P2SC-ROB-WR-066-20110620 Weekly report #066	**P2SC Weekly report**	
Period covered: Date: Written by: Released by:	Mon Jun 20 to Sun Jun 26 2011 Marie Dominique Marie Dominique	Royal Observatory of Belgium PROBA2 Science Center
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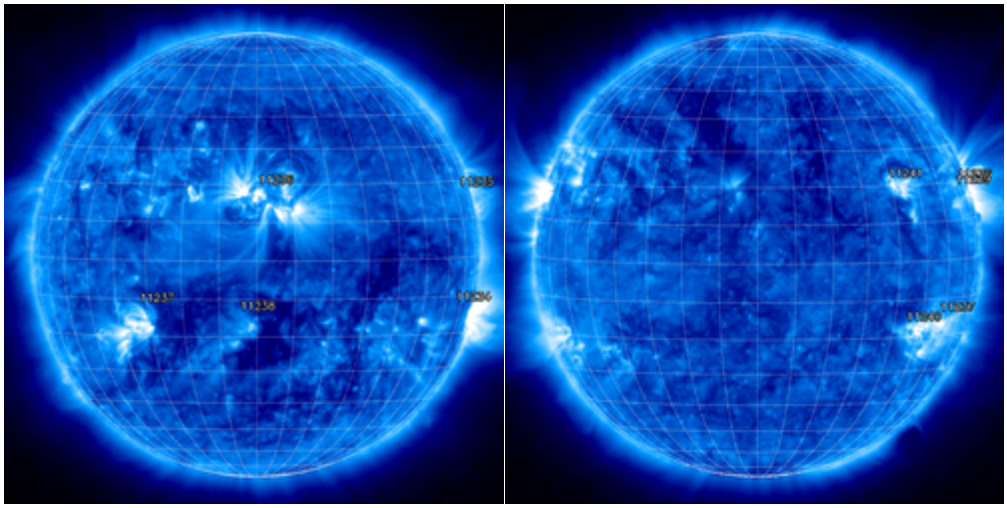
1. Science

