


P2SC-ROB-WR-181- 20130909 Weekly report #181	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Sep 09 to Sun Sep 15, 2013 18 September 2013 Erik Pylyser Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

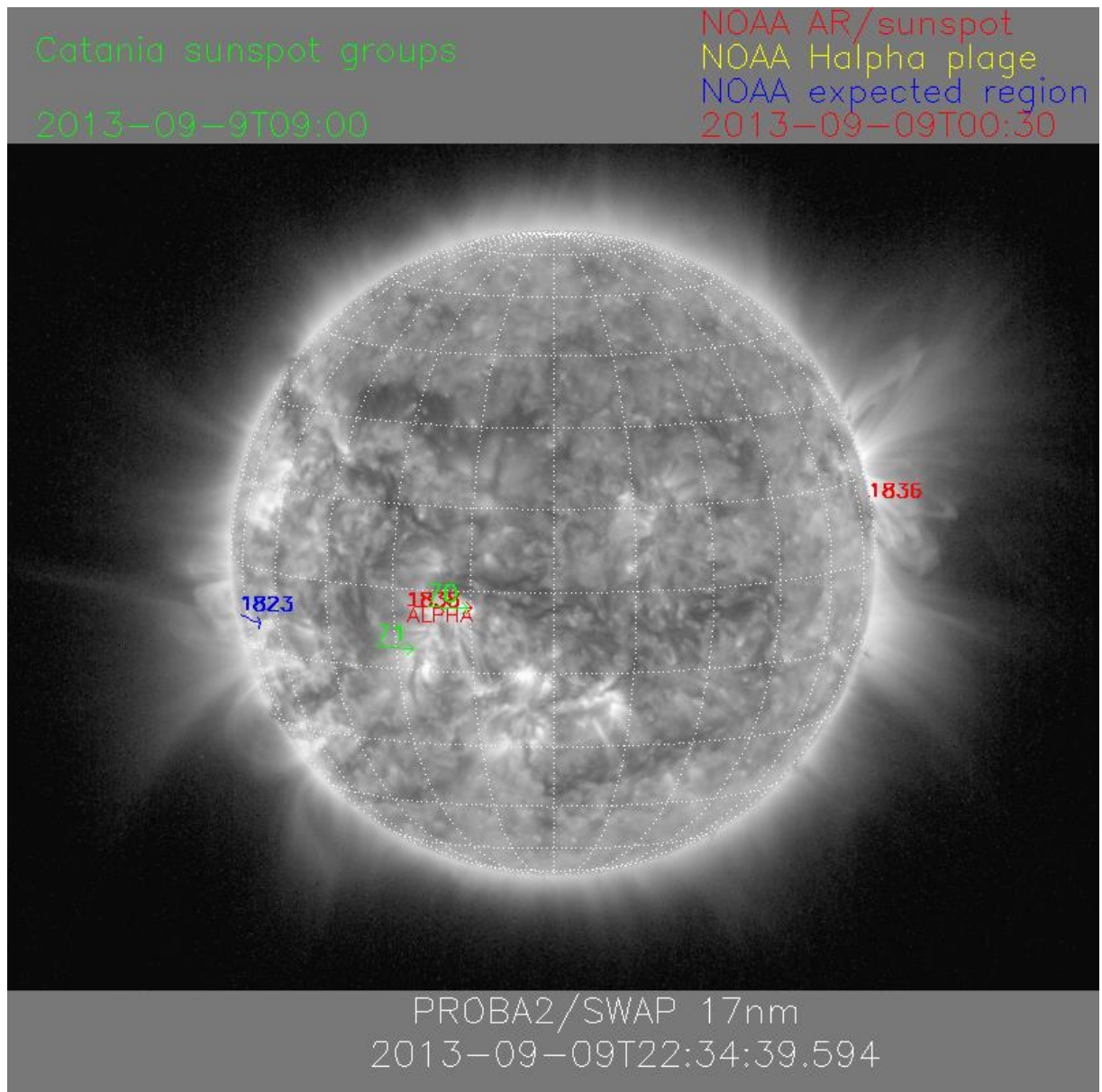
The level of solar activity¹ this week was **very low**.

