


P2SC-ROB-WR-131- 20120924 Weekly report #131	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Sep 24 to Sun Sep 30, 2012 03 Oct 2012 Erik Pylyser David Berghmans	Royal Observatory of Belgium PROBA2 Science Center
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1. Science

Solar & Space weather events

Overview

The level of solar activity¹ this week and associated M- and X-flares:

	Monday 24 Sep	Tuesday 25 Sep	Wednesday 26 Sep	Thursday 27 Sep	Friday 28 Sep	Saturday 29 Sep	Sunday 30 Sep
Activity	low	low	low	low	very low	low	moderate
Flares	-	-	-	-	-	-	M1.3 @ 4.27

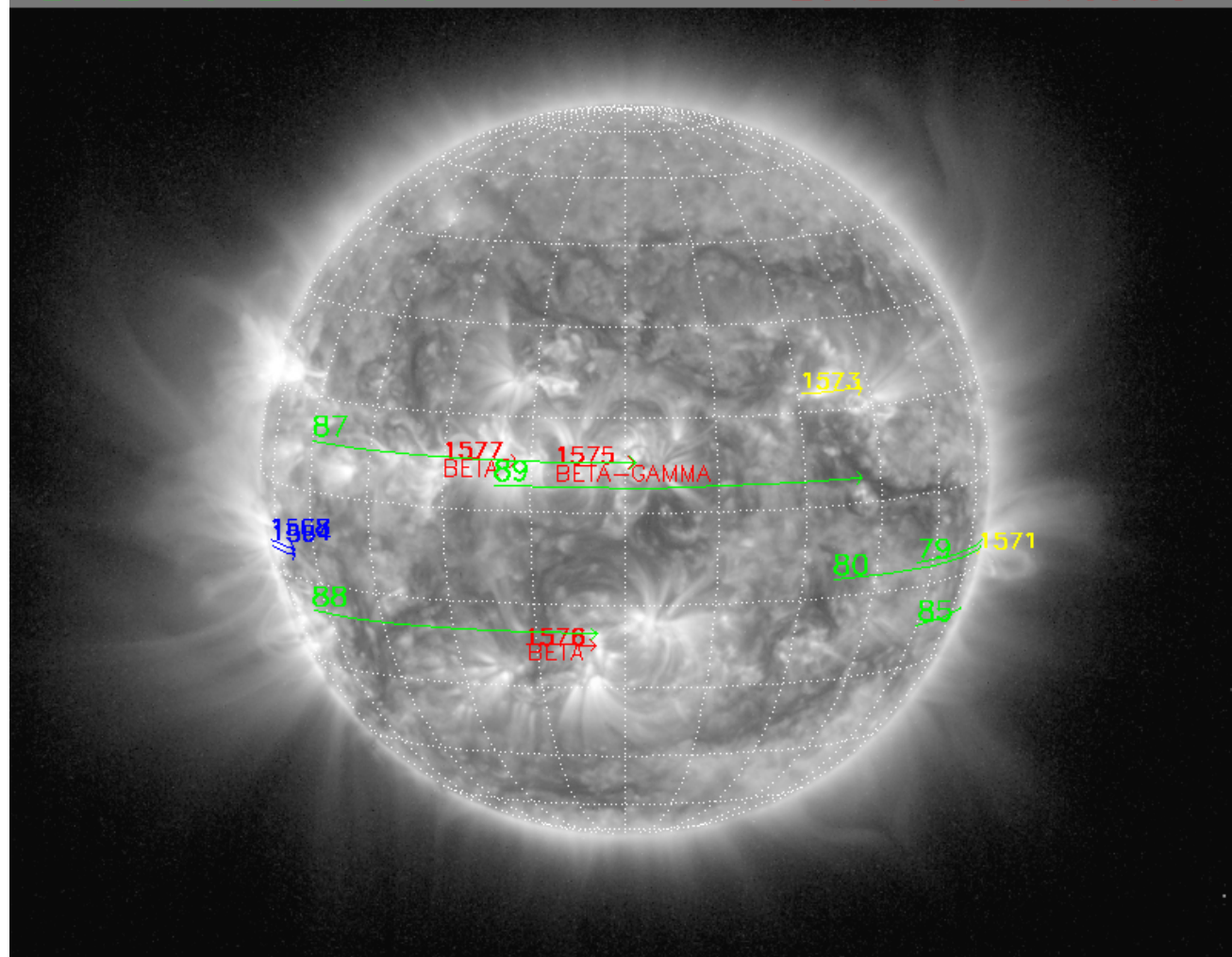
¹ See appendix. All timings are given in UT.

