P2SC-ROB-WR-059-20110502 Weekly report #059	**P2SC Weekly report**	
Period covered: Date: Written by: Released by:	Mon May 02 to Sun May 08 2011 Sun May 13 2011 David Berghmans Carlos Cabanas	Royal Observatory of Belgium PROBA2 Science Center
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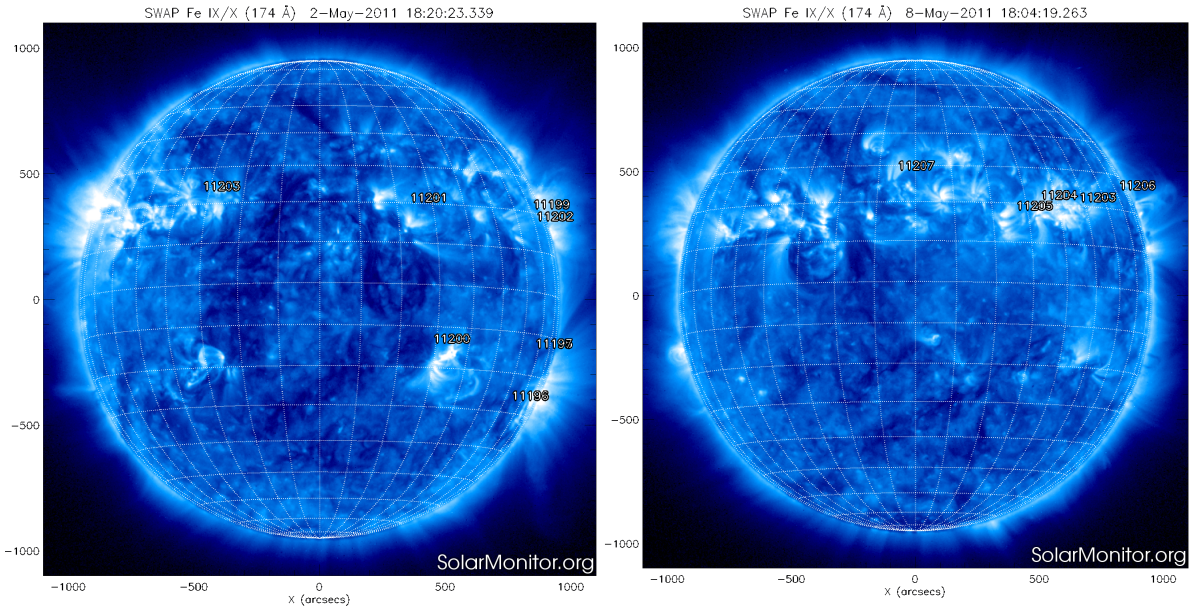
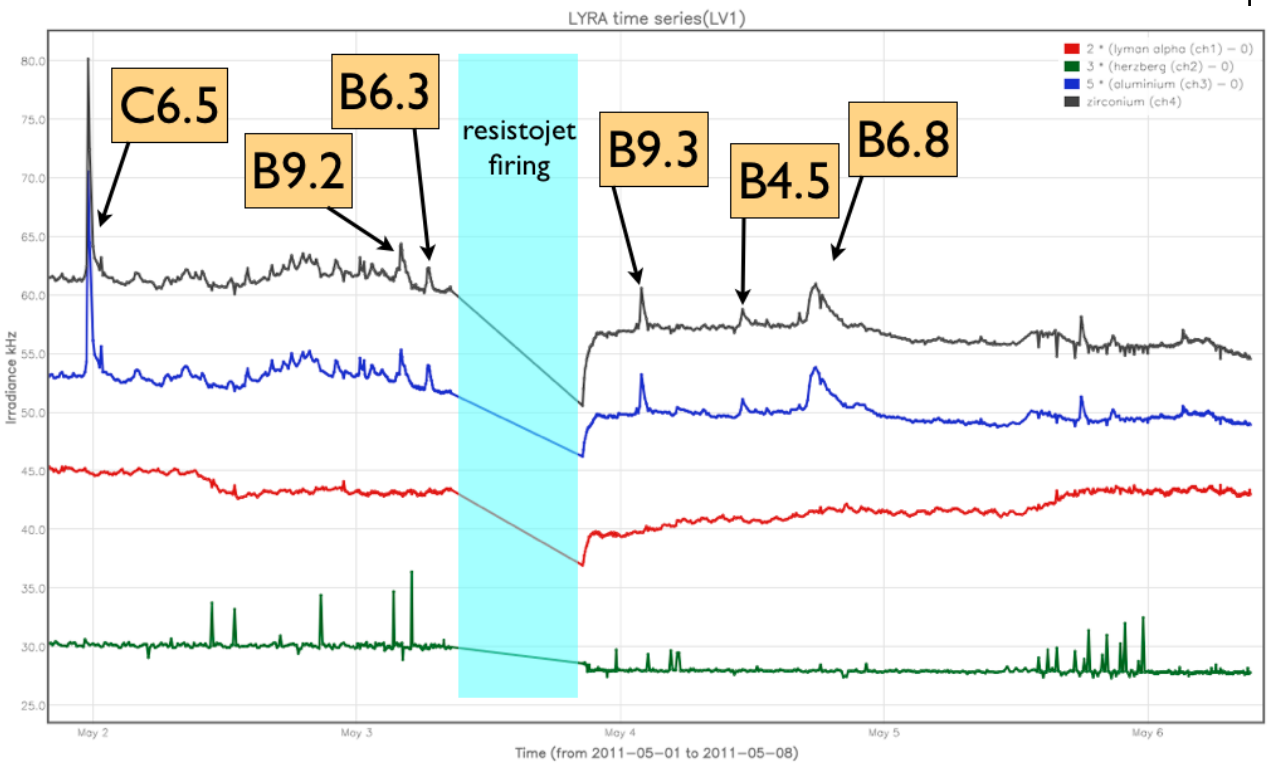
1. Science

