

# ESOC activities within the IDS ESA/ESOC

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# 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.