The SWAP images of Sep 24 and Sep 30 are shown below, with annotated active regions.

Catania sunspot groups

2012-09-20T08:18

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2012-09-24T00:30

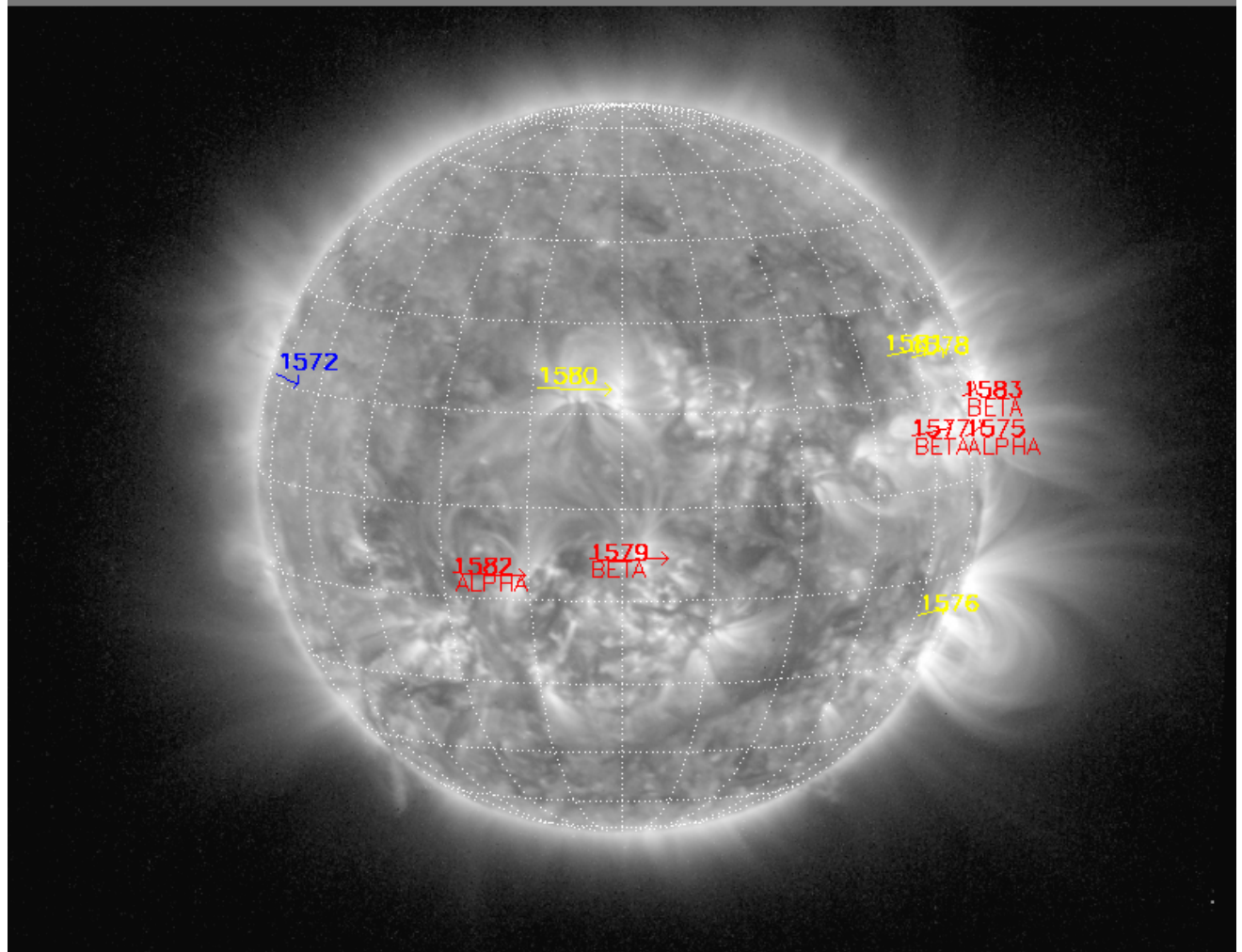


PROBA2/SWAP 17nm
2012-09-24T22:55:59.710

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

No recent Catania data available

