



CENTRE NATIONAL D'ÉTUDES SPATIALES

34th Scientific Committee

December 16th, 2009

COROT : Mission & Project STATUS

Events since previous Science Committee (1/2)

■ COROT Steering Committee (CNES HQ, Oct 23rd)

- ♦ Attendants : CNES, INSU, CNRS Labs and international partners representatives + project
- ♦ Scientific achievements, motivation of the extension
- ♦ Technical status of the satellite and system
- ♦ Organization, technical means and resources
- ♦ **Decision to continue the operations of satellite with 3 more years**
 - A PR has been diffused to announce the extension of the operations
 - Action to create a Press Release Group
 - A press conference related to the upcoming results foreseen in April 2010

■ Final approval for the budget of the extension by CNES financial Director expected soon

■ CNES/INSU contract in preparation to provide the laboratories (LESIA, LAM, IAS, OMP) with the budget needed to continue the activities

Events since previous Science Committee (2/2)

■ Satellite operations in short

- ♦ LRc04 stopped Sept. 29 (87 days of Sismo data, 84 days of Exo data)
- ♦ New test on DPU1 (switch ON + dialog through RT3 address) : no success
- ♦ Satellite (summer=>winter) maneuver
- ♦ New instrument SW uploaded
- ♦ LRa03 satellite & instrument operations completed Oct. 6
 - Note : SMOS launched 2nd of November

Mission Status

■ Mission :

- ♦ 1085 days in space, 985 days of availability for the mission (including operations) since commissioning
- ♦ 11 Runs completed
 - 907 days of Sismo data collected (92% of time since commissioning)
 - 875 days of Planet Search data collected (89% of time since commissioning)
- ♦ Status of LRc04 (1704.3)
 - A2 - 87 days (84 with optimized masks) / E2 - 84 days
 - Seismology : 5 TM enlarged Starmasks (Imagettes 35x35), 5 Light Curves
 - Planet Search : 8 TM Starmasks, 5992 Light Curves
 - Update of the Oversampling list of Exo stars : achieved 4 times so far
 - Rotation around LOS = $+1,2^\circ$ => optimal CCD temperature

Status of the system (1/2)

■ Satellite : **Nominal**

■ Instrument

- ♦ Chain 2 (Sismology A2 CCD & Planet Search E2 CDD) : **Nominal**
- ♦ Chain 1 : **Off due to anomaly**
 - Investigations are completed
 - Conclusions of the enquiry to be presented to the Director of CNES by Jan. 2010
- ♦ **New flight software (v6.00) on board**
 - The max nb of oversampled exo windows have been increased to
 - 2000 for chromatic (500 in previous versions)
 - 500 for monochromatic (180 in previous versions)
- ♦ **“exporank”**
 - “Exporank” and GPS datation on Astero imagerettes : a few anomalies detected in Oct/Nov. “seasonal phenomena” => no impact on the products delivered
 - “Exporank” on monochrom EXO LC : newly detected (N0 quick look) ; under investigation
- ♦ **Hot pixels**
 - a CNES/LESIA technical note to be finalized
 - Follow up and status to be provided at each REVEX
 - A work to continue ...

