


P2SC-ROB-WR-040-20101213 Weekly report #040	P2SC Weekly report	
Period covered: Date: Written by: Released by:	Mon Dec 13 to Sun Dec 19 2010 Thu Dec 23 2010 Marie Dominique Anik De Groof	Royal Observatory of Belgium PROBA2 Science Center
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1. Science

Solar & Space weather events

The strongest solar event in this period was a C5.3 flare from active region NOAA 11135 on Dec 15.

Other noteworthy activity was a long duration C2.3 flare on Dec 14 from NOAA 11134.

From Dec 15-16 onwards, the complex of NOAA active regions 11131, 11133 and 11134 in the

Northern solar hemisphere rotated behind the solar limb, resulting in a downward trend in all solar indices (F10.7, GOES X-ray curves and the LYRA and SWAP curves).

An SIDC all quiet alert was issued from Saturday Dec 18 onwards.

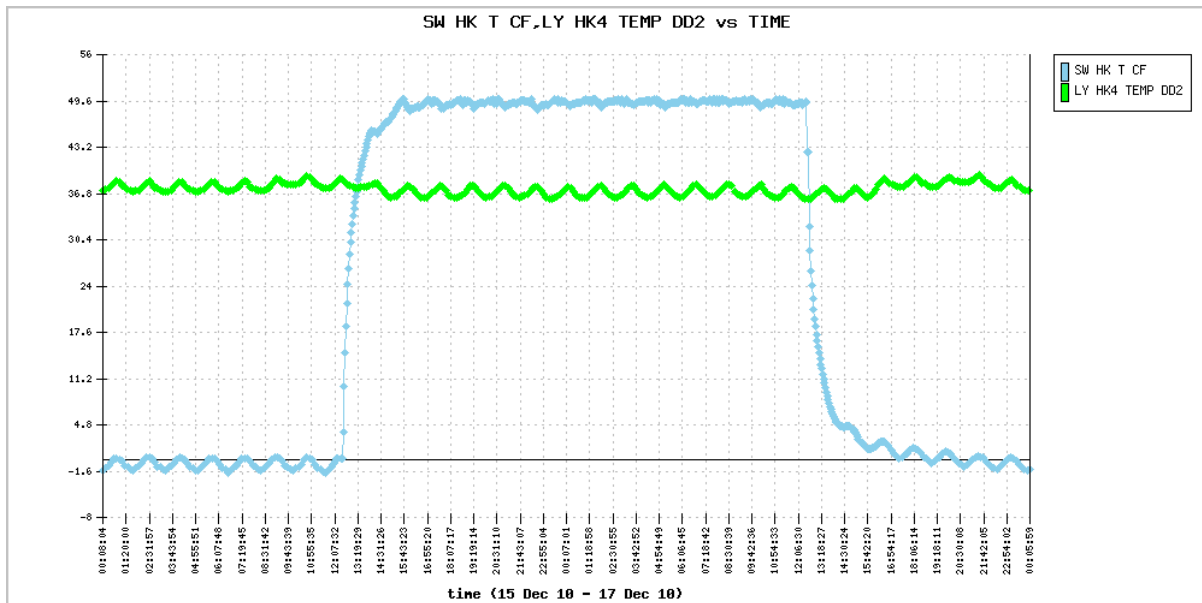
Scientific campaigns

The following SWAP campaign was executed:

- from 2010-12-15T12:32 to 2010-12-16T12:32, a SWAP bake-out was performed. It was preceded by a LED calibration from 11:15 to 12:16 on Dec 15. Other calibration campaigns took place after the bake-out on Dec 16 to monitor the cooling down of the instrument:
 - hot case from 12:52 to 13:09
 - cooling process from 14:03 to 14:19
 - cold case from 15:33 to 15:49

During the campaign, LYRA was in idle mode most of the time (from Dec 15 13:30 to Dec 16 15:30)

The campaign was executed successfully. No change in LYRA signal was observed after SWAP bake-out.