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2012-09-30T00:30

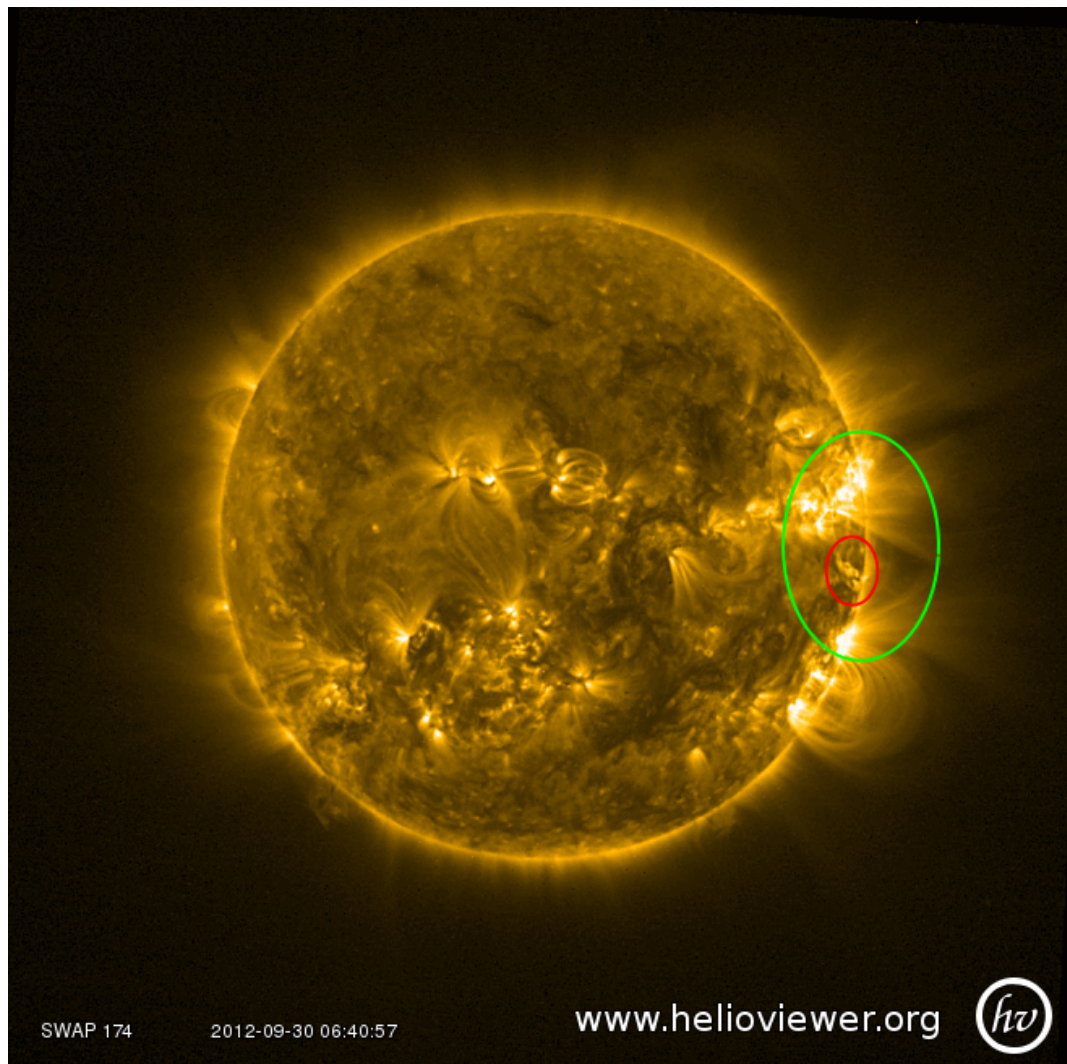


PROBA2/SWAP 17nm
2012-09-30T22:47:18.332

Solar Activity

This week, the Sun's activity level was **Low** with a minimum (**Very Low**) on Friday. Then, activity increased with more than a dozen C-flares, both on Saturday and Sunday, as well as an M1.3 flare (**Moderate**) on Sunday, on the West limb.