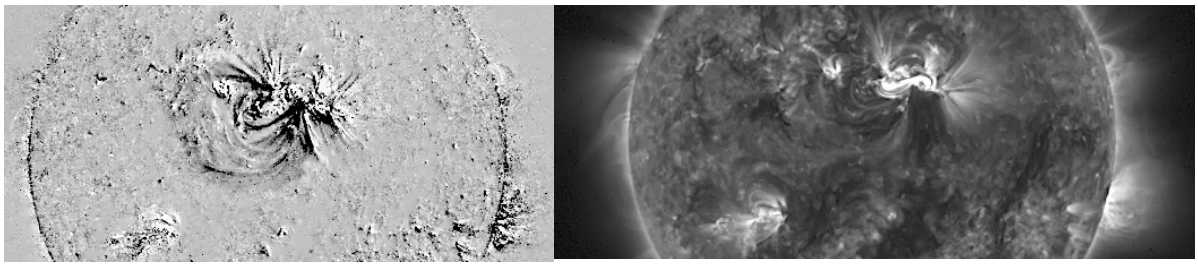
Solar & Space weather events

Overview

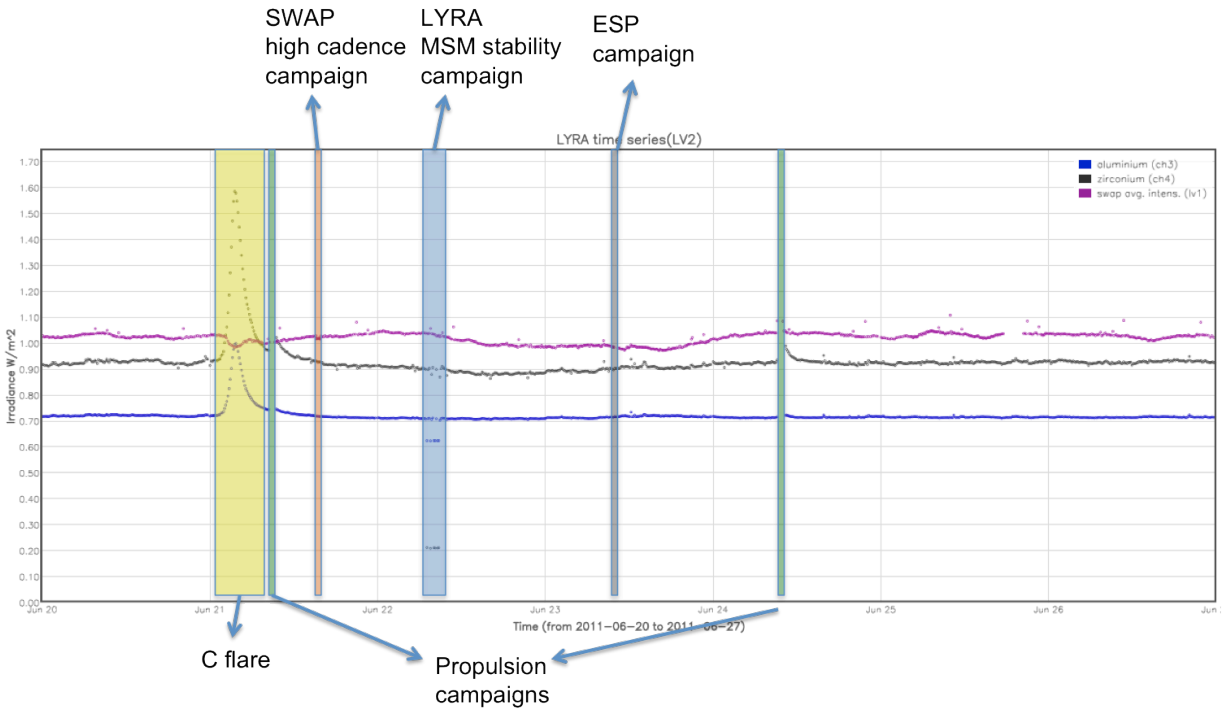
The SWAP images of June 20 and 27 are shown below, with annotated active regions:



Solar activity was globally quiet, with the exception of a C7.7 flare on June 21, 03:00, seen by both SWAP and LYRA, that came with a CME.



Week overview of LYRA Al/Zr signals and SWAP average intensity (SWAVINT in purple):



Specific events

- resistojet campaigns on Jun 21, from 08:30 to 09:10 and on Jun 24 from 09:15 to 10:00
- SWAP high cadence acquisition on Jun 21 from 15:10 to 15:48
- LYRA campaign for testing MSM stabilization rate on Jun 22 from 07:00 to 09:15
- ESP campaign on Jun 23 from 09:52 to 10:20

Scientific campaigns

SWAP high cadence campaign

This sequence is a test campaign for a daily stack image for which SWAP will take high-cadence images with optimized compression/processing onboard. The constraints were the following:

1. First a series of approx. 50 images at 20s cadence (10s integration time) with the following data management settings: all default, except recoding with parameters 0 (instead of 10) and 3600 and high priority number. These images should be taken before, during and after a LAR.
2. Second set of approx. 50 images at 20s cadence, with the default management settings (JPEG+recoding(10,3600)) and high priority number. Again, this set of images is acquired before, during and after the 2nd LAR.