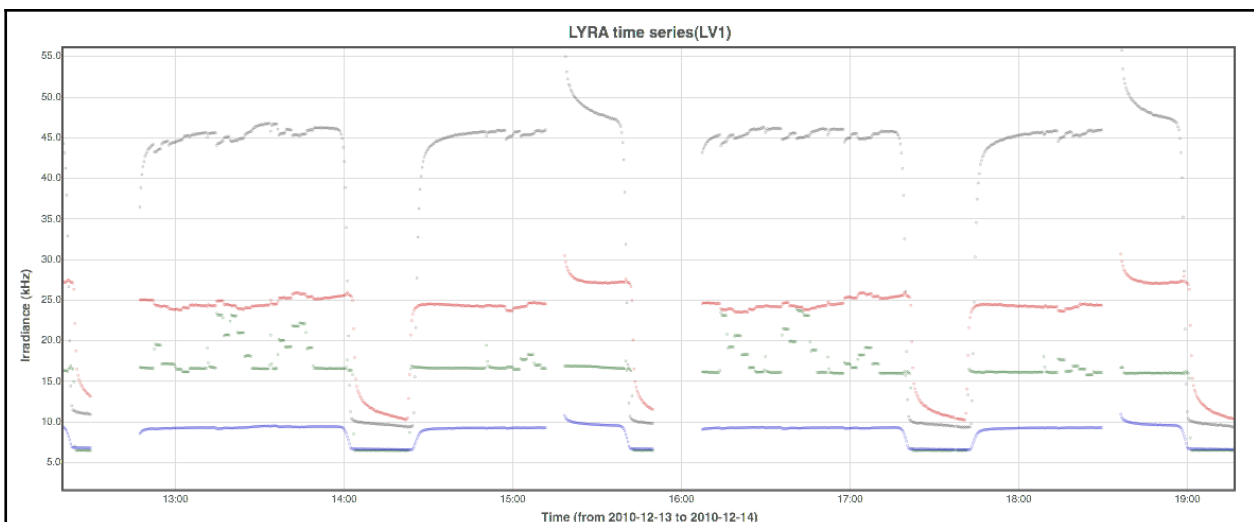


The following LYRA campaigns were executed:

- 2010-12-13, occultation measurements U2/U3 from 10:30 to 11:24, 50msec integration
- 2010-12-13, Lyra paving from 12:30 to 18:30
- 2010-12-14, occultation measurements U2/U3 from 09:40 to 10:34 , 50msec integration
- 2010-12-14, calibration (LREP_02) from 10:45 to 20:35
- 2010-12-14, back-up acquisition with units 2 and 3 (LREP_03) from 20:45 to 21:02
- 2010-12-15, occultation measurements U2/U3 from 08:49 to 09:42, 50msec integration
- 2010-12-16, occultation measurements U2/U3 from 19:32 to 20:26, 50msec integration
- 2010-12-17, occultation measurements U2/U3 from 08:46 to 09:40, 50msec integration

All LYRA campaigns were executed successfully.

Note: to cope with the occultations, 2 orbits were needed to perform a complete paving of one detectors instead of one, usually. Since all three units were to be tested and maximum two can be used together, the whole procedure spanned over a total of 4 orbits.



No significant and permanent jump was observed in Herzberg channel. The only small jumps observed corresponds to the manual opening and closing of cover3.

Outreach, papers, presentations, etc.

On Dec 16, Anik De Groof gave a seminar at CPA (KUL), titled "SWAP and LYRA onboard PROBA2, new EUV instruments for coronal monitoring"

2. LYRA instrument status

Calibration

A calibration LREP_02 and a back-up acquisition LREP_03 were performed on Dec 14.

In addition, a paving campaign was performed on Dec 13.

IOS & operations

IOS123 up to IOS125 were uploaded onboard, IOS125 overwriting IOS124.

LYRA activities consisted in the campaigns mentioned here-above + a transition to idle mode during the SWAP bake-out campaign (LYRA was kept acquiring during the first orbit of off-pointing, then switched to idle).

Temperatures

Variation of temperature were as expected, considering the different campaigns on-going. Remark, during SWAP bake-out, LYRA actually lost a couple of degrees (because the instrument was in idle mode, acquiring only the housekeeping data).

