P2SC-ROB-WR-229- 20140811 Weekly report #229	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Aug 11 to Sun Aug 17, 2014 20 Aug 2014 Erik Pylyser Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

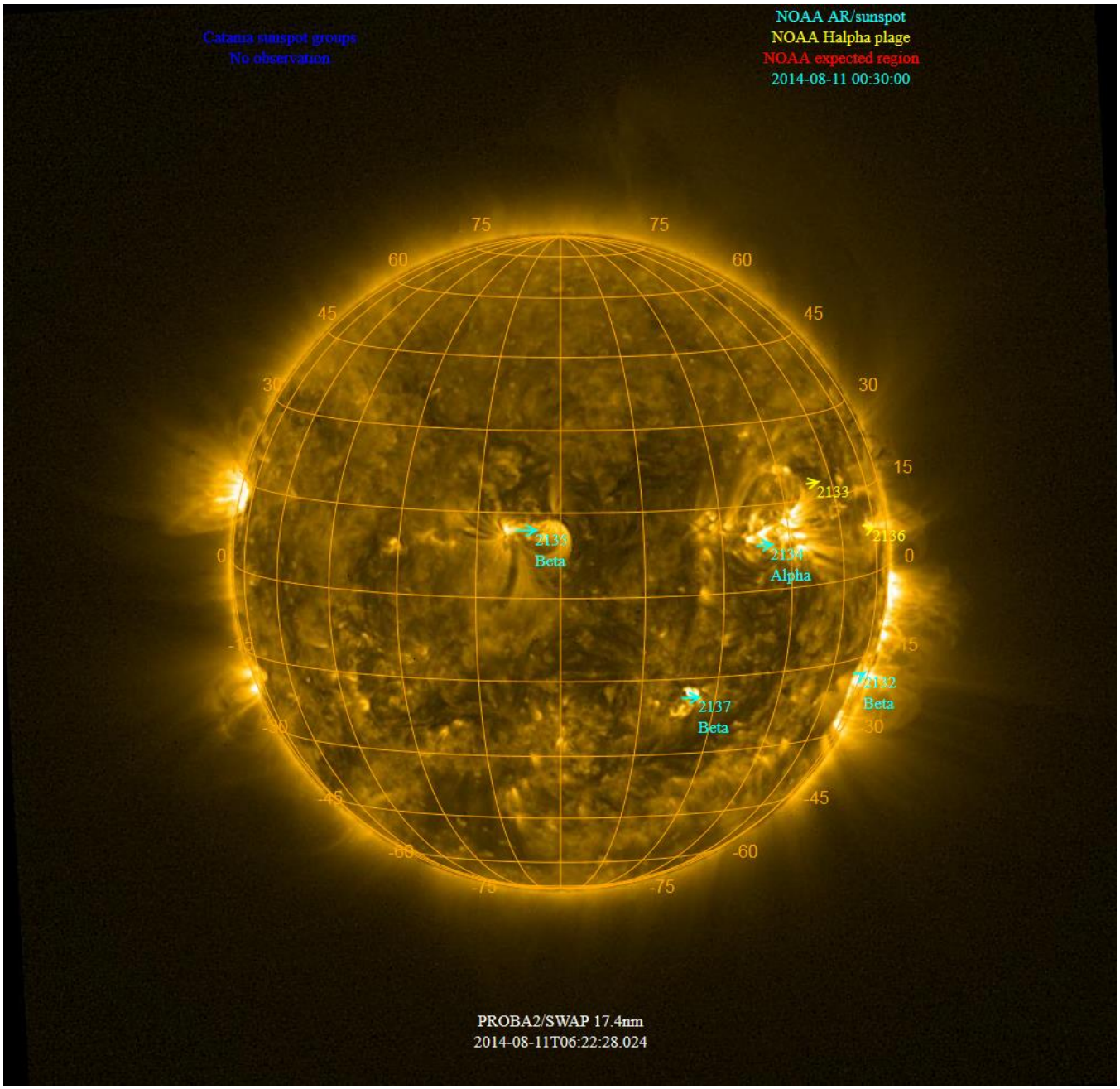
The level of solar activity[1] was between **very low** and **low** this week.

