P2SC-ROB-WR-092-20111219 Weekly report #092	**P2SC Weekly report**	
Period covered: Date: Written by: Released by:	Mon Dec 19 to Sun Dec 25, 2011 23 Dec 2011 Marie Dominique David Berghmans	Royal Observatory of Belgium PROBA2 Science Center
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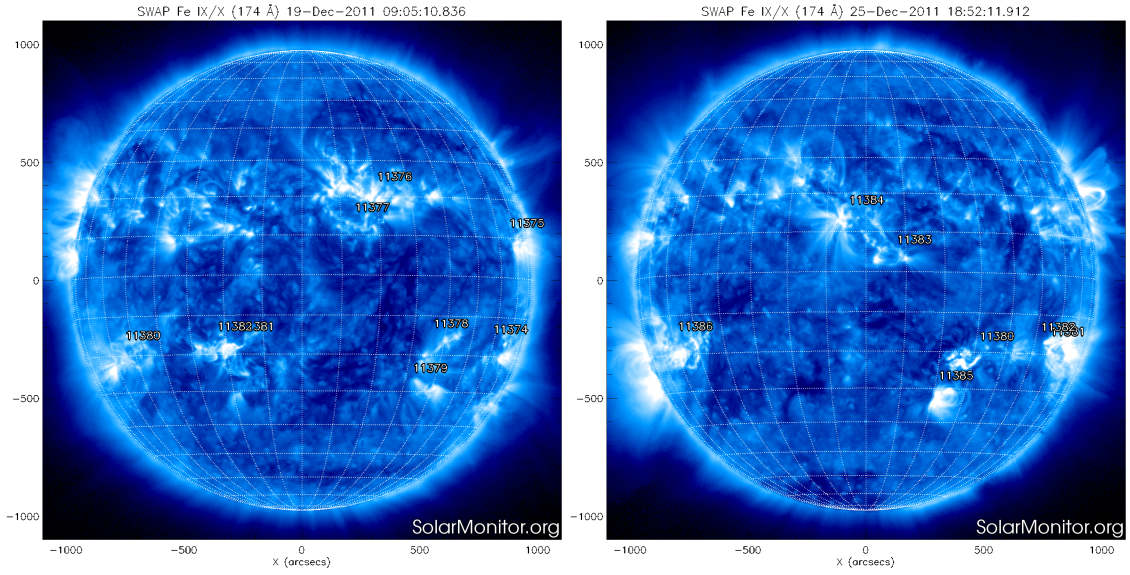
1. Science

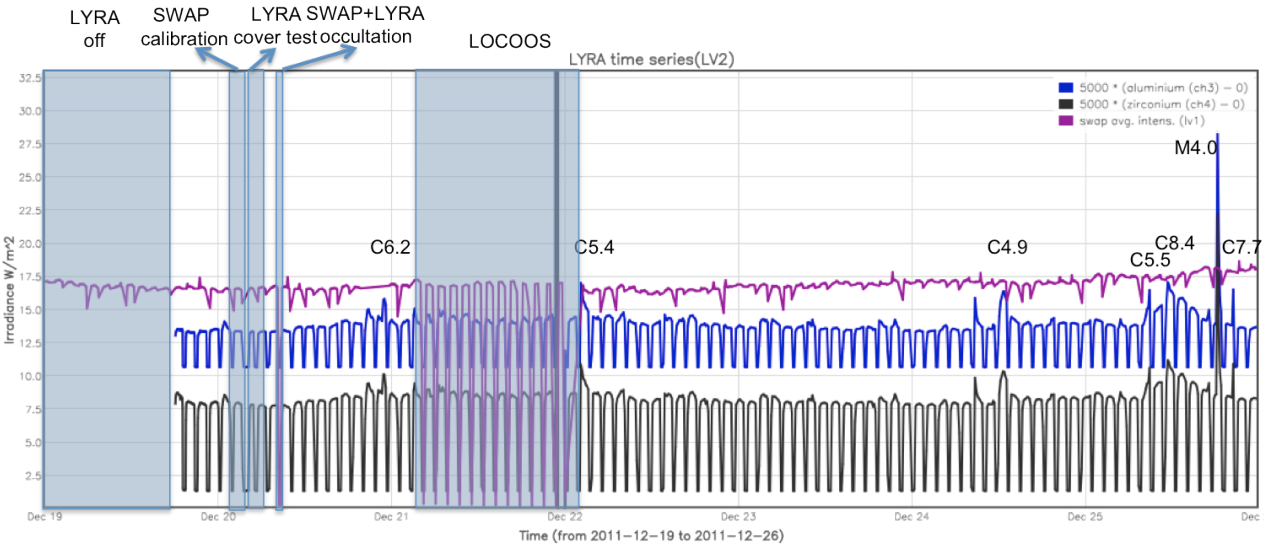
Solar & Space weather events

Overview

The SWAP images of December 19 and December 25 are shown below, with annotated active regions:



Solar activity was relatively quiet till Sunday, when it suddenly started to increase. A large filament was present in the northern hemisphere and passed the central meridian on Friday 23. It remained stable through the whole week and finally erupted on Sunday 25.
There were up to 10 simultaneous active regions. The most active of them was NOAA 11385, that hosted many of the flares of December 25. This region was amongst others the source of the strongest flare of the week: a M4.0 flare that occured on Dec 25 around 18:15, and of an EUV wave.



Above is shown the weekly overview of LYRA Al/Zr signals and SWAP average intensity (SWAVINT in purple). The 'intensity' levels have been 'spread' to allow a better presentation of the curves. SWAVINT as well as the LYRA channels exhibit luminosity dips, due to the occultation season.
At the beginning of the week, LYRA was off consecutively to a problem related to the commanding of unit 3 that happened during the previous WE. The instrument was re-activated on Dec 19, 18:00. Consecutively to this problem a test was performed on Dec 20, checking that none of the covers were experiencing mechanical trouble.
The blue areas indicate, from left to right, the period when LYRA was off, the weekly SWAP calibration campaign (on Tue), the SWAP and LYRA parallel occultation, the test of LYRA covers, and the LOCOOS campaign respectively.

Scientific campaigns

The following science campaigns are on-going:
- daily occultation campaign of LYRA (interrupted from Friday December 23 till Tuesday January 03, 2012)
- weekly LYRA/SWAP parallel occultation campaign

Outreach, papers, presentations, etc.
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2. LYRA instrument status

Calibration
No calibration this week

IOS & operations

Monday 19 Dec	Tuesday 20 Dec	Wednesday 21 Dec	Thursday 22 Dec	Friday 23 Dec	Saturday 24 Dec	Sunday 25 Dec
Lyra back to Nominal acquisition + occultation LYIOS00209	Nominal acquisition + test of covers + occultation LYIOS00209	Nominal acquisition + occultation LYIOS00209	Nominal acquisition + occultation LYIOS00209	Nominal acquisition LYIOS00209	Nominal acquisition LYIOS00209	Nominal acquisition LYIOS00209

LYRA detector temperature

The LYRA detector 2 temperature (nominal unit) fluctuated between 40.3 and 37.1, during nominal operations.

To be explored
The problem that happened on Dec 18, that switched LYRA to off mode after a multiple failure of commands to close covers 3 is still not completely understood.

3. SWAP instrument status

Calibration
Weekly LED calibration campaign executed on 20 December.

MCPM errors
The number of MCPM recoverable errors is still 1485.
The number of MCPM unrecoverable errors is still 0.

IOS & operations

Monday 19 Dec	Tuesday 20 Dec	Wednesday 21 Dec	Thursday 22 Dec	Friday 23 Dec	Saturday 24 Dec	Sunday 25 Dec
Nominal acquisition 110s cadence + occult. jumps IOS00352 + IOS00353 679 images	Nominal acquisition + LED calibration + occult. jumps + parallel occult w/ LYRA IOS00353 585 images	Raw images acquisition (LOCOOS) + occult. jumps IOS00353 109 images	Nominal acquisition + ESP campaign + occult. jumps IOS00353 609 images	Nominal acquisition + occult. jumps IOS00353 611 images	Nominal acquisition + occult. jumps IOS00353 744 images	Nominal acquisition + occult. jumps IOS00353 709 images

Occultation jumps occur during every orbit.
On Tuesdays SWAP images the entry & exit of one particular occultation in parallel with LYRA.

SWAP detector temperature
The SWAP Cold Finger Temperature fluctuated between -5.9 and -3.5 degrees Celsius, under nominal operations.

To be explored
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4. PROBA2 Science Center Status

Koen Stegen was operator during this week, with Marie Dominique as support.

5. Data reception & discussions with MOC

Passes

All data were received.

Data coverage HK
The HK data were complete this week.

Data coverage SWAP

All data were received

Statistics for complete week:

Total number of images between 2011 Dec 19 0UT and 2011 Dec 26 0UT: 4046
Highest cadence in this period: 30 seconds
Average cadence in this period: 149.37 seconds
Number of image gaps larger than 300 seconds: 142
Largest data gap: 50.00 minutes

The data gap of 50.00 min corresponded to the end of the LOCOOS campaign on Thu.

Data coverage LYRA

The LYRA data were complete this week, except for the data gap in the beginning of the week discussed above.

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