Solar & Space weather events



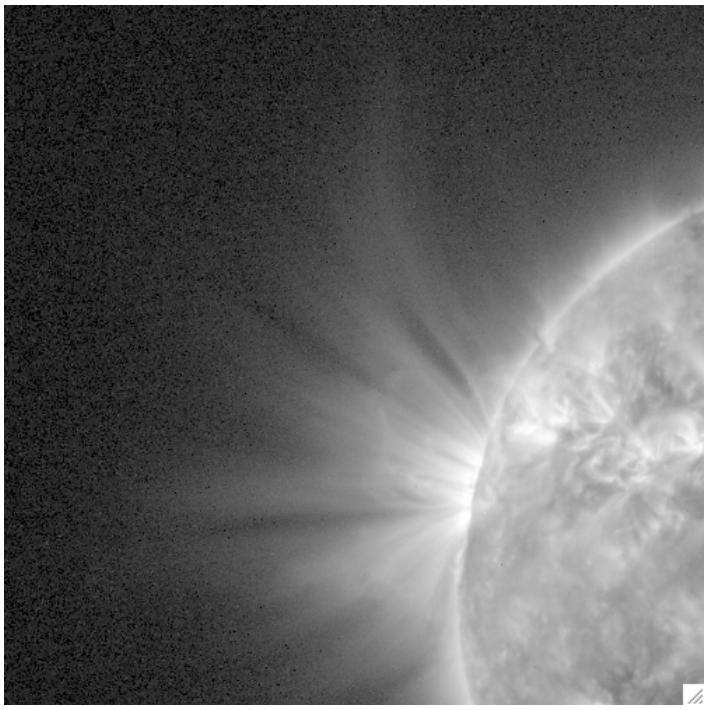
The two figures above show the active regions on SWAP images in the beginning and end of the reporting period. The week started with a C6.5 flare (actually just before midnight) from NOAA 11199, then already rotated over the solar West limb. After that, activity was dominated by a cluster of active regions (NOAA 11203, 11204 and 11205) in the NE quadrant. A C1.3 flare was released from NOAA11204 on May 3 (peak 10:52UT) but this was not observed

due to the resistojet firing campaign. After that activity gradually decreased with only B-flares remaining (see graph below).



Scientific campaigns

Spectacular coronal rays where observed on the North-East limb. In agreement with Guest Investigators Vladimir Slemzin and Louise Harra, we observed this target of opportunity on May 3 with a SWAP high cadence campaign, coordinated with Hinode/EIS.



Outreach, papers, presentations, etc.

