P2SC-ROB-WR-233 - 20140908 Weekly report #233	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Sep 08 to Sun Sep 14, 2014 19 Sep 2014 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
To:	LYRA PI, marie.dominique@sidc.be SWAP PI, dseaton@sidc.be	http://proba2.sidc.be ++ 32 (0) 2 3730559
cc:	ROB DIR, ronald@oma.be ESA Redu, Etienne.Tilmans@esa.int ESA D/SRE, Joe.Zender@esa.int ESA D/TEC, Juha-Pekka.Luntama@esa.int	

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1. Science

Solar & Space weather events

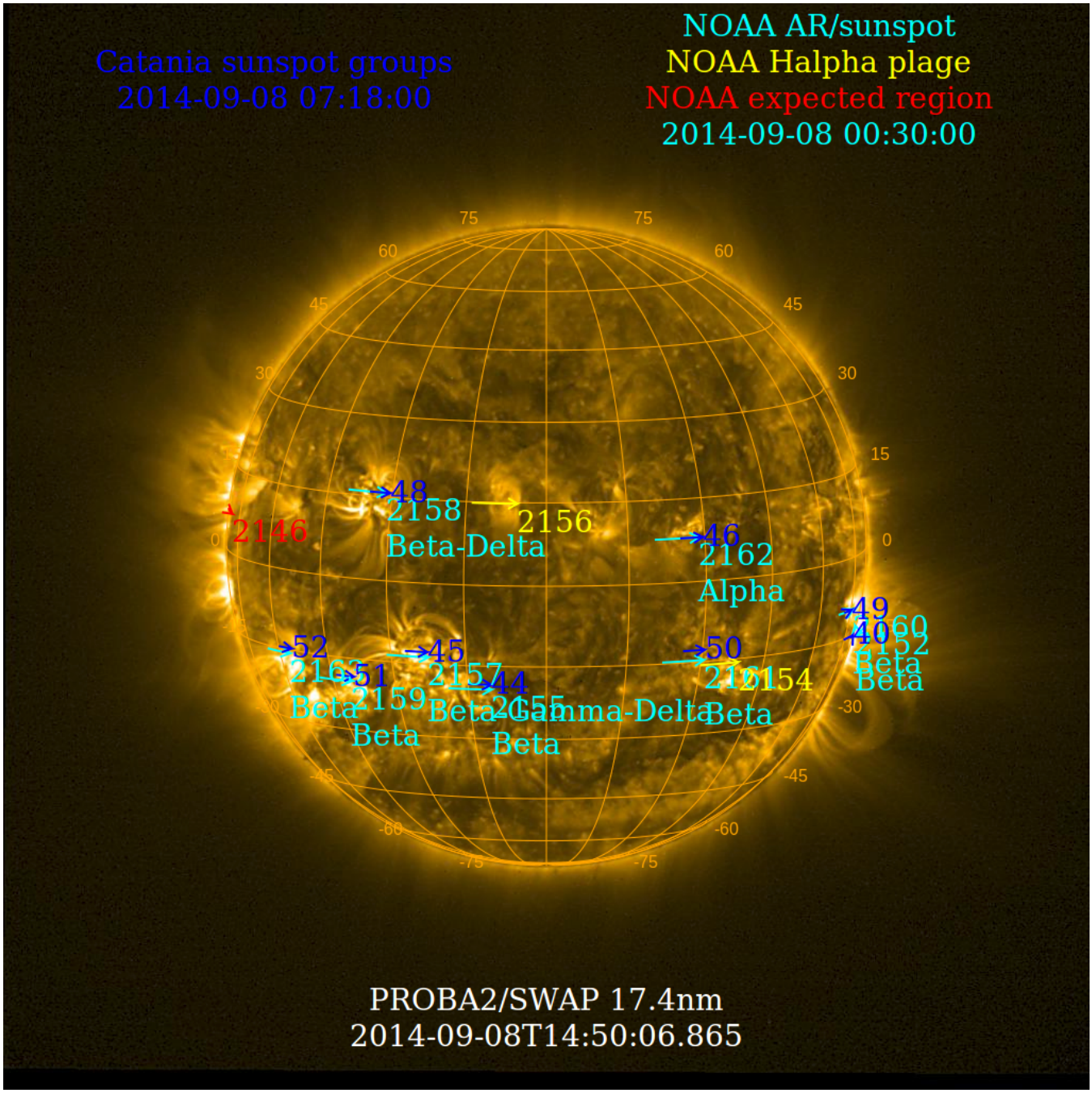
The level of solar activity[1] fluctuated between **low** and **high** this week.

