correction: Constant radial correction of 5.12 cm for all stations
- Weight: Globally 4 cm

Contribution to the IDS

- Continue providing POD solutions for different DORIS missions for cal/val purposes (Envisat, Jason-1/2, Cryosat-2 etc..)

- We are evaluating if it is possible for us to contribute to future (2008) IDS ITRF solution.