

48th Scientific Committee

CoRoT Mission Status

C. DONNY



■ April-May 2013 : Last attempt to restart Corot

- ◆ Observation on the test bed that the temperature had an effect on the supposed cause of the problem.
- ◆ Being colder could possibly help a restart !
- ◆ So we decided to lower the temperature of the payload by lowering the survival heaters along with an increase of the payload power bus voltage (to increase the available margin)
- ◆ Payload temperature dropped by about 20-25°C (from 8-10°C to -14°C)
- ◆ Then, we turned on the instrument

- ◆ Unfortunately there was no effect. Corot remained silent.

■ Conclusion on the anomaly investigation

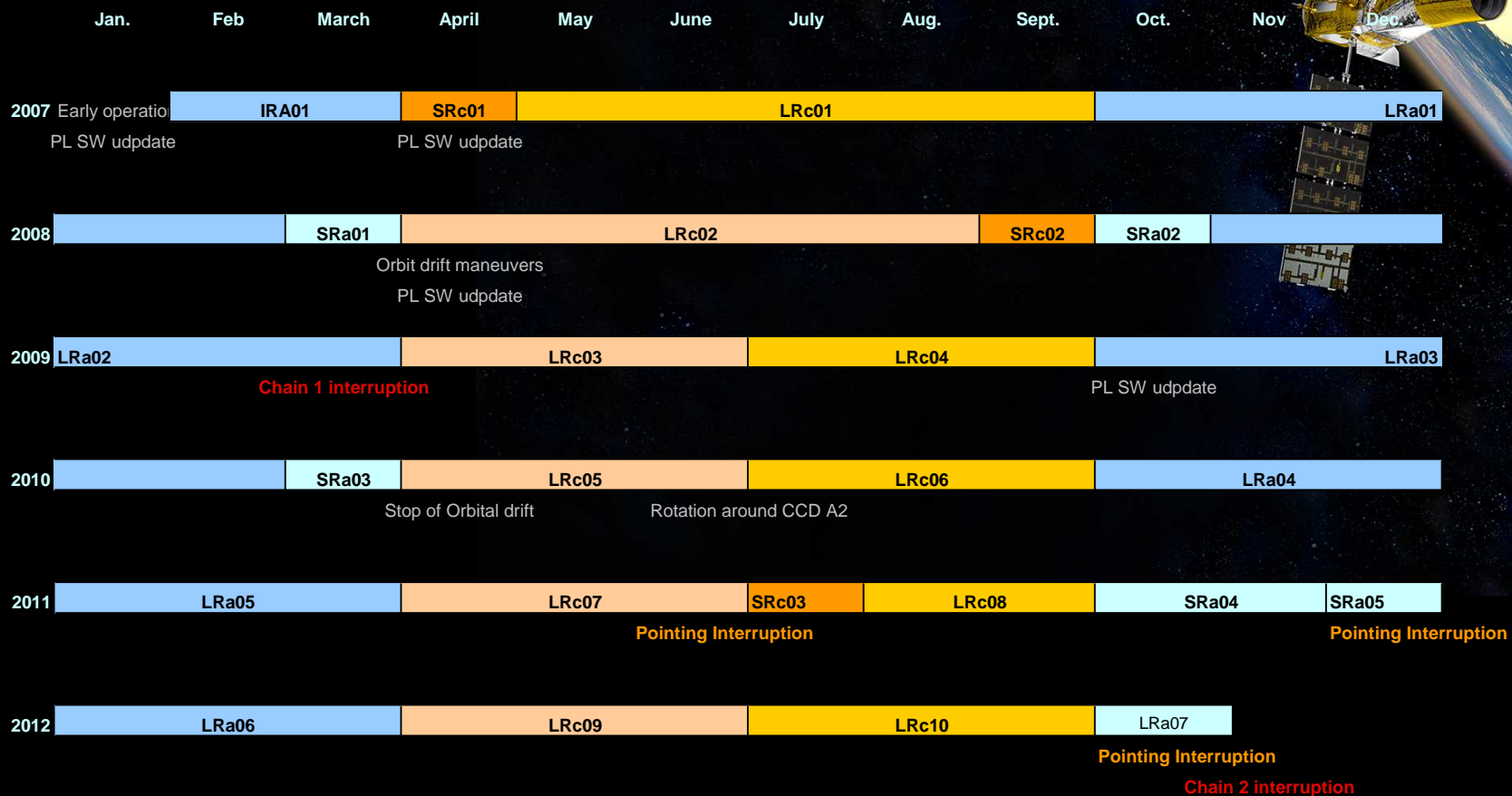
- ◆ Presented to the CNES Board
- ◆ Main hypothesis is a degradation of the current limiter electronics in the input stage of the payload power converter
- ◆ The degradation onboard is certainly worse than the benefit of decreasing the temperature, or there is a second « hidden » cause onboard