PROBA2 was presented in a public talk by D. Berghmans on the Open Day (May 7 2011) of the Council of the European Union. *(reminder: all P2SC public presentations can be found at http://proba2.sidc.be/Presentations/)*

To be explored
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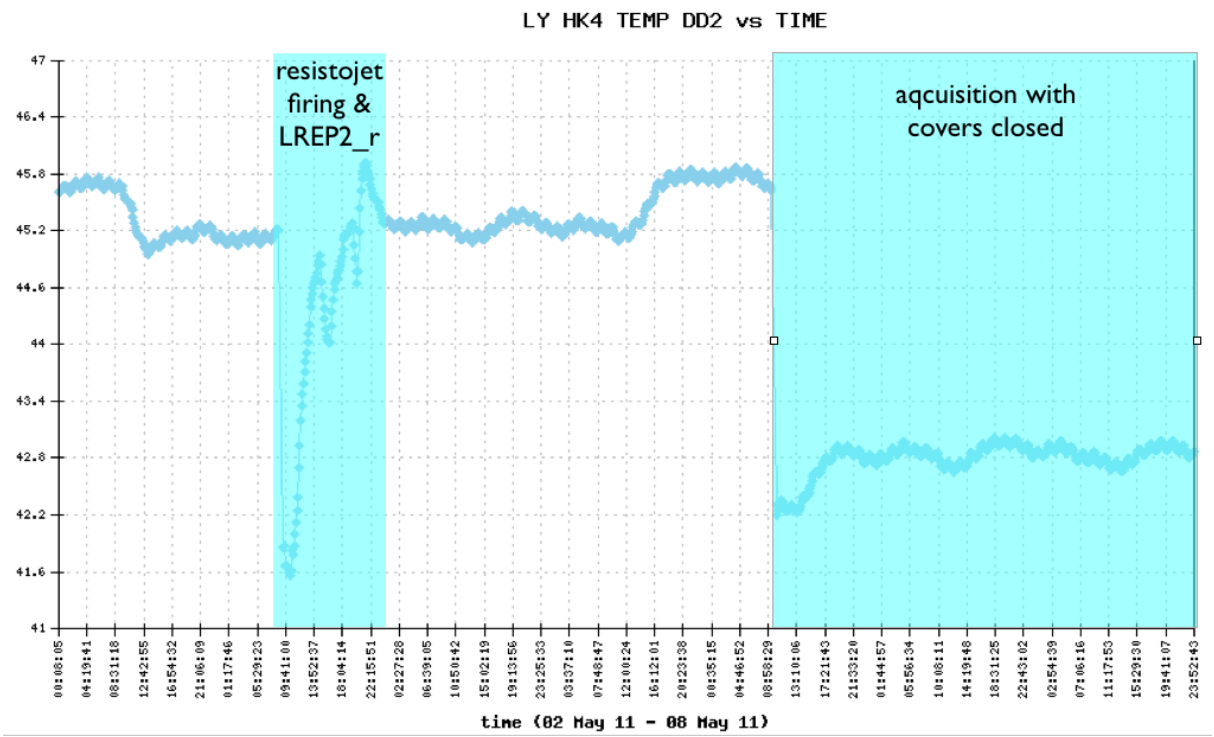
2. LYRA instrument status

Calibration
An LREP2_reduced calibration campaign took place on Tuesday May 3.

IOS & operations

Monday May 2	Tuesday May 3	Wednesday May 4	Thursday May 5	Friday May 6	Saturday May 7	Sunday May 8
Nominal acquisition since April 30 (IOS0160)	Thruster campaign LREP2_red. (IOS00162)	nominal acquisition (IOS00162)	nominal acquisition (IOS00162)	Thruster campaign (IOS00163)	nominal acquisition but covers closed (IOS00163)	nominal acquisition but covers closed (IOS00163)

