


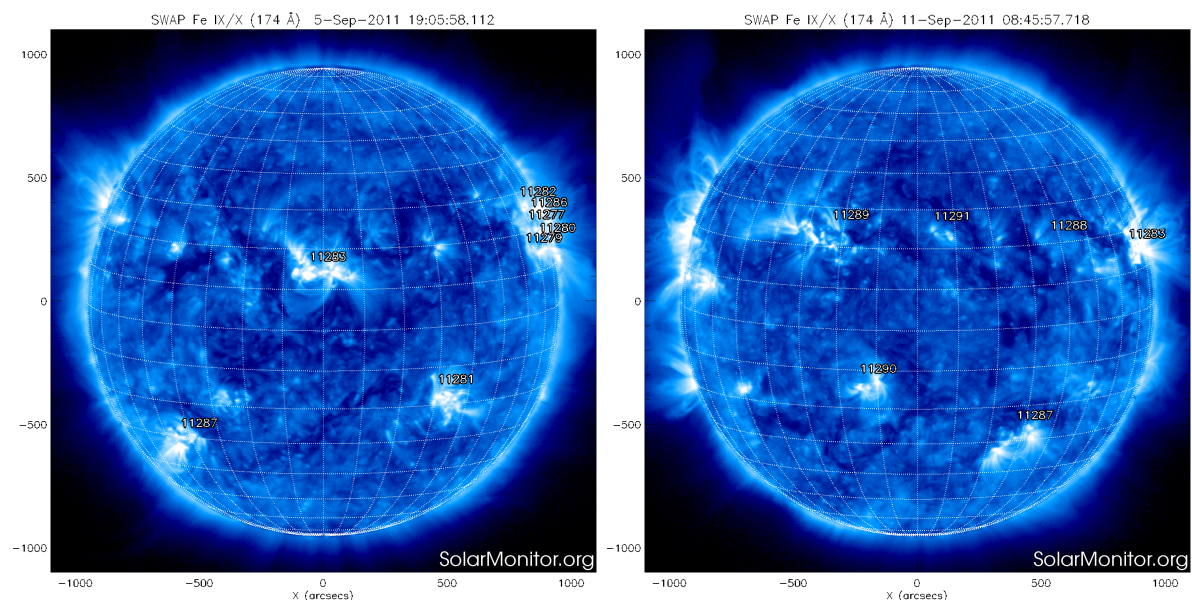
P2SC-ROB-WR-077- 20110829 Weekly report #077	<b>P2SC Weekly report</b>	
Period covered: Date: Written by: Released by:	Mon Sep 05 to Sun Sep 11 2011 Tue 14 Sep 2011 Erik Pylyser David Berghmans	Royal Observatory of Belgium PROBA2 Science Center
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## 1. Science

