P2SC-ROB-WR-034-20101101 Weekly report #034	P2SC Weekly report	
Period covered: Date: Written by: Released by:	Mon Nov 01 to Sun Nov 07 2010 Nov 14 2010 Joe Zender D. Berghmans	Royal Observatory of Belgium PROBA2 Science Center
To:	LYRA PI, marie.dominique@oma.be SWAP PI, david@sidc.be	http://proba2.sidc.be ++ 32 (0) 2 373 0 559
cc:	ROB DIR, ronald@oma.be ESA Redu, Etienne.Tilmans@esa.int ESA D/SRE, Joe.Zender@esa.int ESA D/TEC, Karsten.Strauch@esa.int	

0. Happy Birthday PROBA2
A thanks from the P2SC team to everybody contributed to this success!
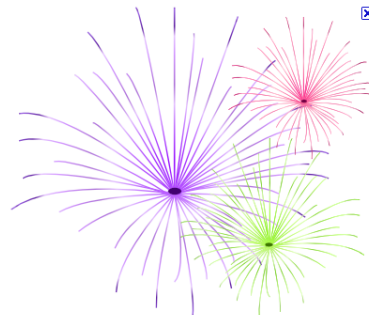
1. Science

Solar & Space weather events

With the passing of AR1118 behind the limb, the solar weather weak started quietly. With the active region 11121 appearing on the South-East limb, the solar activities increased on Tuesday towards Thursday producing the biggest flare since launch: *an M5.4 flare on 2010-11-06T15:27-20:00.* Further C-class flares observed were:

2010-11-01T04:36 C1.1
2010-11-03T05:54 C3.8
2010-11-03T12:07 C4.9
2010-11-03T12:20 C3.4 (UV eclipse)
2010-11-04T02:34 C1.0 (event fully covered by UV eclipse, only end of decay visible)
2010-11-04T04:00 B flare, initial phase in eclipse, decay in paving campaign, then lyra off
2010-11-05T00:48 C9.7
2010-11-05T12:43 M1.0 (start in UV eclipse) (Lyman-a pre-cursor?)
2010-11-06T02:16 C2.0 (UV eclipse)
2010-11-06T04:31 C4.5 (Lyman-a pre-cursor?)
2010-11-06T08:21 C1.6 (SAA crossing)
2010-11-06T17:06 C5.4 (UV eclipse, quite long flare)
2010-11-07T01:31 C1.4 (UV eclipse during initial phase)

['UV eclipse' indicates that most of the event is overlaid by UV eclipse and data might not be useful for scientific analysis]

SWAP

The following sequence shows the first image of each day during the week (left to right, top down)