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

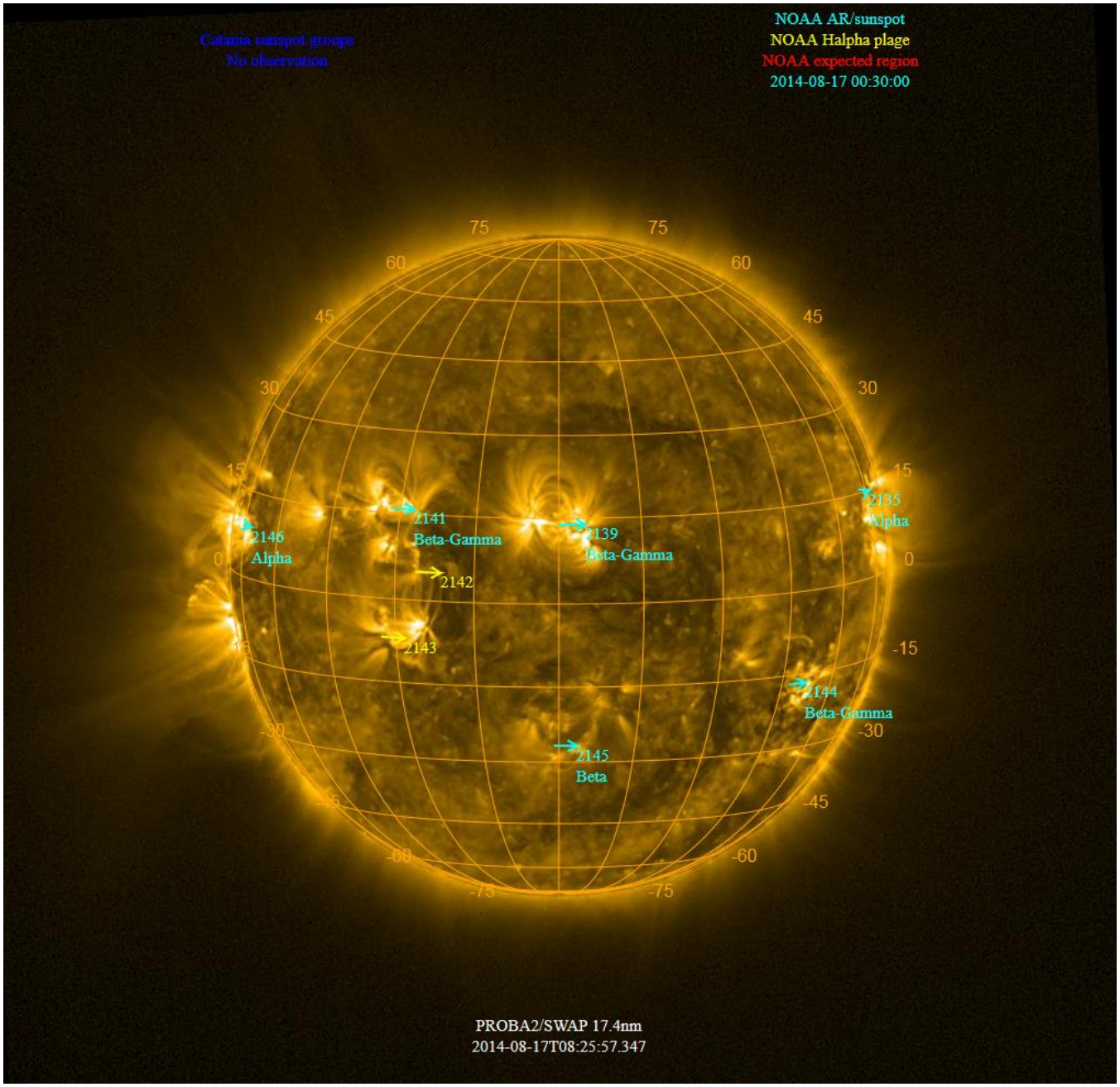
	Monday 11 Aug	Tuesday 12 Aug	Wednesday 13 Aug	Thursday 14 Aug	Friday 15 Aug	Saturday 16 Aug	Sunday 17 Aug
Activity	low	very low	very low	very low	low	low	low
Flares	-	-	-	-	-	-	-

[1] See appendix. All timings are given in UT.