### Solar & Space weather events

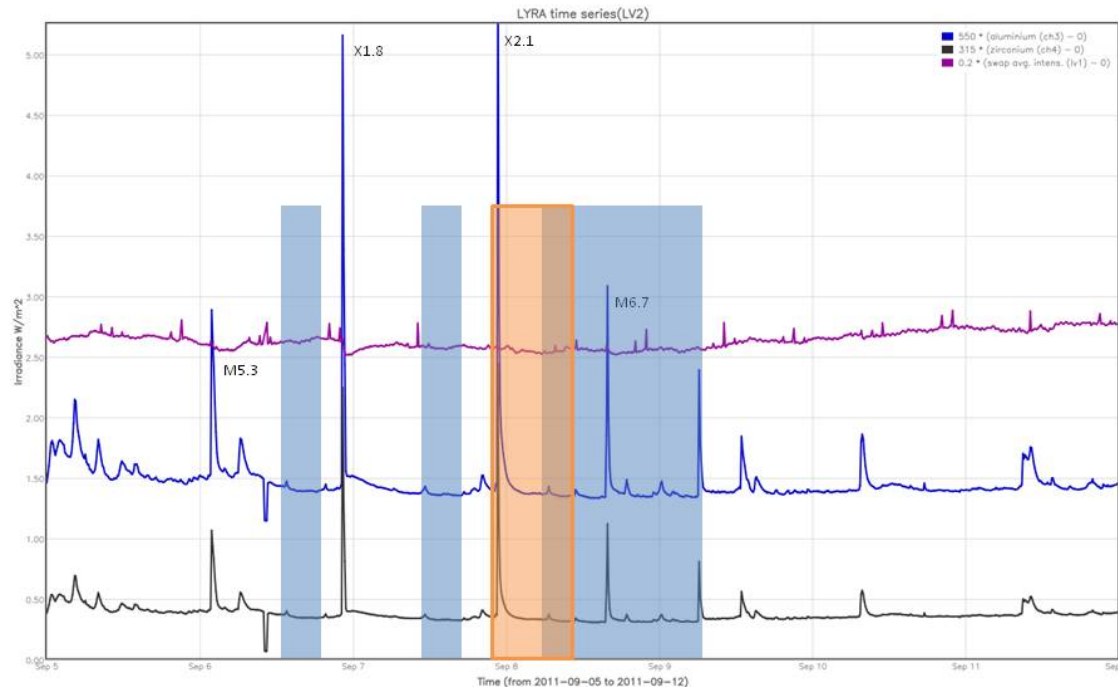
#### Overview

The SWAP images of September 4 and September 11 are shown below, with annotated active regions:



Solar activity on the Sun was HIGH early in the reporting period to MEDIUM in the weekend. Active Regions 11286, 11277 and 11282 first, and followed especially by 11283 were responsible for this week's solar activity, which includes 2 X-flares (X1.8 and X2.1), and many M- and C-flares (see graphs below for most prominent flares).

The X-flares occurred on the 6th and 7th of Sep, both originating from AR11283.



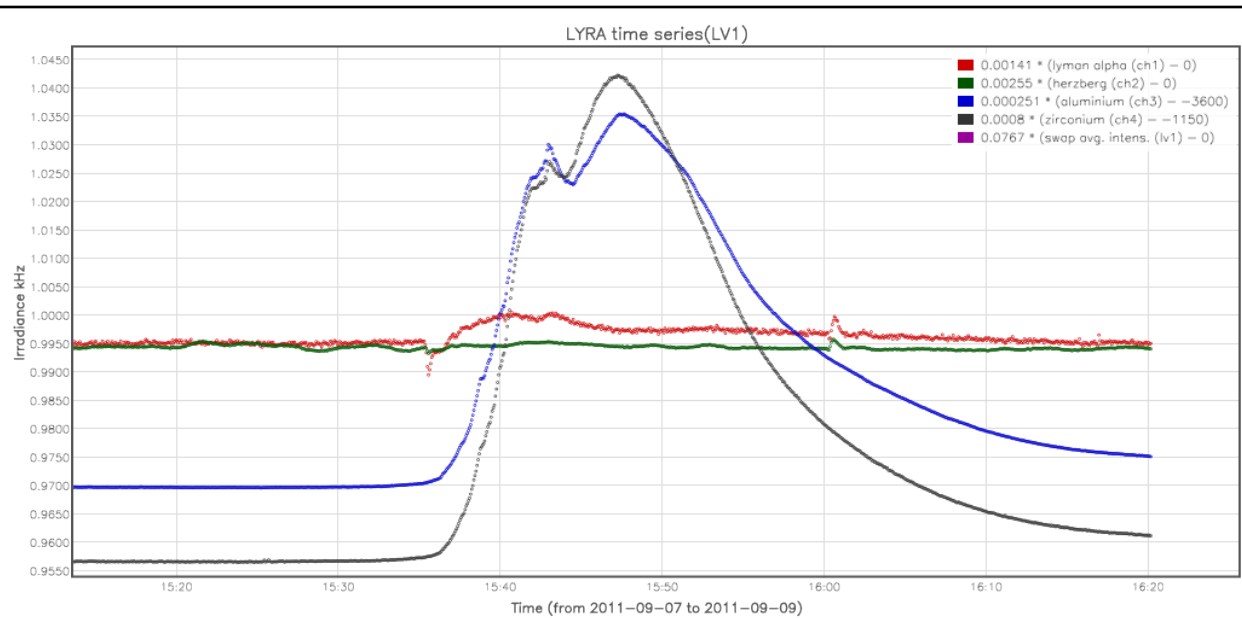
Above we show the weekly overview of LYRA Al/Zr signals and SWAP average intensity (SWAVINT in purple). An MCPM blockage period is shown in orange. All flares were caught by both LYRA and SWAP - even though SWAP went through an MCPM blockage during the occurrence of the second X flare.