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

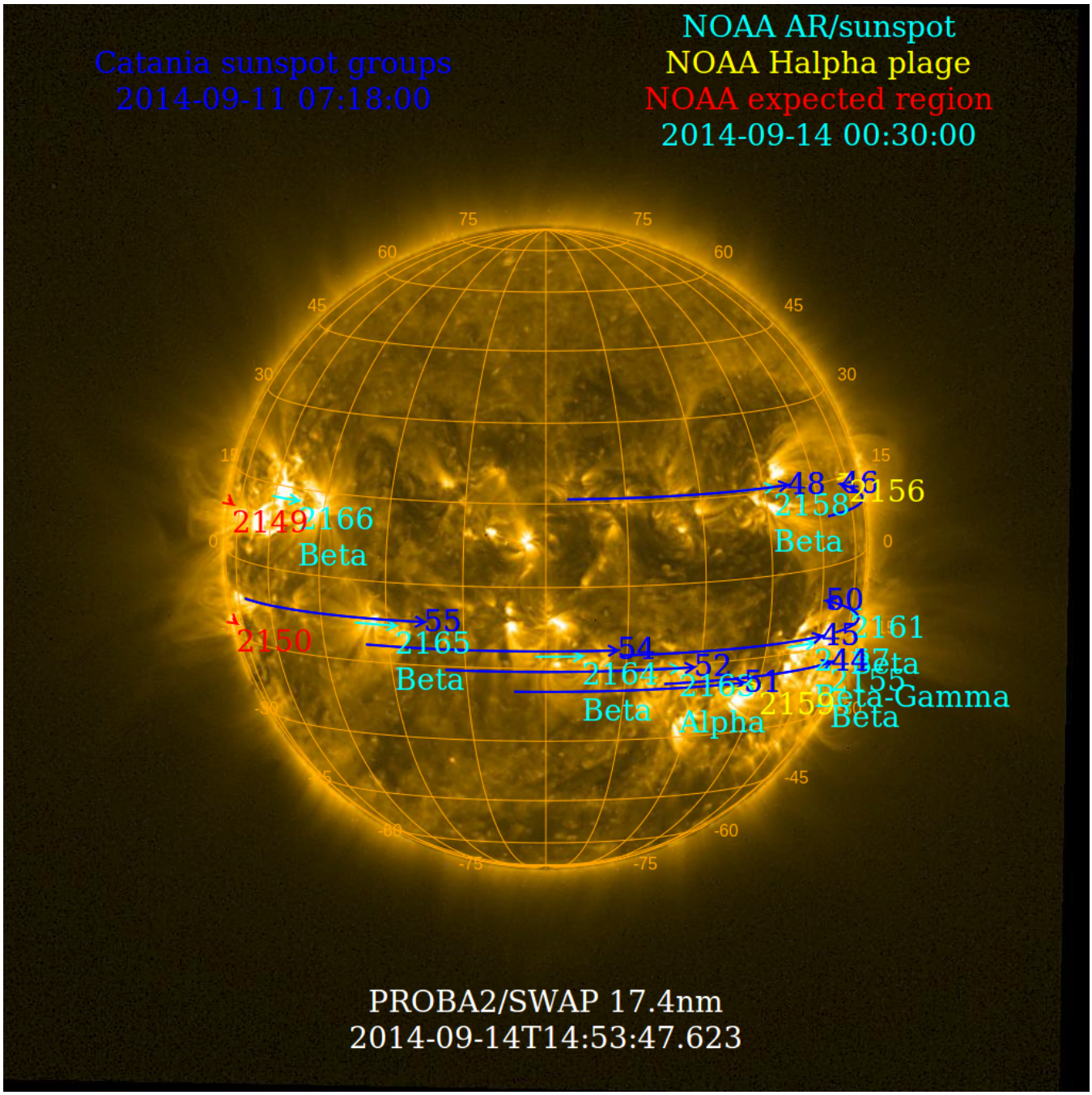
	Monday 08 Sep	Tuesday 09 Sep	Wednesday 10 Sep	Thursday 11 Sep	Friday 12 Sep	Saturday 13 Sep	Sunday 14 Sep
Activity	moderate	low	high	moderate	low	low	moderate
Flares	**M4.5@00:29**	-	**X1.6@17:45**	**M1.4@21:26** **M2.1@15:26**	-	-	**M1.5@02:16**

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

The SWAP images of Sep 08 and Sep 14 are shown below, with annotated active regions.