AR1118   AR1120

AR1121

AR1122
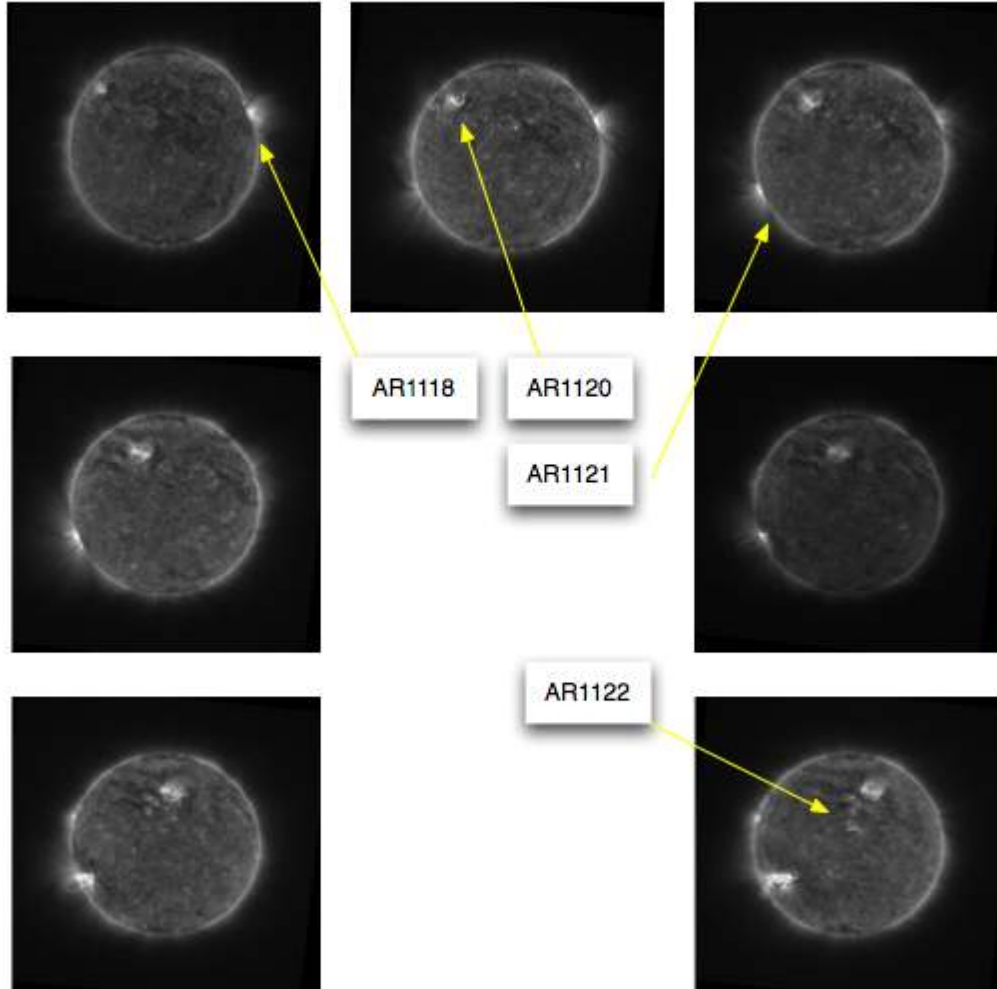
LYRA

The following plot shows the response of the Aluminium channel of Unit2 throughout the week. Lyra was switched-off during these hours (see explanations later in this report).

LYRA time series (level1)
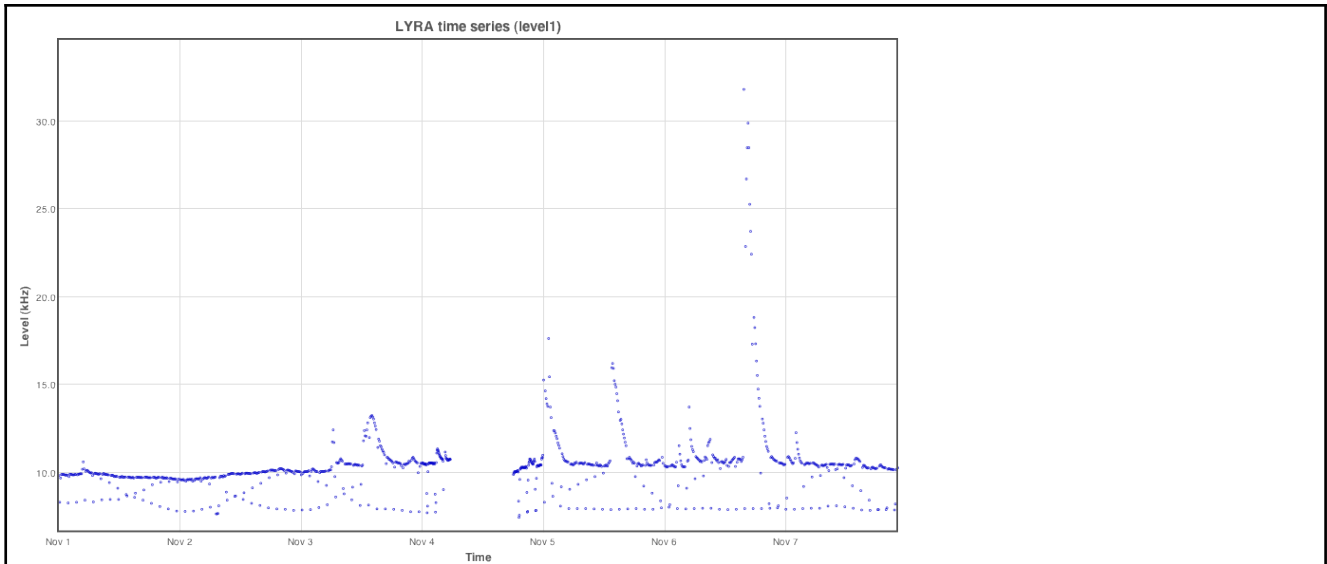
PROBA2
The tangential altitude reached 45km and the visual eclipses will start on 2010-11-11.