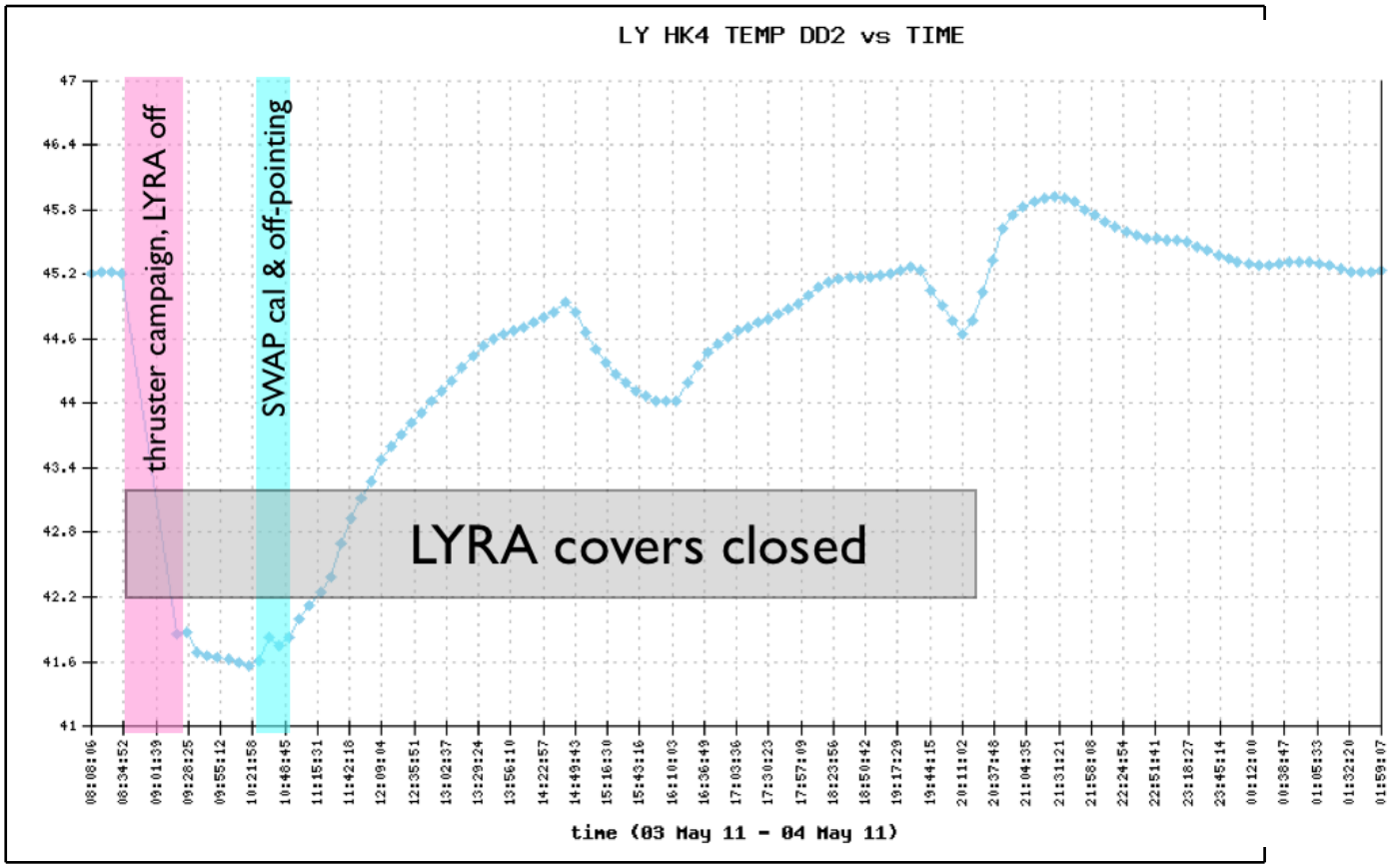
LYRA detector temperature
The LYRA detector 2 temperature (nominal unit) operated between 41C and 46 degrees Celsius. On May3, Effects were seen of the thruster campaign (LYRA off) and the LREP2_reduced calibration campaign.



To be explored

A SWAP calibration campaign (including 3deg off-pointing) was run together with the LYRA LREP2_reduced campaign. This has the advantage that the LYRA solar observations are not disturbed by the SWAP off-pointing. At first sight, the SWAP off-pointing does not have any significant influence on the LYRA (closed cover) observations.

Conclusion: it is a good idea to combine LREP_2_reduced with SWAP calibration and/or off-pointings.



3. SWAP instrument status

MCPM errors

The number of MCPM recoverable errors increased from 1136 to 1143. The number of unrecoverable errors is still 0.

IOS & operations

Monday May 2	Tuesday May 3	Wednesday May 4	Thursday May 5	Friday May 6	Saturday May 7	Sunday May 8
Nominal acquisition since April 27 (IOS00286) 718 images	Thruster campaign ESP test SWAP calibration (IOS00288) 667 images	High cadence off-pointing campaign for coronal ray structures (IOS00289) 770 images	Nominal acquisition (IOS00289) 634 images	Thruster campaign (IOS00291) 606 images	Nominal acquisition (IOS00291) 715 images	Nominal acquisition (IOS00291) 673 images

SWAP detector temperature

The SWAP Cold Finger Temperature fluctuated between 1.6 and 2.9 degrees Celsius.
The influence of the thruster campaigns was clearly observed with excursions down to -1.5C on Tuesday May 3 (flight mode in velocity direction) and up to 4.5C on Friday May 6 (flight mode in anti-velocity).

