CENTRE NATIONAL D'ÉTUDES SPATIALES

35th Scientific Committee

March 12th, 2010

COROT : Mission & Project STATUS

Events since previous Science Committee (1/2)

- **Satellite operations in short**
  - **LRa03 stopped March 1st**
  - **Operations SRa03 : nominal**
    - from the 1st of March to the 5th
    - Seismology observation started on the 2nd of March
    - Exoplanet observation started on the 5th of March
    - Final seismology masks uploaded on the 5th
  - **To be noticed for science : the image of Corot Id 374 star (Seismology) is positionned on some defective pixels**

Events since previous Science Committee (2/2)

- **DPU1 anomaly of March, 8th 2009**
  - **Presentation (Feb. 12) of the conclusions of the enquiry to CNES executives**
  - **Main conclusions :**
    - A failure of DPU1 component (current regulator of the FPGA ?) is the most probable cause of the anomaly,
    - It is not circumscribe to 1553 dialog
    - The channel 1 seems unlikely to recover
    - No further attempt to switch on again (except if transition in safe mode occurs)
    - some experience return

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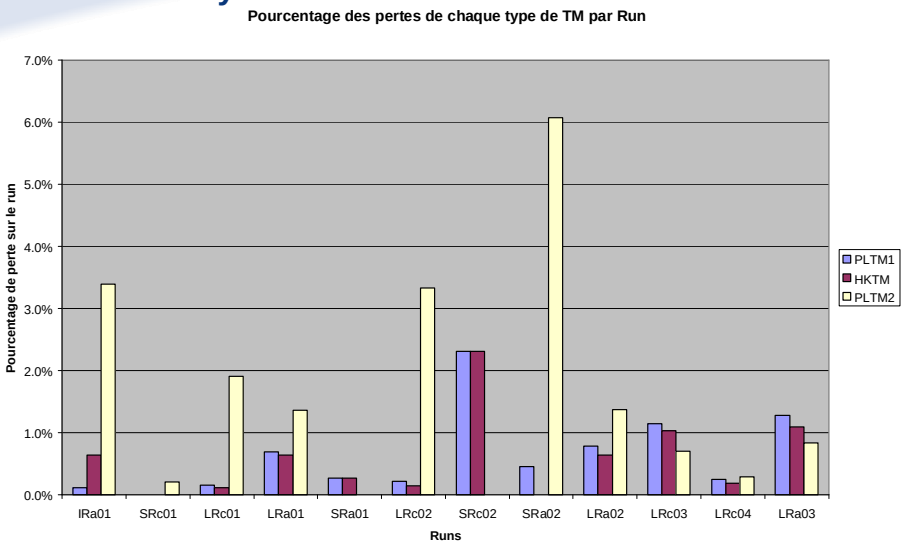
Mission Status

- **Mission**
  - **1170 days in space**
  - **12 Runs completed**

- **Status of LRa03 (440.8)**
  - **Seismology channel**
    - A2 - 151 days of data collected (146 with refined photometric masks)
    - 5 TM Starmasks (Imagettes 35x35), 5 Light Curves
  - **Exoplanets channel**
    - E2 - 149 days of data
    - 36 TM Starmasks,
    - 1768 Chrm + 94Chrm Tech + 3431 MonoC Stellar Light Curves
    - 1(initial) + 4 updates of the Oversampling list of Exo stars along the run
  - **Small rotation around LOS (+1.2°) => optimal for CCD temperature**

TM Loss by Run



Status of the system

- **Satellite** : Nominal
- **Instrument**
  - Chain 2 (Sismology A2 CCD & Planet Search E2 CDD) : Nominal
- **Ground segment**
  - Corot Control Center : Nominal
  - Corot Mission Center : Nominal
  - Ground stations : Nominal
- **CDC** : review of the CDC held the 9,10th of March

The next Operations

- Stop of SRa03
- Stop of Orbit drift
- Operations for the next Run (LRc05)