Only M- and X-flares are mentioned, the most energetic one(s) per day are presented in **bold**:

	Monday 09 Sep	Tuesday 10 Sep	Wednesday 11 Sep	Thursday 12 Sep	Friday 13 Sep	Saturday 14 Sep	Sunday 15 Sep
Activity	very low	very low	very low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

The SWAP images of Sep 09 and Sep 15 are shown below, with annotated active regions.

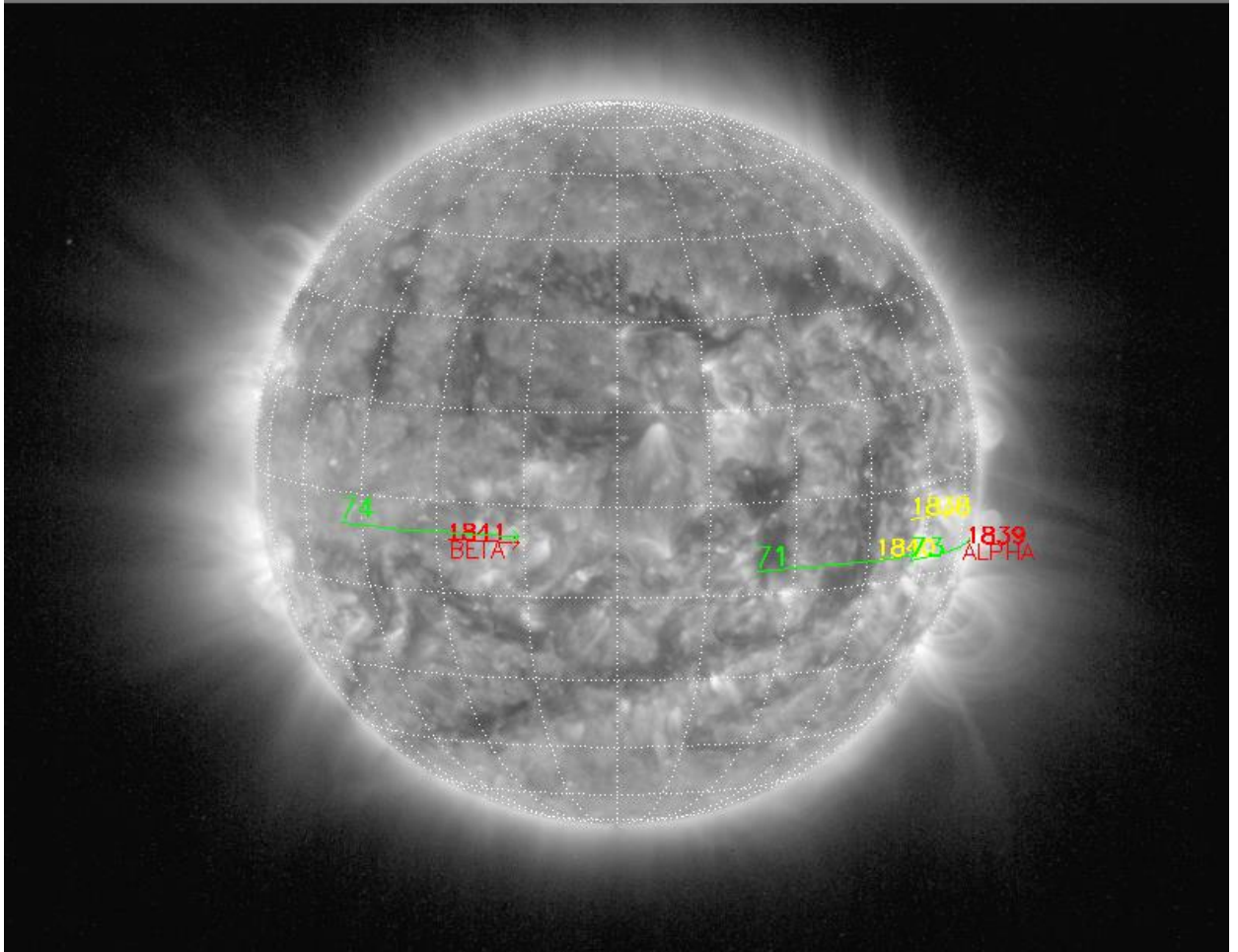


<http://sidc.be/html/CmapPage.html>

Catania sunspot groups

2013-09-13T09:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2013-09-15T00:30