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

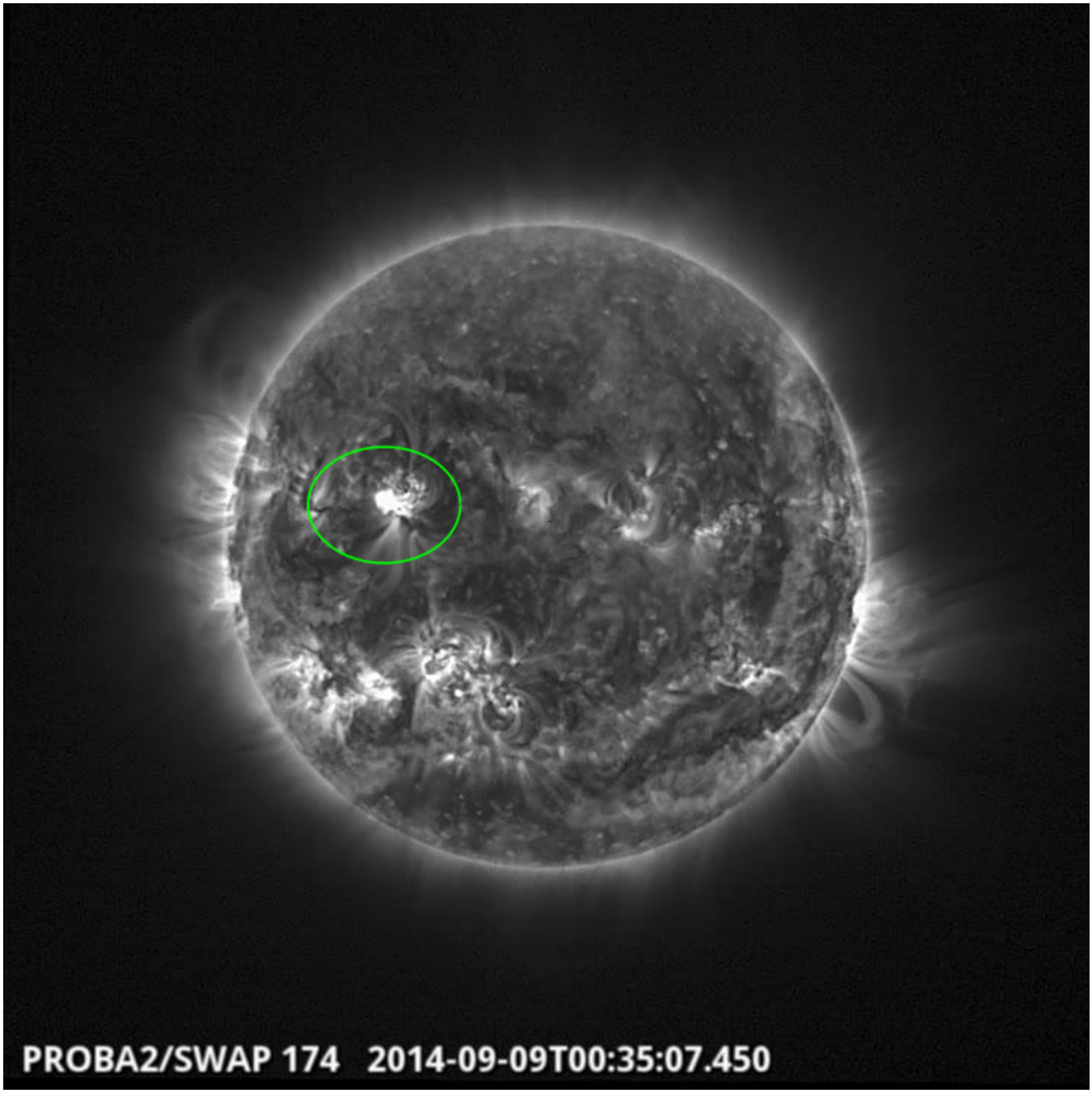

Catania sunspot groups
2014-09-11 07:18:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2014-09-14 00:30:00
75
60
45
30
15
0
-15
-30
-45
-60
-75
2149
2166
Beta
2150
55
2165
Beta
54
2164
Beta
52
51
Alpha
48
46
2158
Beta
50
45
2161
Beta-Gamma
Beta
PROBA2/SWAP 17.4nm
2014-09-14T14:53:47.623

Solar Activity
Solar flare activity fluctuated between low and moderate during the week.
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.