The SWAP images of Aug 11 and Aug 17 are shown below, with annotated active regions.



http://sidc.be/soteria/soteria.php


Catania sunspot groups
No observation
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2014-08-17 00:30:00
75
75
60
60
45
45
30
30
15
15
0
0
-15
-30
-45
-60
-75
2146
Alpha
2141
Beta-Gamma
2142
2143
2139
Beta-Gamma
2135
Alpha
2144
Beta-Gamma
2145
Beta
PROBA2/SWAP 17.4nm
2014-08-17T08:25:57.347

Solar Activity

The level of solar activity was between **very low** and **low** this week.

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 (SWAP week 229).

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

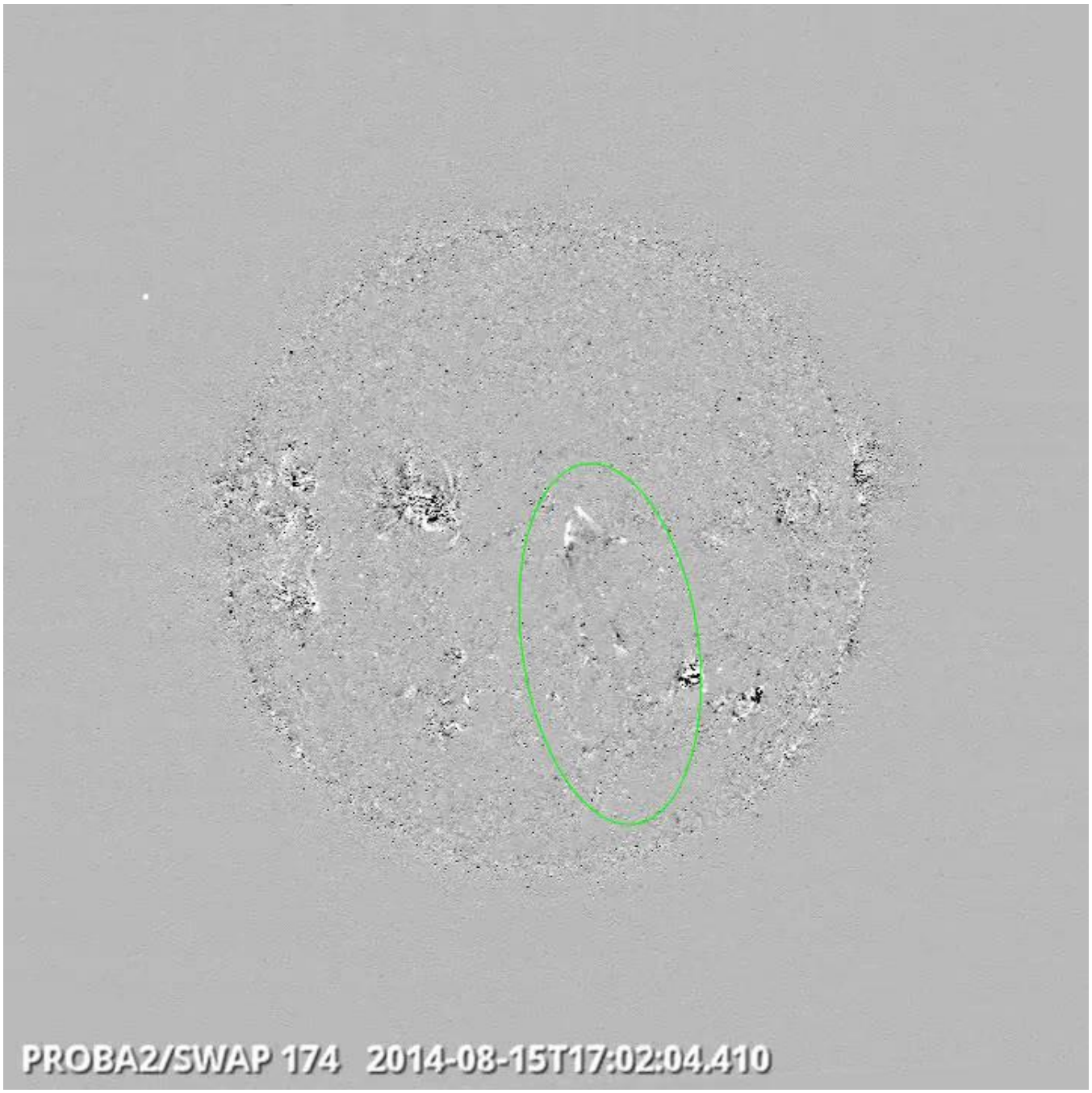
Tuesday Aug 12:

Early morning, a prominence eruption occurred on the North limb. This event can be nicely seen in the weekly overview movie above.
In addition, an eruption occurred on the East limb during the evening:

Eruption on East limb @ 22:09 - SWAP difference image
Find a movie of this event **here** (SWAP difference movie)

Friday Aug 15:

During the evening, a prominence located in the south west quadrant erupted, generating a solar arcade.

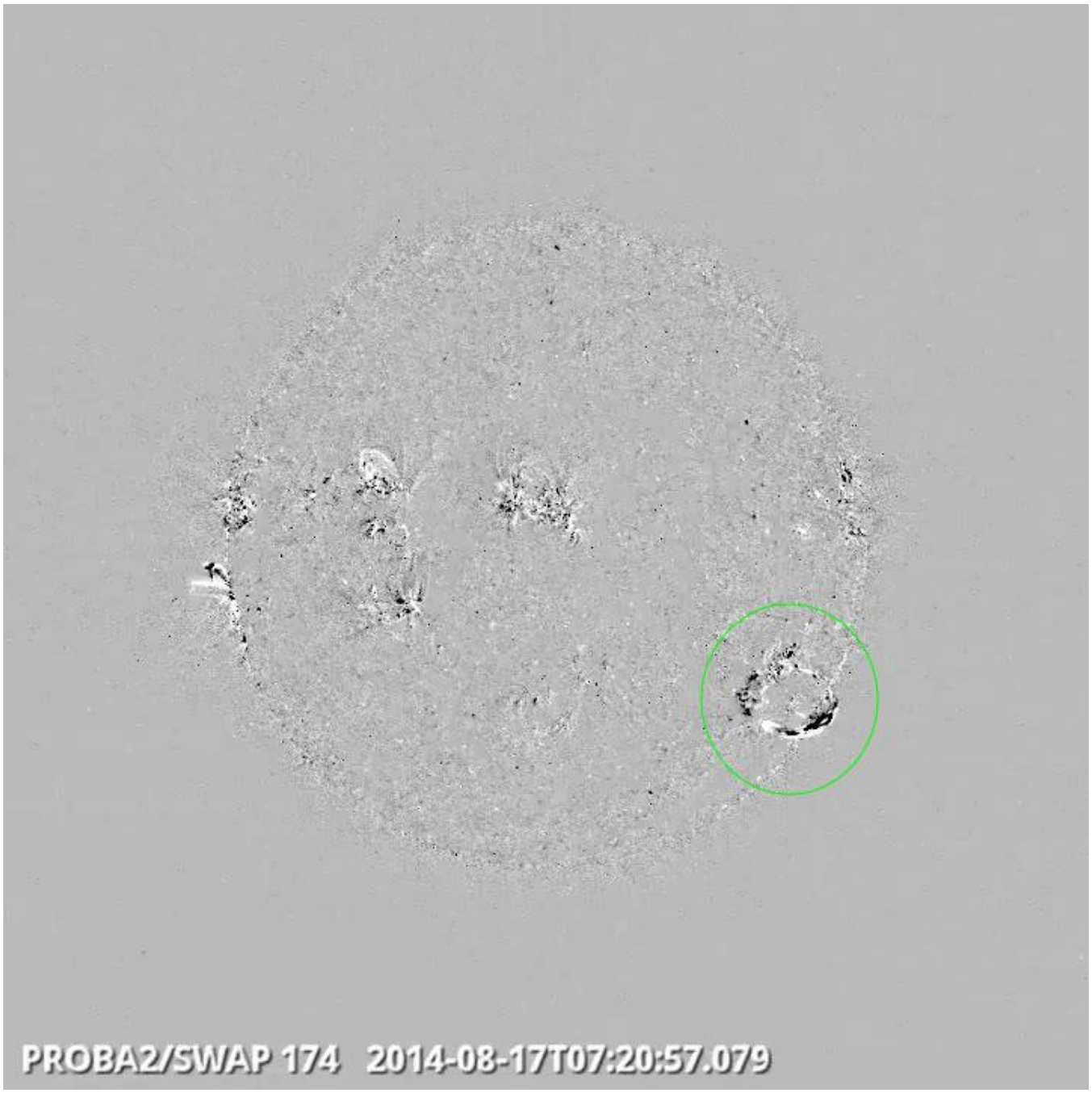


Prominence Eruption in South West quadrant @ 17:02 - SWAP difference image

Find a movie of the event **here** (SWAP difference movie) or watch the above weekly overview movie.

Sunday Aug 17:

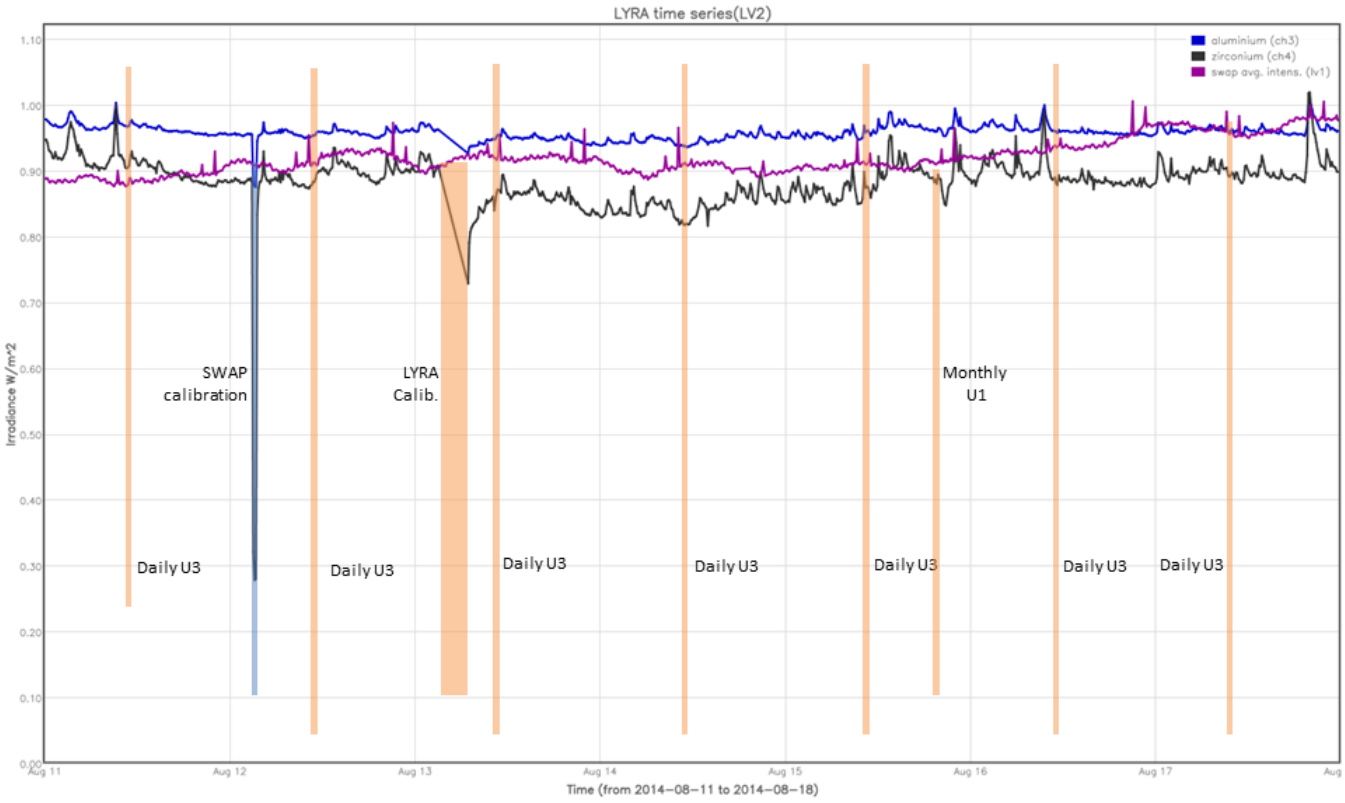
A small eruption occurred in the South West quadrant, generating a nice plasma flow along the magnetic field lines of AR12144.



