This file gives information about:
-quaternions for Cryosat-2
-time frames when the nominal attitude law is off for Cryosat-2

1. QUATERNIONS FOR CRYOSAT-2

(source EJO Schrama, June 8, 2011)

- Link:

The following ftp link brings to the Cryosat-2 quaternions

ftp://thales.lr.tudelft.nl/pub/ejo/cryosat2/quaternion/

- Format:

Each record in the files contains:

<date> <time> <q1 q2 q3 q4> <mjd> <v1> <v2> <i1> <i2> <i3>

where all comment lines starting with a % should be ignored. The time and date are in the UTC system, q_1 q_2 and q_3 are imaginary, and q_4 is real. This set represents of the satellite radial, cross and along track frame in J2000. The variables <v1> <v2> <i1> <i2> and <i3> contain statistical information for each record and they are not directly relevant for the user, mind however that q_1^2 + q_2^2 + q_3^2 + q_4^2 should be 1 for each record. The 6° pitch nose down of the satellite is not included in the quaternions. Furthermore <mjd> contains modified Julian day information.

- Comment by EJO Schrama:

"The upload procedure to the ftp site is not automated, because I do a manual quality check before writing the files to the ftp site."

2. TIME FRAMES WHEN THE NOMINAL ATTITUDE LAW IS OFF FOR CRYOSAT-2

(source EJO Schrama, October 15, 2015)

- Link:

The following ftp link brings to the list of periods when the nominal attitude is off for Cryosat-2:

ftp://thales.lr.tudelft.nl/pub/ejo/cryosat2/quaternion/attlaw.d

Attlaw.d is constructed by comparing the generated quaternions to the nominal 4° yaw steering mode. The events listed in the attlaw.d file are the time windows where the analysis software found that C2 is not in the nominal attitude mode.

- Format:

Each record in file attlaw.d contains mjd/sec start and mjd/sec stop combinations where the nominal attitude law is off for C2.

All comment lines starting with a % should be ignored

mjd/sec = modified Julian day / seconds

- Comment by EJO Schrama:

"The events listed in attlaw.d occur all around maneuvers, and some of these maneuvers can take several hours when ESOC flight operations decides to avoid space debris or substantially correct the orbit of C2 as was done in the beginning of the mission to bring the mean trajectory closer to ideal frozen orbit configuration which was never obtained for C2.

I'm not sure whether there is C2 science data in these periods and what happens to the 6 degree pitch angle, but DORIS should be on because DIODE navigator orbits are available throughout the maneuvers.

The short events in attlaw.d occur around planned orbit maintenance, the long events frequency come with several burns and yaw reversals and they are sometimes not even planned ahead in time. The events in attlaw.d are found by software that analyzes the quaternion product, it is not an official ESA/ESOC product."