A weekly overview movie can be found here (SWAP week 233).

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

Tuesday Sep 09



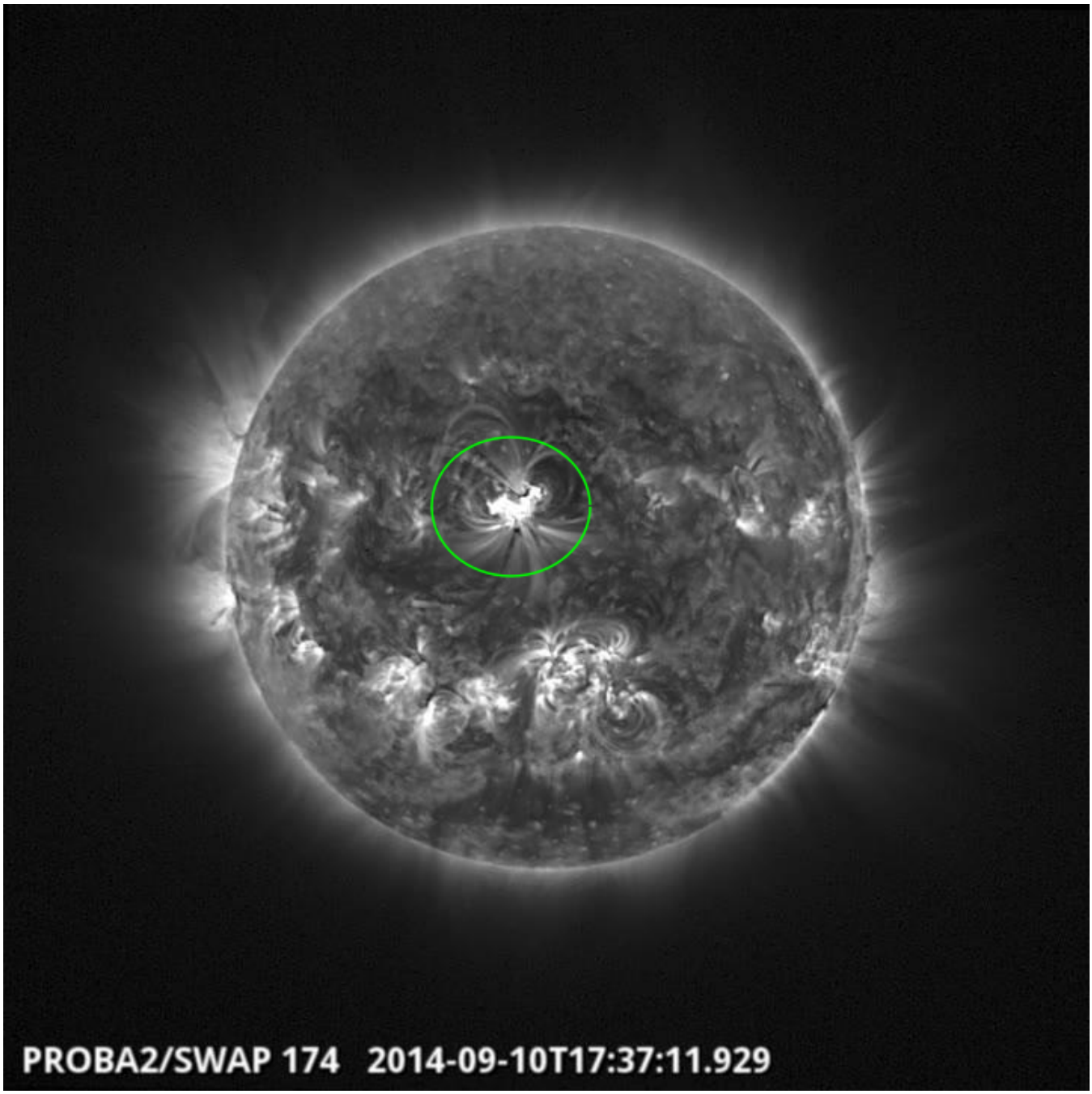
M class flare and dimming @ 00:35 - SWAP image