Scientific campaigns
The SWAP LED calibration was planned via SW_IOS00198 and executed successfully on 2010-11-02.
A LYRA paving campaign was planned via SW_IOS00199 and LY_IOS_00106 for 2010-11-04 between 04:10 and 06:07. In the middle of the campaign the thermal limits were overpassed and LYRA was switched off automatically.
SWAP was operated SW_IOS00199 to acquire images with low priorities during UV eclipses from 2010-11-02 until 2010-11-04T07:23, followed by SW_IOS00200 commanding no image aquisition during UV eclipses.
ESP support was given on 2010-11-04T06:30 - 07:02, by avoiding any image acquisition during this period.

Outreach, papers, presentations, etc.
The paper of Dan Seaton, titled "SWAP-SECCHI Observations of a Mass-Loading Type Solar Eruption" was accepted by ApJ Lett..

To be explored
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2. LYRA instrument status

Calibration
The LYRA paving campaign was planned via LYRA IOS00102 supported by
SWAP IOS00199 to be executed from 04:10 until 06:07. At 05:32 the event
EVT_LYRA_TEMP_DIGITAL_PRINT_HIGH_LIMIT was raised due to high temperatures.
LYRA was reset by the REDU operators and the IOS00106 did restart LYRA in nominal operations (Unit2, 50Hz).

Only part of the paving was executed and a detailed analysis has to follow.

IOS & operations
The following IOS has been prepared during the week:
- IOS00102 -> Lyra paving ops using unit2 and unit3
- IOS00103 -> restart of Lyra: not uploaded
- IOS00104 -> restart of Lyra: IOS sent too late
- IOS00105 -> restart of Lyra: IOS start time to early, IOS reject manually
- IOS00106 -> restart of Lyra: ok

To be explored

Result of paving campaign

3. SWAP instrument status

MCPM recoverable errors
The MCPM recoverable errors increased by two during the week:
2010-11-01T10:23:52.000Z to 207
2010-11-04T21:23:47.000Z to 208.
The second MCPM event happened at the end of a South Atlantic Anomaly crossing.

SWAP calibration
   A SWAP LED calibration was executed successfully via IOS00198 during 2010-10-02T07:06 and 08:00.

IOS & operations
   ● IOS00198 to support the LED campaign
   ● IOS00199 to support the LYRA paving campaign
   ● IOS00200 to support the ESP measurements: 2010-11-04T06:30 until 07:00. This IOS contained the low priority imaging during eclipses until Tuesday, 2010-11-08.

SWAP detector and IIU temperature
The SWAP Cold Finger temperature fluctuated between 4.8 and 7.2 degrees Celsius and was this higher then in the previous week.

4. PROBA2 Science Center Status
No pipeline modules were updated during the reporting period.

5. Data reception & discussions with MOC

Passes
Nominal situation on downlink passes.

Data coverage HK
Nominal, no data gaps

Data coverage SWAP	
Nominal, no data gaps.	

Data coverage LYRA	
Nominal, no data gaps caused by downlink problems. All data acquired were downlinked.	

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
DSLP	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
IIU	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