⇒ End of the Corot mission is confirmed on the 20th of June.

⇒ Start of the F Phase : decommissioning



This concludes six years of use



26 scientific runs performed in 6 years
Overall observation time > 90%
2274 days in orbit for science

■ Corot F phase encompasses the following tasks

- Set up budgets and human resources to conduct the phase
- Amendment to CNES-INSU convention to take into account the change
- Dismantling of the Corot Mission Center

} Done

- Prepare final processing and production of data in the labs
- Prepare long term archiving at CNES
- Prepare end of life operations

} In progress

■ COROT Revex – September 18th

- Big thank you to the whole team for all the work done during those 6 years !
- Some actions for the final part of the project : see last slide

■ End of life Review – September 19th

- Authorization to start some technological experiments and end of life preparation



- **Contrary to the instrument, the Proteus platform is healthy**
 - ◆ Power, propulsion, thermal, command control, aocs are nominal !!!
- **So it was decided to conduct different technological experiments before decommissioning the satellite -> starting end of september**
- **7 experiments have been selected**
 - ◆ **COR_THERM** : assessment of some thermal effects on the solar array for the SWOT mission
 - ◆ **COR_AGIL** : satellite attitude control optimisation
 - ◆ **COR_CMD_STRUCT** : use of structured commands
 - ◆ **COR_SST** : Star tracker end of life performance assessment
 - ◆ **COR_CAR_Reservoir** : characterization of the proteus propellant tank
 - ◆ **COR_RADAR** : characterization of a rotating object in orbit (using Corot as the rotating object)
 - ◆ **COR_THRUST** : test of manual thrusts in survival mode

 - ◆ **+ one last additional payload test** : turn ON the instrument while increasing the payload temperature -> will give more inputs to strenghten the hypothesis proposed by the experts



- **The decommissioning of the satellite will be performed as follow**
 - ◆ Turn OFF the payload (will be unfortunately already done !!)
 - ◆ Reach the de-orbitation orbit by lowering the perigee (elliptical orbit with 906km apogee and 649km perigee) -> goes with the propellant emptying
 - ◆ Put the satellite in survival mode
 - ◆ Perform the battery discharge
 - ◆ Send the final telecommand to definitely turn OFF Corot

- **Will take about 3 months**

- **Final turn OFF expected in june 2014**

- **De-orbitation is expected to last a bit more than 40 years**



- **The following actions have been written by the revex board**
 - ◆ **The person in charge is formally responsible for the action but may of course rely on some other**

ID	Action item	Person in charge	Deadline
A-R6-2	Clearly define the list of data to store in the mission archive and in the long term archive (scientific data, software, mission documentation...)	C. Donny	March 2014
A-R6-4	Define a date before january 2014 to organize a data processing workshop	A. Baglin	October 2013
A-R6-5	Define the scientific data production deadline	A. Baglin	February 2014
A-R6-6	Define a planning for the data production and assess resources availability	A. Baglin	End of 2013
A-R6-7	Assess the need of introducing a correction for the « jump » due to bright pixels in the EXO data	M. Deleuil	Data processing workshop
A-R6-8	Identify fixed-term contracts that could possibly end before the project end	A. Baglin	November 2013
A-R6-10	Define a common event (date, location, content) to have a data processing REVEX, a Scientific CoRoT Day, and the uplink of the last CoRoT telecommand (probably june 2014).	C. Donny	End of 2013

- ◆ **Some other actions have been written but do not concern the Scientific Committe**

- **End of the project is expected in March 2015**