Conclusion: it is a good idea to do SWAP Calibration campaigns right after a “flight mode in velocity direction”**.**

To be explored
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4. PROBA2 Science Center Status

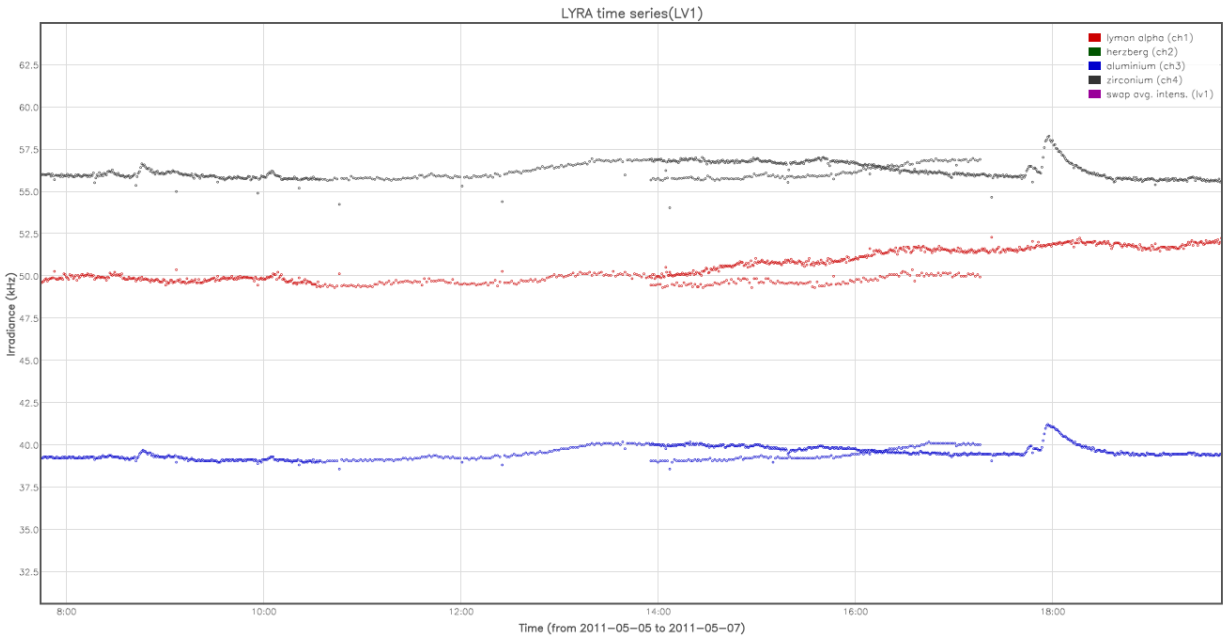
David Berghmans was operator during this week.

The following tools were updated on the operational server:

Software name	**Update**	**Date**	**Comment**
libswap & PPT	4010	May 3	swap_coord - further tweaks
LY-QLV	4019	May 6	autoscale small correction

5. Data reception & discussions with MOC

Passes
The Svalbard downlink pass SVA1#4516 (May 5) was not executed by the KSAT scheduler and therefore no data was available. The telemetry store and the LYRA bounded store have been dumped again on the next pass (RED3#4517). The following morning (May 6), the MOC sent a BINLYRA_4516 file, which was a subset of BINLYRA_4517 corresponding to the recovered LYRA bounded store received in 4517. This sequence of events caused the following problem at the P2SC side:



After analysis (M. Dominique) it was concluded that this behavior was due to the fact that the reprocessed BINLYRA_4516 did not have any timestamp associated to it. The following procedure was therefore suggested to the MOC:
"in case a pass has failed, and the whole on-board buffers are dumped at the next pass, we prefer not having the data re-extracted pass by pass (especially if this implies that we get some data twice, like in pass 4516 and 4517 last week)."

Data coverage HK
Housekeeping data was complete throughout the week.

Data coverage SWAP

Statistics for complete week:

Total number of images between 2011 May 02 0UT and 2011 May 09 0UT: 4783
Highest cadence in this period: 19 seconds
Average cadence in this period: 126.45 seconds
Number of image gaps larger than 300 seconds: 31
(These are mostly 360s gaps on Thursday May 5, as a consequence of the high cadence campaign on Wednesday May 4)
Largest data gap: 41.72 minutes (thruster campaign Friday May 6)

Data coverage LYRA
LYRA coverage was complete on May 2, May 4, May 5 and May 6 up till 09:23UT. Data gaps were due to the thruster campaigns (May 3 and 6), to the LYRA calibration campaign (May 3) and to a P2SC operator error (kick David next time you meet him) (May 6,7 and,8). Only dark signal was acquired over the weekend.

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