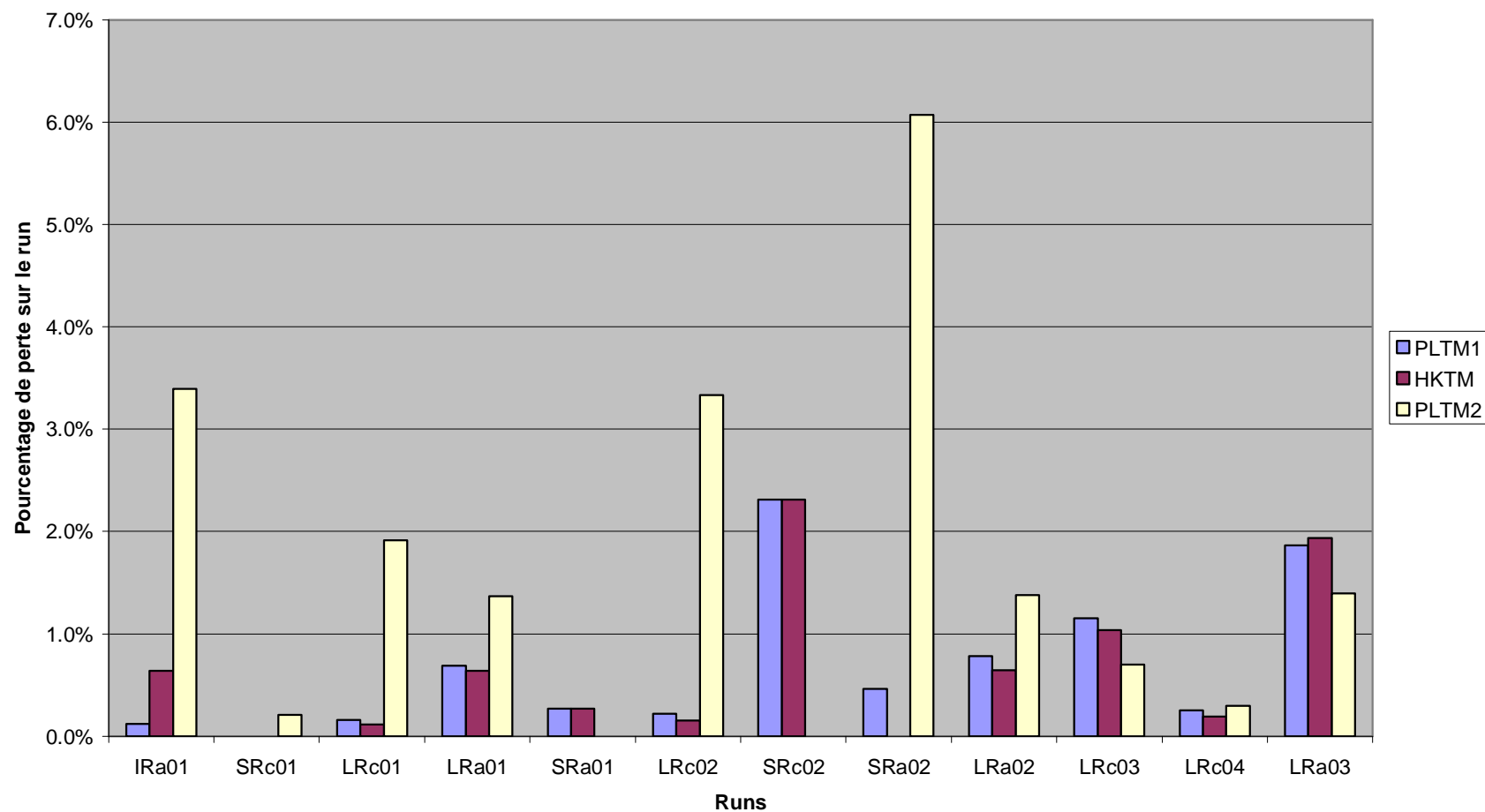
Status of the system (2/2)

■ Ground segment

- ♦ Corot Control Center : **Nominal**
- ♦ Corot Mission Center : **Nominal**
 - NO quick look controls implemented ; they complete the existing controls of continuity already done
 - On going evolutions of Corotsky
 - Desactivation of controls and display for CCD A1 & E1
 - A rough estimation of the **temperature of CCD** to be displayed during the selection process
 - Management of the exobasket
 - Evolution of CMC staff (JCD, AC on the move)
- ♦ **Ground stations :**
 - Ground station network extended with 2 GHz stations (KRU, HBK, KER, KRK, AUS)
 - ALC Station : a few actions agreed at CNES/INPE telecom (Oct. 7th) :
 - IMPE agreed to purchase needed spare equipment to secure the station ; a list has been provided by CNES
 - More information exchanged between CNES and INPE (AOS, LOS and Mass Memory instants for each station pass, planning of operations)
 - The visit of 1 or 2 INPE persons at CNES (spring 2010)
- ♦ **CDC status : Nominal**

TM Loss by Run (Dec., 11th)