3. SWAP instrument status

MCPM errors

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IOS & operations

SWAP operations included:

- a paving sequence to support LYRA paving campaign on Dec 13
- a LED calibration on Dec 15
- a bake-out from Dec 15 12h32 to Dec 16 12:32
- three calibration campaigns to monitor the cooling after bake out

SWAP IOS 00218 to 00221 were uploaded

SWAP detector and IIU temperature

The variations of SWAP detector temperatures are the ones expected, considering the activities of the other instruments. CF temperature jumped up to 50°C during the bake-out.

4. PROBA2 Science Center Status

Marie Dominique was operator during this week.

LYEDG has been manually run for data of December 15 because the FITS files were incomplete. Reason: Some data were resent the day after by Redu. In the mean time the FITS file had been moved out of the temporary folder. So an empty file got updated with data of just one pass.

5. Data reception & discussions with MOC

The LYRA occultation measurements were supported by the MOC operator by opening and closing the unit3 doors via control procedures.

Data coverage HK

No gap in the data.

Data coverage SWAP

At the end of the WE, SWAP download was blocked. We therefore got only 1 image out of 3 till 12:32.

Besides this:

- pass 3210 on Dec 13 was incomplete at first. It was resent on Dec 14
- pass 3213 on Dec 13 contained 1 corrupted image
- pass 3221 on Dec 14 contained 4 corrupted images (among which 1 first packet)
- 4 images were missing from pass 3223 on Dec 15
- data from passes 3228 and 3229 (Dec 15) were received with one day of delay due to a SCOS problem
- 3 images were missing from pass 3231 on Dec 15
- pass 3241 on Dec 17 contained 2 corrupted images (first packet corrupted)

- pass 3256 on Dec 18 was incomplete at first. It was re-sent on Dec 20.
- pass 3267 on Dec 19 : 2 images missing

Data coverage LYRA

No gap in the data.

6. APPENDIX Frequently used acronyms

ADP	Ancillary Data Processor
ADPMS	Advanced Data and Power Management System
AOCS	Attitude and Orbit Control System
APS	Active Pixel image Sensor
ASIC	Application Specific Integrated Circuit
BBE	Base Band Equipment
CME	Coronal Mass Ejection
COGEX	Cool Gas Generator Experiment
CRC	Cyclic Redundancy Check
DR	Destructive Readout
DSLPL	Dual Segmented Langmuir Probe
EIT	Extreme ultraviolet Imaging Telescope
FITS	Flexible Image Transport System
FOV	Field Of View FPA Focal Plane Assembly
FPGA	Field Programmable Gate Arrays
GPS	Global Positioning System
HAS	High Accuracy Star tracker
HK	Housekeeping
ICD	Interface Control Document
IU	Instrument Interface Unit
IOS	Instrument Operations Sheet
LED	Light Emitting Diode
LEO	Low Earth Orbit
LYRA	LYman alpha RAdiometer
LYTMR	LYRA Telemetry Reformatter (software module of P2SC)
LYEDG	LYRA Engineering Data Generator (software module of P2SC)
MCPM	Mass Memory, Compression and Packetisation Module
MOC	Mission Operation Center
NDR	Non Destructive Readout
OBET	On board Elapsed Time
OBSW	On board Software
PE	Proximity Electronics
PGA	Programmable Gain Amplifier
PI	Principal Investigator
P2SC	PROBA2 Science Center
PPT	Pointing, Positioning and Time (software module of P2SC)
ROB	Royal Observatory of Belgium
SAA	South Atlantic Anomaly
SCOS	Spacecraft Operation System
SEU	Single Event Upset
SOHO	Solar and Heliospheric Observatory

SWAP	Sun Watcher using APS detector and image Processing
SWBSDG	SWAP Base Science Data Generator
SWEDG	SWAP Engineering Data Generator (software module of P2SC)
SWTMR	SWAP Telemetry Reformatter (software module of P2SC)
TBC	To Be Confirmed
TBD	To Be Defined
TBW	To Be Written
TC	Telecommand
TPMU	Thermal Plasma Measurement Unit
UTC	Coordinated Universal Time
UV	Ultraviolet