The M1.3 flare impacted the green area shown in the picture below. It was closely followed by a C2.9 flare, which triggered the transfer of some material between AR 11577, located north of the equator towards AR 11576, south of the equator (see red circle in the picture below).



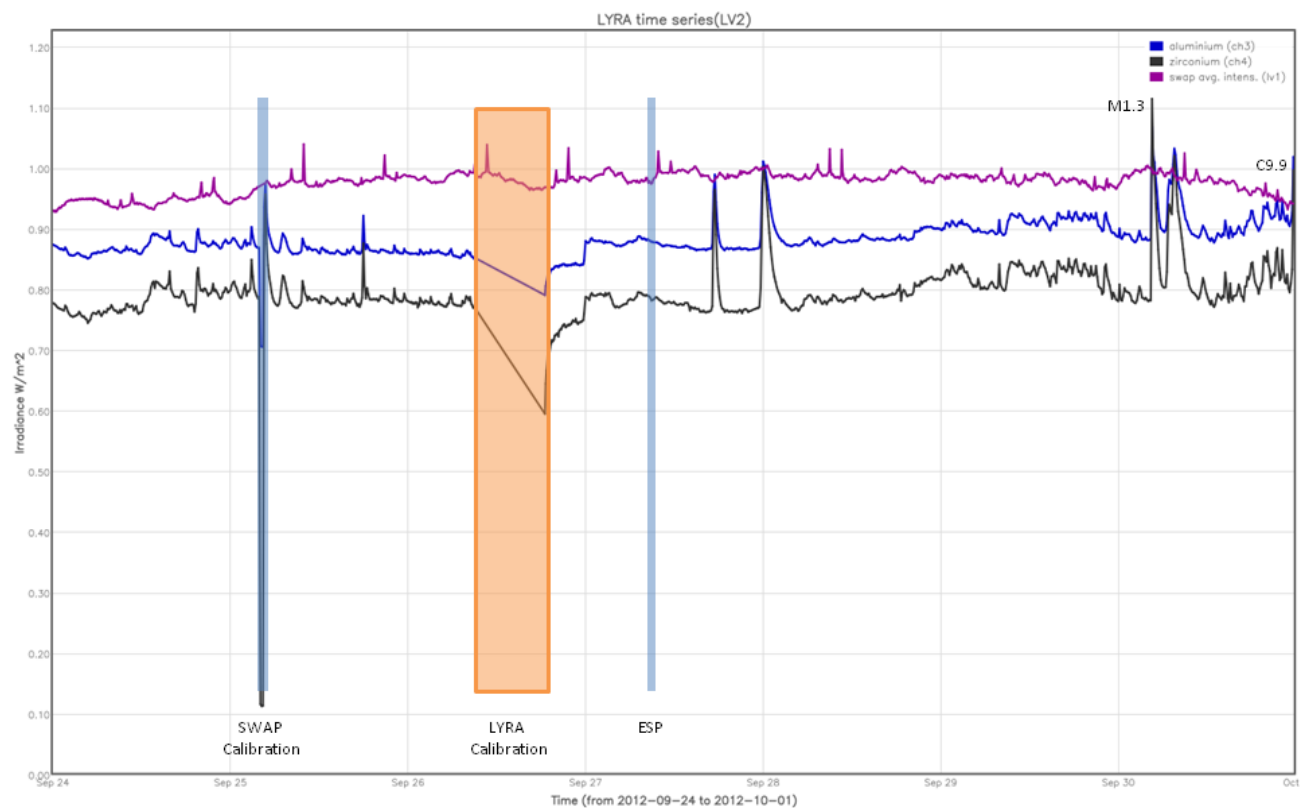
A movie of the M1.3 flare, as well as the follow-on C2.9 flare, and its associated material flow, can be found [here](#).

In order to view the activity of this week in more detail, we suggest to go 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.

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
- ESP experiment on Thursday

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

- LYRA Calibration on Wednesday

Outreach, papers, presentations, etc.