PROBA2/SWAP 17nm
2013-09-15T22:23:48.174

Solar Activity

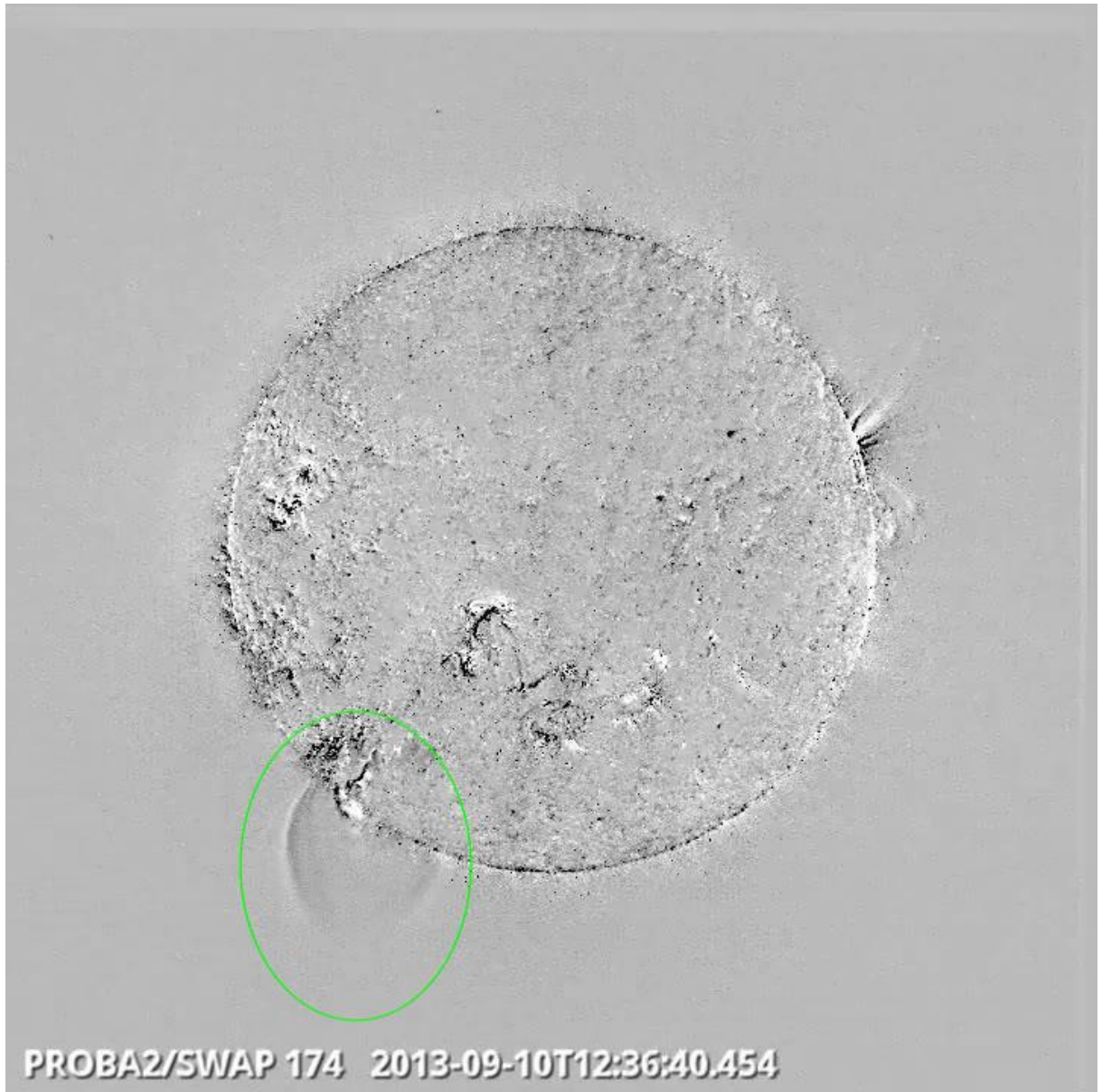
Solar (flaring) activity was **very low** throughout the week. About a dozen of prominence eruptions were identified along the solar limb, half of them being rather spectacular and half of them during the week-end.