### Scientific campaigns

Given the high activity, we opened LYRA unit 3 (in addition to the nominal unit 2) at 3 occasions (indicated by blue in graph below):

- 06/09: 13:00 -> 19:00
- 07/09: 11:00 -> 17:00
- 08/09: 06:30 -> 09/09: 06:30

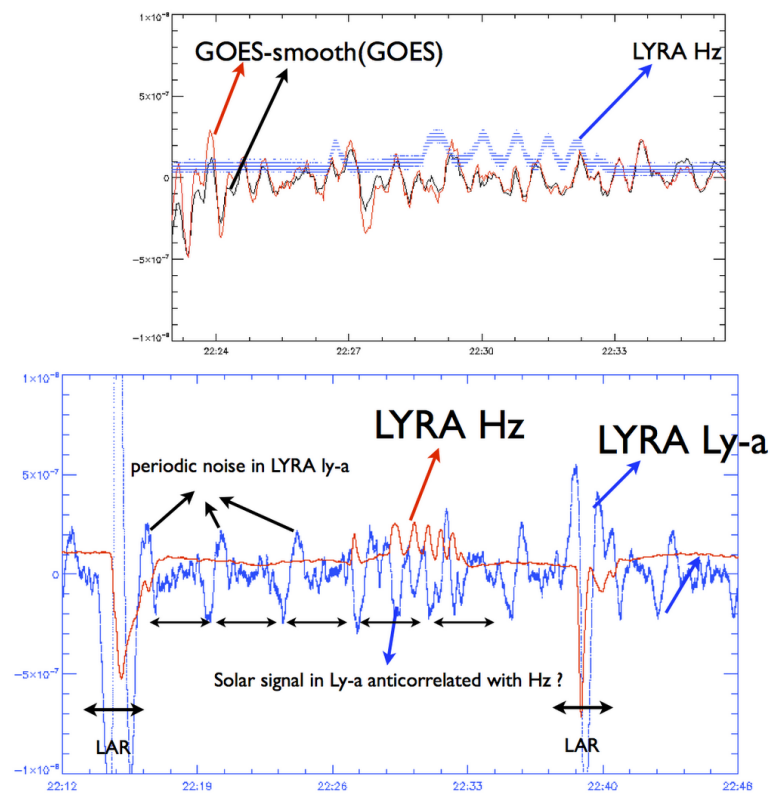
Only the latter campaign was successful in catching a significant flare (M6.7, see below). Note however that all flares were observed with LYRA unit2 and SWAP.



**Outreach, papers, presentations, etc.**

No conferences or guest investigators visiting this week.

**To be explored**



Above: unexplained wiggles in the X2 flare of September 6 (LYRA unit 2).

## 2. LYRA instrument status

## Calibration

No calibration campaigns this week.