Eruption in South West quadrant - AR 12144 @ 07:20 - 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 (SWAP Average Intensity; integrated solar intensity per SWAP image pixel)



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

- Daily unit 3 campaigns, twice
- Bi-weekly LYRA calibration on Wednesday
- Daily unit 3 campaigns, 3 times
- Monthly unit 1 campaign
- Daily unit 3 campaigns, twice

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

- Bi-weekly SWAP calibration on Tuesday

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.

Rachmeler, L. presented PROBA2 observations in a presentation titled: “Forward modelling as a tool for coronal magnetometry” at COSPAR 2014.

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

Bi-weekly LYRA calibration on Wednesday.

IOS & operations

Monday 11 Aug	Tuesday 12 Aug	Wednesday 13 Aug	Thursday 14 Aug	Friday 15 Aug	Saturday 16 Aug	Sunday 17 Aug
Nominal acquisition + daily U3 LYIOS00413	Nominal acquisition + daily U3 LYIOS00414	Nominal acquisition + daily U3 + calibration LYIOS00414	Nominal acquisition + daily U3 LYIOS00414	Nominal acquisition + daily U3 + monthly U1 LYIOS00414	Nominal acquisition + daily U3 LYIOS00414	Nominal acquisition + daily U3 LYIOS00414

The following science campaigns were performed by LYRA:

- daily U3 observation campaigns
- monthly U1 observation campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 46.7 and 47.6 °C, taking into account the daily U3 activation periods.
During calibration, temperature dropped to 45 C. During the monthly U1 campaign, temperature increased to 48.9.

3. SWAP instrument status

Calibration

Bi-weekly SWAP calibration on Tuesday.

MCPM errors

The number of MCPM recoverable errors increased from 21190 to 21362.
The number of MCPM unrecoverable errors remained at 1657.

IOS & operations

Monday 11 Aug	Tuesday 12 Aug	Wednesday 13 Aug	Thursday 14 Aug	Friday 15 Aug	Saturday 16 Aug	Sunday 17 Aug
Nominal acquisition IOS00529 650 images	Nominal acquisition + calibration IOS00530 688 images	Nominal acquisition IOS00530 664 images	Nominal acquisition IOS00530 660 images	Nominal acquisition IOS00530 664 images	Nominal acquisition IOS00530 660 images	Nominal acquisition IOS00530 663 images

Special operations for SWAP, this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.45 and -0.97 °C.

4. PROBA2 Science Center Status

The main operator is Erik Pylyser.

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 14927 to 14991) 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 2014 Aug 11 0UT and 2014 Aug 18 0UT: 4649
Highest cadence in this period: 30 seconds
Average cadence in this period: 130.07 seconds
Number of image gaps larger than 300 seconds: 0

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)