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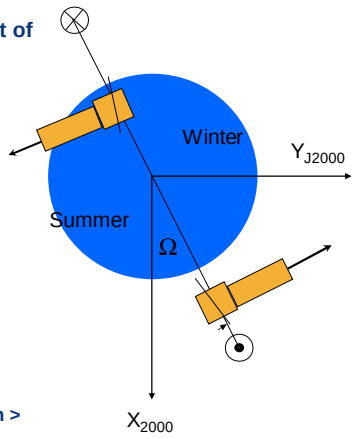
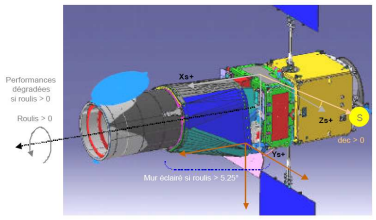
Stop of the Orbit drift

- Stop the current drift of the orbital plane and the drift of COROT "eyes"
  - **2008/04/10 :**
    Ω = 15.7° - > R.A : 105.7° winter, 285.7° summer
  - **2010/04/01 :**
    Ω = 9.1° - > R.A : 99.1° winter, 279.1° summer
- Reduction of the inclination of the orbital plane
  - **Δi = 0.062°**
- Operations
  - **Thruster calibration (slew manuevers)**
  - **Orbit restitution**
  - **2 day maneuvers to reduce the inclination of the orbital plane**
  - **Constraint : instrument safety angle to the Sun direction > 90°**
  - **Schedule TBC**
    - It is probably needed to stop SRa03 on the 25th of March at the latest (TBC)
    - In that case SRa03 will provide 23 days of Seismo data and 20 days of Exo data

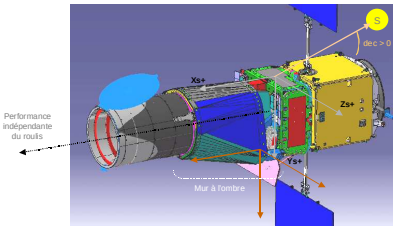


Thermal considerations for the next 2 (summer) runs

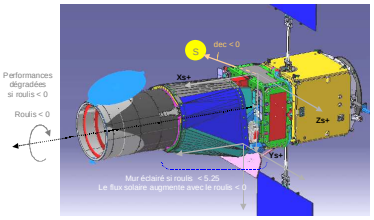
- **The first 3 month period => LRc05**
  - **Roll < 0 better during the period**
  - **Delta >0 Favorable**
- **The last 3 month period => LRc06**
  - **Roll > 0 better during the period**
  - **Delta >0 Favorable**



1 - Beginning of the summer period

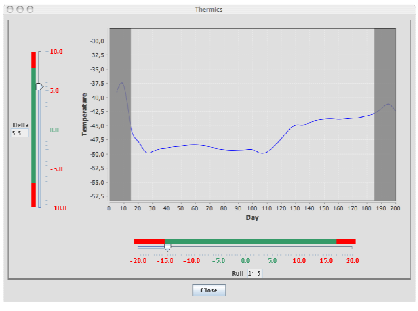


2 - Middle of the summer period

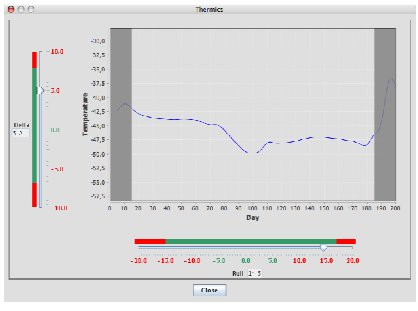


3 - End of the summer period

Corotsky : new function added to show the impact of the pointing on the CCDs temperature



Summer
Roll <0 => CCD temp. cooler
during the first 3 months



Summer
Roll >0 => CCD temp. cooler
During the last 3 months

Next project events :

- June 10th 2010 : REVEX (Exploitation Review)
  - Satellite, instrument ground system status
  - Performances and tendances
  - Evolutions