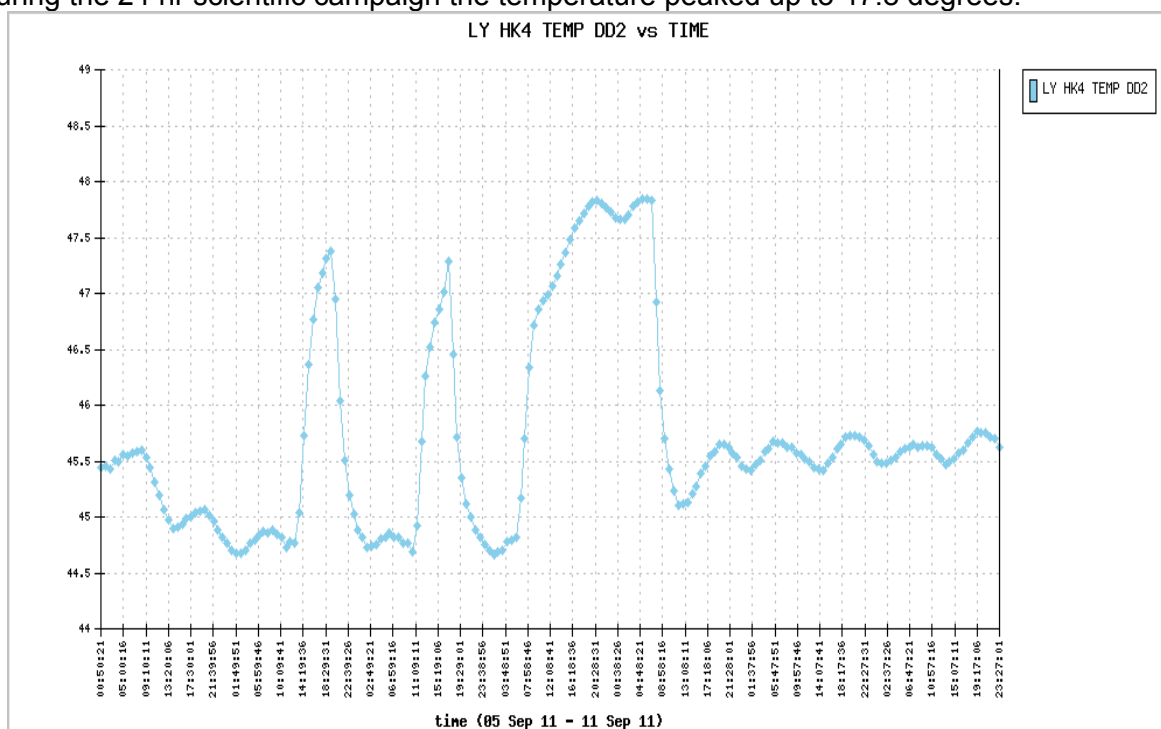
## IOS & operations

Monday 05 Sep	Tuesday 06 Sep	Wednesday 07 Sep	Thursday 08 Sep	Friday 09 Sep	Saturday 10 Sep	Sunday 11 Sep
Nominal acquisition	Nominal acquisition + special campaign with ch3 opened: 13:00 - 19:00.	Nominal acquisition + special campaign with ch3 opened: 11:00 - 17:00.	Nominal acquisition+ special campaign with ch3 opened: 6:30 for 24hrs.	Nominal acquisition	Nominal acquisition	Nominal acquisition
LYIOS00187	LYIOS00188	LYIOS00189	LYIOS00190	LYIOS00190	LYIOS00190	LYIOS00190

### LYRA detector temperature

The LYRA detector 2 temperature (nominal unit) fluctuated between 44.7 and 45.7 degrees Celsius during nominal operations.

During the 24 hr scientific campaign the temperature peaked up to 47.8 degrees.



The overall evolution is normal.

## To be explored

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### 3. SWAP instrument status

**Calibration**

There was a bi-weekly SWAP calibration campaign on Tue 06/09, at 10:00.

**MCPM recoverable errors**

increased from 282 to 321 this week.

The number of MCPM unrecoverable errors is still 0.

An MCPM blockage occurred in the night of 07-08/09. This contingency was resolved by the standard recovery procedure executed by Redu on 08/09. Lower data cadence thus occurred between 22:30 and 9:45.

**IOS & operations**

Monday 05 Sep	Tuesday 06 Sep	Wednesday 07 Sep	Thursday 08 Sep	Friday 09 Sep	Saturday 10 Sep	Sunday 11 Sep
Nominal acquisition 110s cadence	Nominal acquisition + calibration campaign	Nominal acquisition	Nominal acquisition + ESP campaign	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00325 689 images	IOS00325 624 images	IOS00325 466 images	IOS00325 505 images	IOS00325 534 images	IOS00325 633 images	IOS00325 622 images

**SWAP detector temperature**

The SWAP Cold Finger Temperature fluctuated between -2,7 and -1,38 degrees Celsius.

**To be explored**

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### 4. PROBA2 Science Center Status

David Berghmans was operator during this week, seconded by Erik Pilyser.

No tools were updated on the operational server.

### 5. Data reception & discussions with MOC

**Passes**

In general the data reception this week was nominal with no observed glitches.

**Data coverage HK**

The HK data were complete this week.

**Data coverage SWAP**

The overall data coverage was less than optimal, due to an MCPM blockage during the night of Sep 07/08.

Statistics for complete week:

*Total number of images between 2011 Sep 05 00UT and 2011 Sep 12 00UT: 4168*

*Highest cadence in this period: 0 seconds*

*Average cadence in this period: 145.12seconds*

*Number of image gaps larger than 300 seconds: 62*

*Largest data gap: 29.00 minutes*

The one large data gap of 29 min was commanded to allow an ESP test.

#### **Data coverage LYRA**

The LYRA data were complete this week.

## **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
DSLIP	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
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