In order to view the activity of this week in more detail, we suggest going to the following website from which all the daily (normal and difference) movies can be accessed: <http://proba2.oma.be/ssa>. This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP174; HelioViewer.org).

Details about some of this week's events, can be found further below.

Tuesday September 10th:



Prominence Eruption on South East Limb @ 12:36 - SWAP difference image
Find a movie of the event [here](#) (SWAP difference movie)

Wednesday September 11th:



Prominence Eruption on South East Limb @ 09:29 - SWAP difference image
Find a movie of the event [here](#) (SWAP difference movie)

Saturday September 14th:



Eruption on East Limb @ 11:22 - SWAP difference image

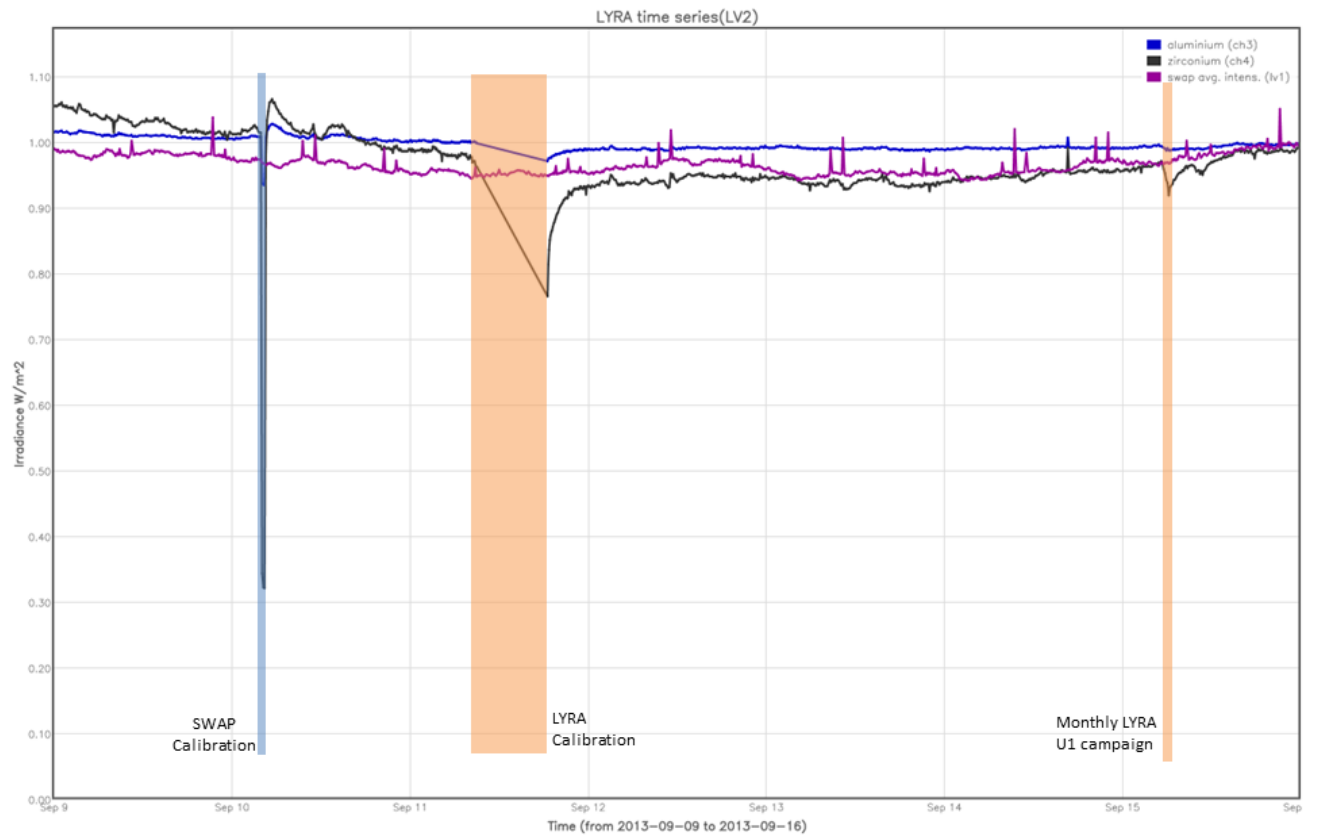


Big Prominence Eruption on South East Limb @ 04:15 - SWAP difference image

An overview of the weekly LYRA & SWAP data is provided below:

The following curves are visible:

- black: Zirconium Channel LYRA Unit 2
- blue: Aluminium Channel of LYRA Unit 2
- purple: SWAVINT (solar intensity derived from 'integrated' SWAP images)



The blue shaded periods correspond to, from left to right:

- SWAP calibration on Tuesday

The orange shaded periods correspond to, from left to right:

- LYRA calibration on Wednesday
- Monthly Unit 1 campaign on Sunday

The red shaded period corresponds to:

- None.

Outreach, papers, presentations, etc.

Please consult <http://proba2.oma.be/science/publications> for a list of interesting articles using SWAP & LYRA data, as well as a link to the complete article list. Some older publications have been added to the list.

The science section of this weekly report is also published in the weekly STCE newsletter (<http://www.stce.be/newsletter/newsletter.php>).

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

LYRA calibration on Wednesday.

IOS & operations

Monday 09 Sep	Tuesday 10 Sep	Wednesday 11 Sep	Thursday 12 Sep	Friday 13 Sep	Saturday 14 Sep	Sunday 15 Sep
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + monthly U1
LYIOS00340	LYIOS00340	LYIOS00340	LYIOS00340	LYIOS00340	LYIOS00340	LYIOS00340

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- monthly U1 observations campaign (between 05:00 UT and 05:55 UT).

LYRA detector temperature

LYRA detector 2 temperature globally varied between 48.5 and 47.3 degrees C, taking into account the daily U3 activation periods; the latter result in a temperature increase of about 0.6 degrees C.

During calibration, temperature decreased to 46.2 degrees. Highest temperature, i.e. 48.9, occurred on Sunday during the monthly U1 campaign

To be explored

- None

3. SWAP instrument status

Calibration

SWAP calibration on Tuesday.

MCPM errors

The total number of MCPM recoverable errors increased from 11761 to 12082.

The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 09 Sep	Tuesday 10 Sep	Wednesday 11 Sep	Thursday 12 Sep	Friday 13 Sep	Saturday 14 Sep	Sunday 15 Sep
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00475 488 images	IOS00475 690 images	IOS00475 577 images	IOS00475 663 images	IOS00475 611 images	IOS00475 587 images	IOS00475 547 images

Special operations for SWAP, this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.21 and -0.33 degrees C. Highest temperature occurred during the LYRA calibration on Wednesday afternoon.

To be explored

- None

4. PROBA2 Science Center Status

The main operator is Koen Stegen.

The following changes were made to the P2SC:

- None.

5. Data reception & discussions with MOC

Passes

The delivery of the passes for this week (passes 11966 to 12025) was nominal, except for:

- None.

Data coverage HK

All HK data files (LYRA_AD) have been received, except:

- None.

Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received, except:

- None.

Total number of images between 2013 Sep 09 0UT and 2013 Sep 16 0UT: 4159

Highest cadence in this period: 30 seconds

Average cadence in this period: 145.43 seconds

Number of image gaps larger than 300 seconds: 1

Largest data gap: 6.50 minutes

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received, except:

- None.

6. APPENDIX: Frequently used acronyms

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
ESP	Experimental Solar Panel
FITS	Flexible Image Transport System
FOV	Field Of View FPA Focal Plane Assembly
FPGA	Field Programmable Gate Arrays
GPS	Global Positioning System
HK	Housekeeping
IOS	Instrument Operations Sheet
LED	Light Emitting Diode
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
OBSW	On board Software
PI	Principal Investigator
P2SC	PROBA2 Science Center
ROB	Royal Observatory of Belgium
SAA	South Atlantic Anomaly
SEU	Single Event Upset
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
TC	Telecommand
UTC	Coordinated Universal Time
UV	Ultraviolet
VFC	Voltage to Frequency Converter

7. APPENDIX Solar Activity Definitions

In the science section we use the following solar activity standards.

The standard scale for solar activity is:

- very low (almost no flares, only B)
- low (a few C flares)
- moderate (many C flares and at least an M flare)
- high (several M flares and an X flare)
- very high (continuous background of C flares, numerous M flares, more than one X flare)