- PROBA2 Guest Investigator Paul Shearer gave a seminar - 'Correcting Stray Light in SWAP' - on the results of this 2-weeks visit, on Thursday 27th.

Please also 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.

Guest Investigator Programme

- PROBA2 GI Paul Shearer visited P2SC from September 16th till September 28th to work on an assessment of the SWAP PSF and a stray-light correction for SWAP. He gave a seminar on his results on Thursday 27th (see the above section).

2. LYRA instrument status

Calibration

LYRA calibration on Wednesday 26 Sep.

IOS & operations

Monday 24 Sep	Tuesday 25 Sep	Wednesday 26 Sep	Thursday 27 Sep	Friday 28 Sep	Saturday 29 Sep	Sunday 30 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
LYIOS00269	LYIOS00269	LYIOS00270	LYIOS00270	LYIOS00270	LYIOS00270	LYIOS00270

- Except for the daily U3 campaign, no particular science campaigns this week.

- On Friday 28th, cover 3 (of Unit 3) did not open properly. It was closed properly at the end of the campaign. No incidence on the daily U3 science.

LYRA detector temperature

LYRA detector 2 temperature fluctuated between 47.3 and 48.5 degrees, including the daily U3 activation periods. The latter result in a temperature increase of about 0.4 degrees. During calibration, temperature decreased to 46.1 degrees Celsius.

To be explored

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3. SWAP instrument status

Calibration

SWAP calibration on Tuesday 25 Sep.

MCPM errors

The number of MCPM recoverable errors increased from 3593 to 3807.

The number of MCPM unrecoverable errors is still 0.

IOS & operations

Monday 24 Sep	Tuesday 25 Sep	Wednesday 26 Sep	Thursday 27 Sep	Friday 28 Sep	Saturday 29 Sep	Sunday 30 Sep
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition + ESP	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00414 550 images	IOS00415 688 images	IOS00415 664 images	IOS00415 636 images	IOS00415 548 images	IOS00415 540 images	IOS00415 521 images

No special operations for SWAP, this week.

SWAP detector temperature

The SWAP Cold Finger Temperature fluctuated between - 0.56 and - 0.32 degrees Celsius, under nominal operations. During the LYRA calibration, SWAP temperature increased up to 0.38 degrees.

LAR delays were missed on the following occasions:

- none

causing each time a temporary increase of temperature of an estimated 0.6-0.7 degrees.

To be explored

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4. PROBA2 Science Center Status

The main operator is Koen Stegen.

The following changes were made to the P2SC (date, revision number and optional comments):

Complete Updates of Repository

26/09/2012: r4566

27/09/2012: r4570

28/09/2012: r4571

CT

26/09/2012: r4567 Properly quote strings.

LY-BSDG

28/09/2012: r4571. Update the code so that it outputs a text files with all the lev2 filenames that have been written, & distance to the Sun is now taken into account.

ODP/PP_PROC

25/09/2012: r4563 Repair broken download command after Redu changed their webserver.

CT

26/09/2012: r4567 Properly quote strings.

SW-BSDG

26/09/2012: r4566 (minor bug fixes, added support for PSF deconvolution, updated to v1.4)

27/09/2012: r4570 (update PSF to double precision for SSWIDL)

5. Data reception & discussions with MOC**Passes**

The delivery of the passes for this week (passes 9025 to 9085) was nominal, except for:

- None

Data coverage HK

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

- None

Data coverage SWAP

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

- None

Total number of images between 2012 Sep 24 0UT and 2012 Oct 01 0UT: 4147

Highest cadence in this period: 30 seconds

Average cadence in this period: 145.85 seconds

Number of image gaps larger than 300 seconds: 1

Largest data gap: 34.33 minutes

The large gap is due to the ESP experiment on Thursday.

Data coverage LYRA

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

- 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
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
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
OBET	On board Elapsed Time
OBSW	On board Software
PE	Proximity Electronics
PI	Principal Investigator
P2SC	PROBA2 Science Center
ROB	Royal Observatory of Belgium
SAA	South Atlantic Anomaly
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
TC	Telecommand
UTC	Coordinated Universal Time
UV	Ultraviolet

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)
- (+ extreme?)