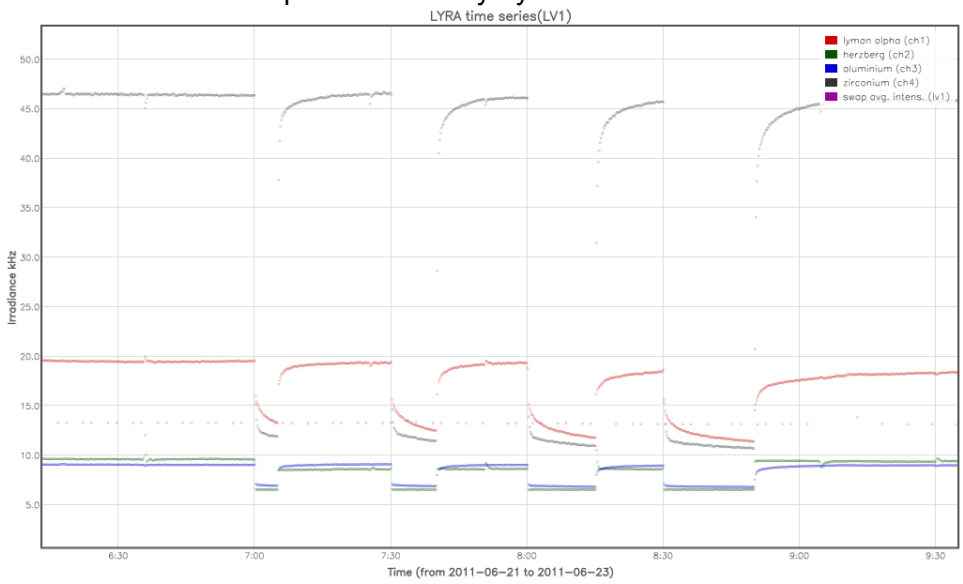
LYRA MSM campaign

Due to the trapping of the photoelectrons by defects (mostly surface defects), MSM detectors need a certain time to stabilize when exposed to light. But because detrapping is not immediate either, we expect the stabilization to be much more fast when the detector is acquiring after a short interruption (e.g. if we close the cover for a short period). This is the effect we want to quantify with this campaign.

From 07:00 (T0) till 9:15, we implemented the following sequence:

- T0: close cover 2
- T0 + 5 min: open cover 2
- T0 + 30 min: close cover 2
- T0 + 40 min: open cover 2
- T0 + 60 min: close cover 2
- T0 + 75 min: open cover 2
- T0 + 90 min: close cover 2
- T0 + 110 min: open cover 2

Note: Cover 2 was closed and opened manually by Redu.



Outreach, papers, presentations, etc.

At the Solar Orbiter/EUI consortium meeting (Liège, June 20), David Berghmans presented Flare detection based on SWAP CMOS images as a test case for onboard Solar Orbiter processing.

To be explored

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2. LYRA instrument status

Calibration

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IOS & operations

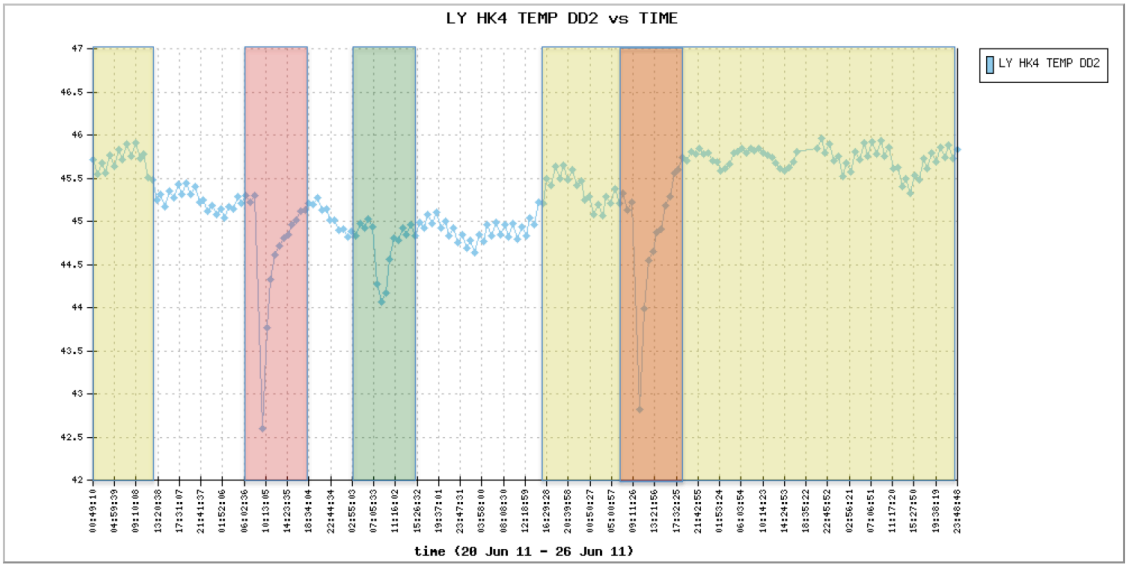
Monday 20 Jun	Tuesday 21 Jun	Wednesday 22 Jun	Thursday 23 Jun	Friday 24 Jun	Saturday 25 Jun	Sunday 26 Jun
Nominal acquisition LYIOS00174	Nominal acquisition + propulsion campaign LYIOS00174	Nominal acquisition + MSM campaign LYIOS00174	Nominal acquisition LYIOS00174	Nominal acquisition + propulsion campaign LYIOS00175	Nominal acquisition LYIOS00175	Nominal acquisition LYIOS00175

LYIOS00175 overwrites LYIOS00174 without introducing any change. It aimed at testing the P2SC commanding tool (LY-PTI) after some changes.