Pourcentage des pertes de chaque type de TM par Run



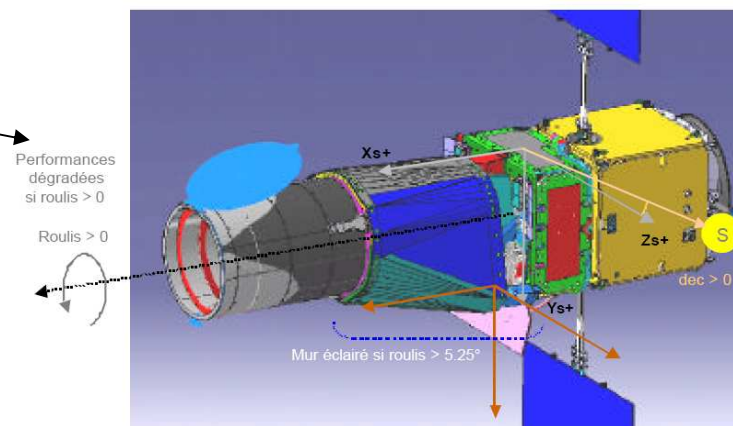
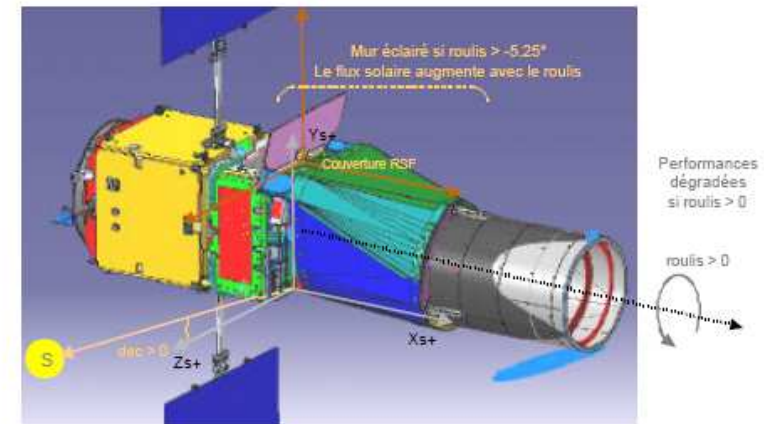
Thermal consideration

■ WINTER :

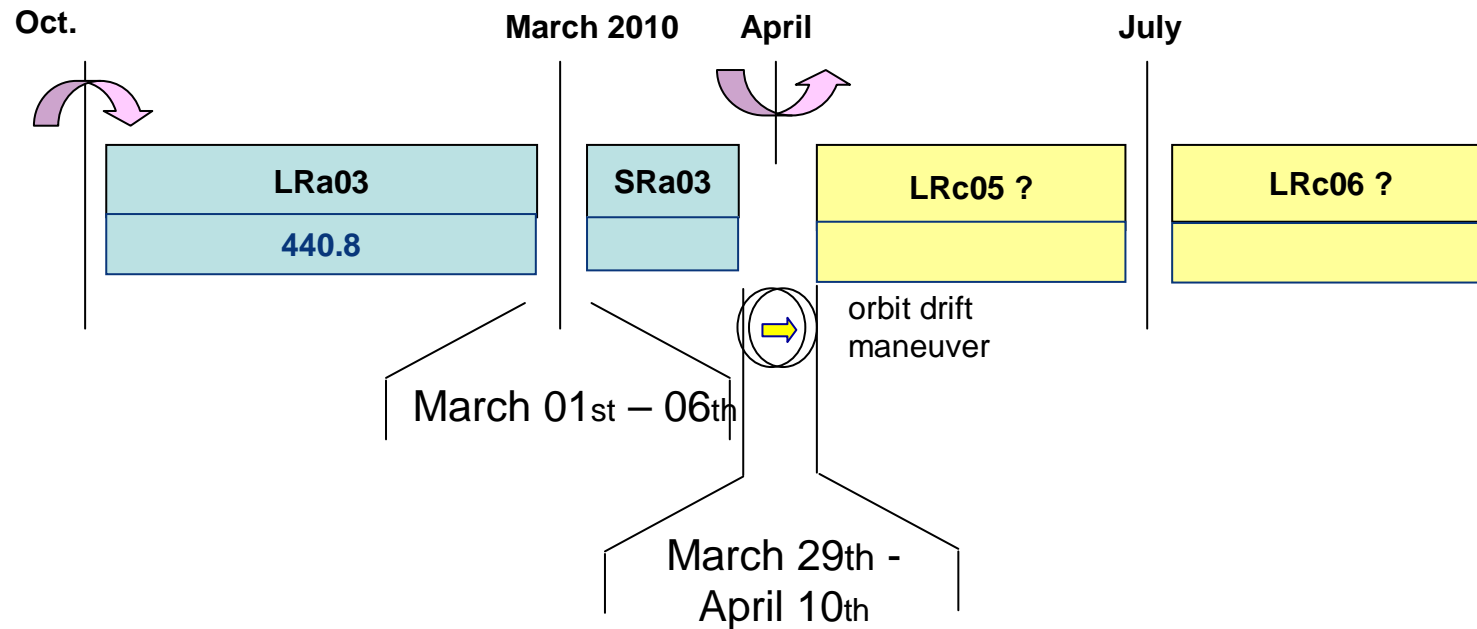
- ♦ Delta <0 Favorable
- ♦ Delta >0 Unfavorable
- ♦ Roll > 0 better at the beginning of the period, **worse at the end (SRa03 !)** →
- ♦ Roll < 0 **worse at the beginning** of the period, better at the end

