Cryosat-2 POD validation activity

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CryoSat-2 POD validation activity

- Data from ESA
  - DORIS diode navigator files
  - Star tracker quaternion files
  - Spacecraft mass properties file
  - Maneuver data

- Data from the public domain
  - SLR data from CDDIS at NASA and the DGFI in Munich
  - Doris data from the IGN and CDDIS at NASA
  - Two line element data from NORAD
  - Solar radiation flux and geomagnetic data from NGDC at NOAA
  - IERS EOP parameters from the IERS

Quaternions v0 star trackers

- A cron script executes sftp retrieving the data from ESOC (what is the retention period on the ESOC servers?)
- 15 CS_OPER_TLM_SATM* files acquired since April 9
- April 12, 13 and 18 are reasonably complete, the remaining days are truncated within the first hour (is this a software bug)
- Developed software to interpret the telemetry files
- Star tracker to spacecraft frame alignment procedure (Francesco Marchese provided 3 transformation matrices)
- Evaluation of the Cryosat-2 attitude behavior (we need the attitude within 0.3 of a degree for all axes)

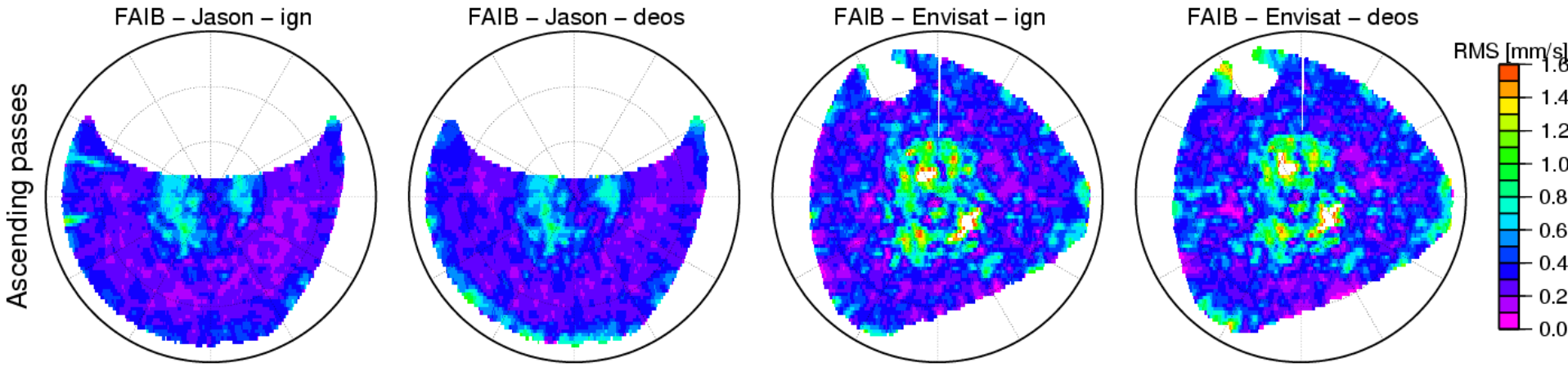
Quaternions v1 star trackers

- A cron script executes ftp retrieving the data from ESA
- ~1700 CS_OPER_STR[1-3]ATT* files acquired since April 9
- Developed software to interpret the STR*ATT files
- Star tracker to spacecraft frame alignment procedure (Francesco Marchese provided 3 transformation matrices)
- Evaluation of the Cryosat-2 attitude law

DORIS diode navigator files

- ftp automation to retrieve the data from PDGS
- 15 CS_OPER_AUX_ORBDOP* files retrieved since April 11
- daily files, 1 minute interval data, data flow stopped on April 27
- Developed a Perl tool for interpreting the xml files which contain the Doris diode orbits.
- Ground track plotting (useful for orbit planning in WP 530)
- Attitude law validation together with the STR TLM data from ESOC

2003 Fairbanks DORIS residue RMS



Credits : Eelco Doornbos