An ASIC reload (automatically scheduled onboard every 100 orbits) took place on Jun 20, at 23:11.

LYRA detector temperature

The LYRA detector 2 temperature (nominal unit) fluctuated between 44 and 46 degrees Celsius. Effects were seen of the two propulsion campaigns (red), of the MSM campaign (green) and of the plasma activities (yellow).



To be explored

- MSM stability

3. SWAP instrument status

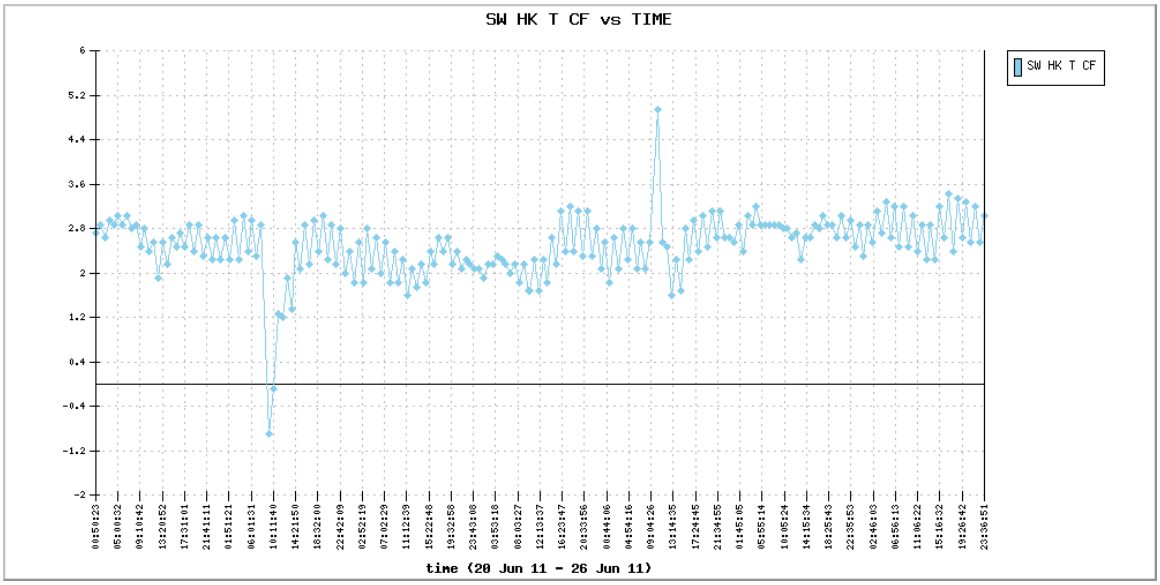
Calibration
No calibration campaign was performed this week.

MCPM recoverable errors
increased from 1315 to 1327 this week.
The number of MCPM unrecoverable errors is still 0.

IOS & operations

Monday 20 Jun	Tuesday 21 Jun	Wednesday 22 Jun	Thursday 23 Jun	Friday 24 Jun	Saturday 25 Jun	Sunday 26 Jun
Nominal acquisition IOS00309 737 images	Nominal acquisition + propulsion campaign + SWAP high cadence IOS00309 795 images	Nominal acquisition IOS00309 752 images	Nominal acquisition + ESP campaign IOS00309 686 images	Nominal acquisition + propulsion campaign IOS00309 740 images	Nominal acquisition IOS00309 691 images	Nominal acquisition IOS00309 766 images

SWAP detector temperature
The SWAP Cold Finger Temperature fluctuated between 1.6 and 3.6 degrees Celsius. A downward excursion was observed to following the propulsion campaigns of June 21 (-1C). In contrast an upward excursion (+5C) could be seen during the propulsion campaign of June 24.



To be explored
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4. PROBA2 Science Center Status

M. Dominique was operator during this week.

The following tools were updated on the operational server:

Software name	Update	Date	Comment

IOS_WRITER	4131	2011/06/23	including LYRA cover commanding

5. Data reception & discussions with MOC

- Data reception was interrupted on Saturday June 25 following pass 4977 until Sunday evening. Finally most data was recovered and received at P2SC by June 28. The problem is mentioned in the next week report (P2SC-ROB-WR-067-20110627)

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
SWAVINT	SWAP AVerage INTensity
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