■ Summer :

- ♦ Delta <0 Unfavorable
- ♦ Delta >0 Favorable
- ♦ Roll > 0 **worse at the beginning** of the period, better at the end
- ♦ Roll < 0 better at the beginning of the period, **worse at the end**

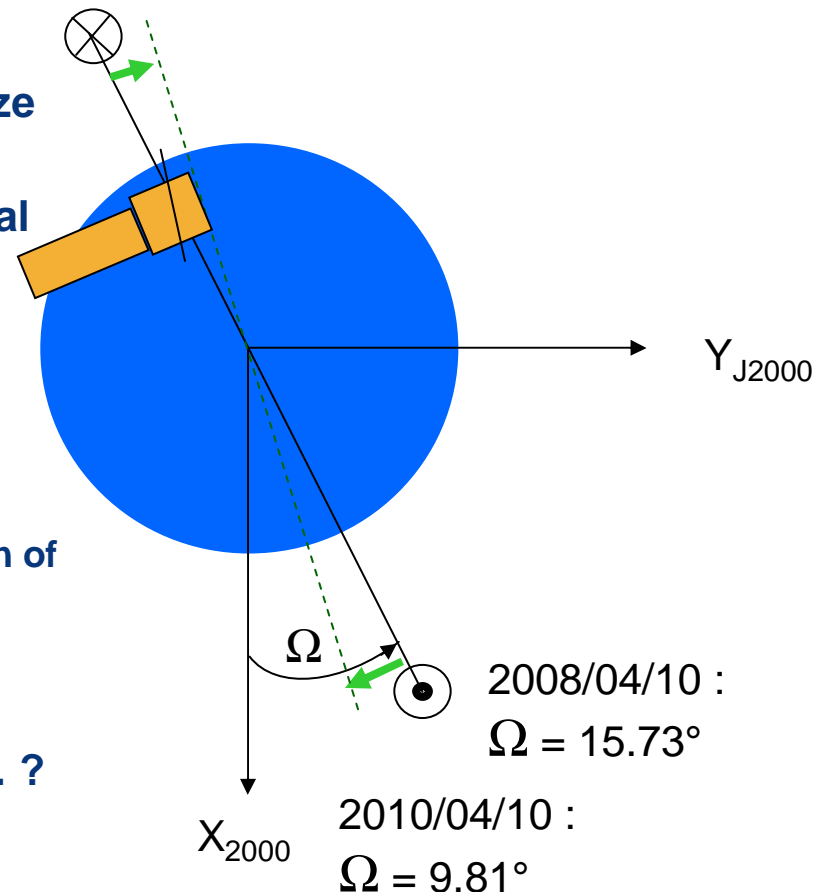


The next Operations : 2010

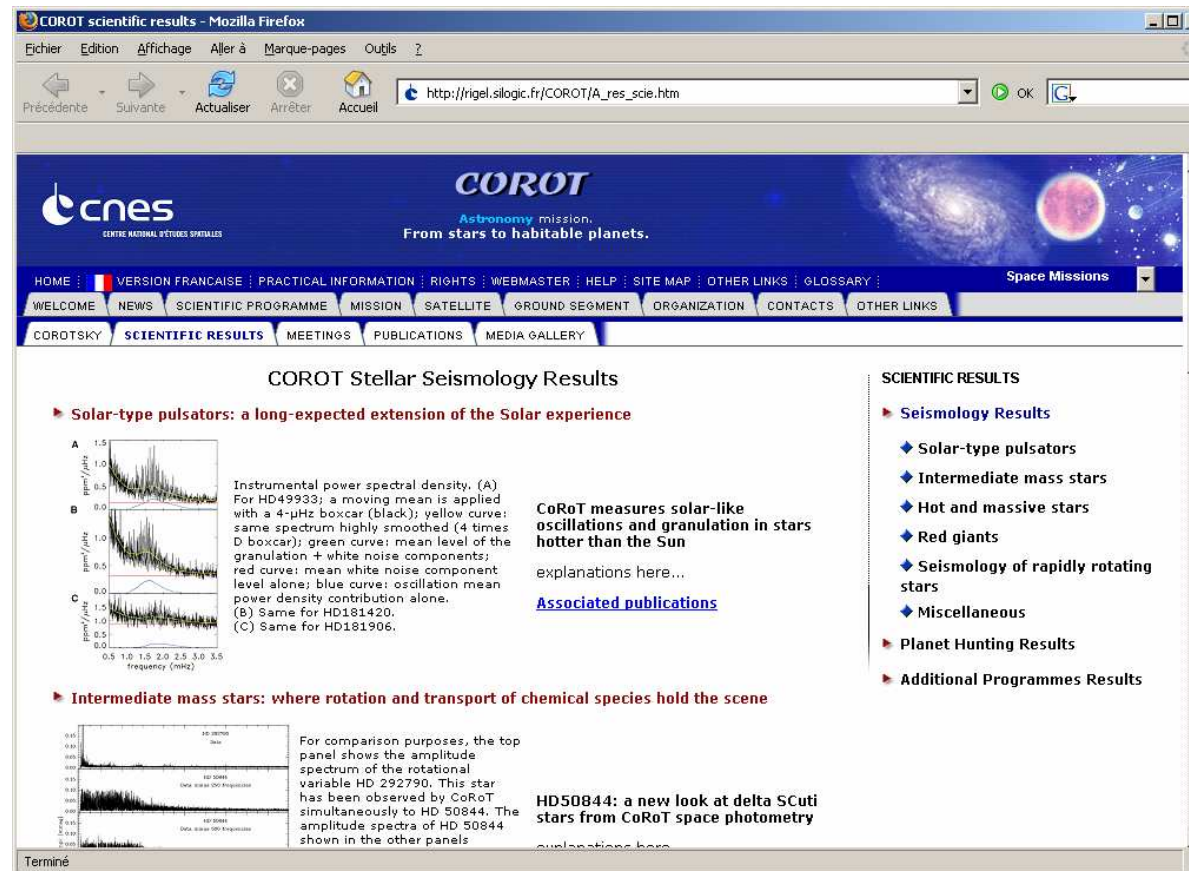


Orbit maneuvers : end of March 2010

- Purpose : stop the drift ($3^\circ/\text{year}$) to freeze the direction of orbital plane
- Reduction of the inclination of the orbital plane
- Operations
 - ◆ Thruster calibration
 - ◆ Orbit restitution
 - ◆ 2 day maneuvers to reduce the inclination of the orbital plane
- Question to CS : what drift residue is acceptable for science : $0.1^\circ/\text{y}$, $0.5^\circ/\text{y}$, ... ?



Evolution of COROT Web site



Next project events :

- **March 2010 : Review of CDC (organized by AB)**
- **June 10th 2010 : REVEX (Exploitation Review)**