Find a movie of the events **here** (SWAP movie)

Wednesday Sep 10

Eruption on the west limb @ 01:50 - SWAP difference image

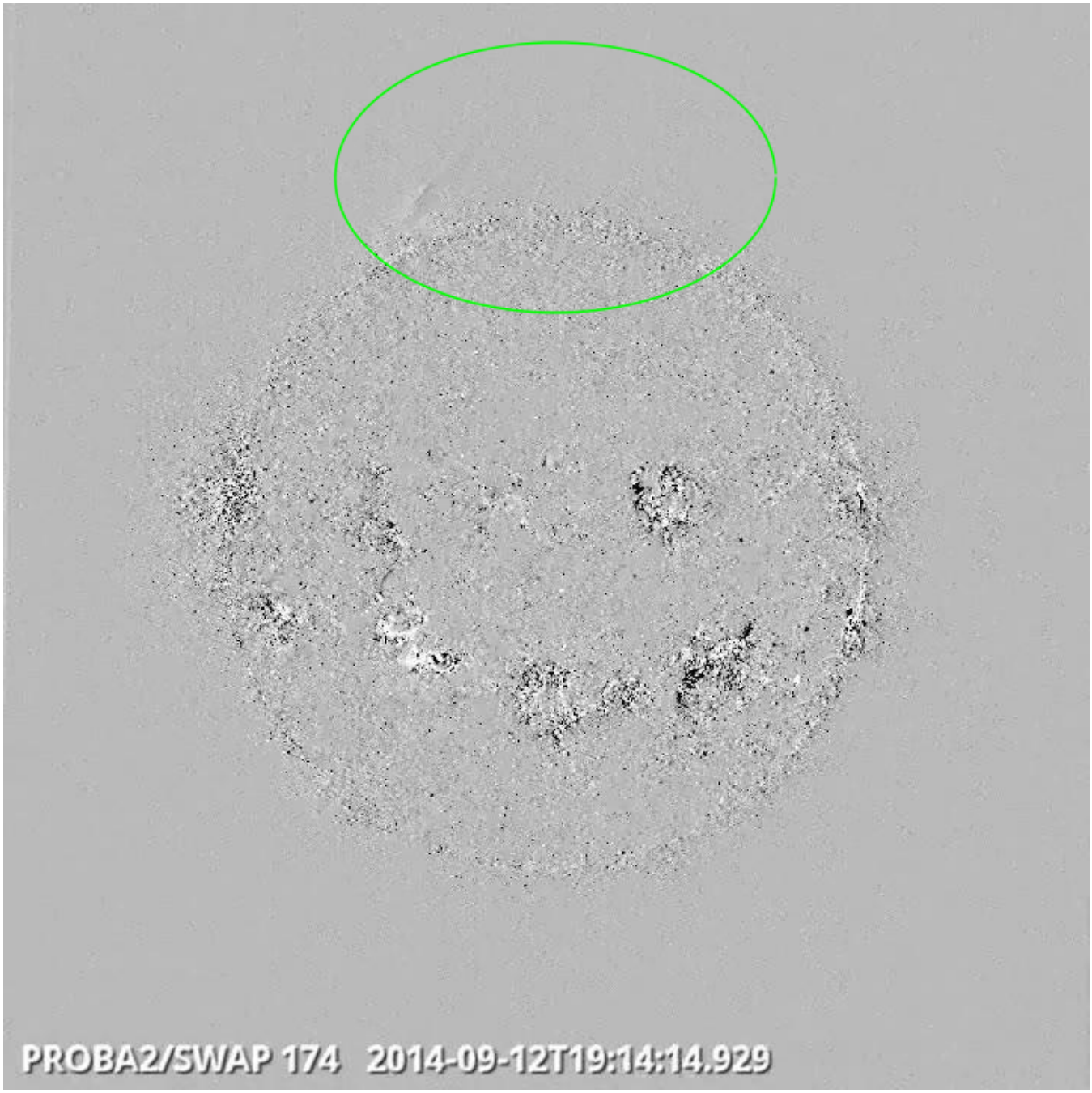
Find a movie of the event **here** (SWAP difference movie)



X class flare and EIT wave in the Sun centre @ 17:37 - SWAP image

Find a movie of the event **here** (SWAP movie)

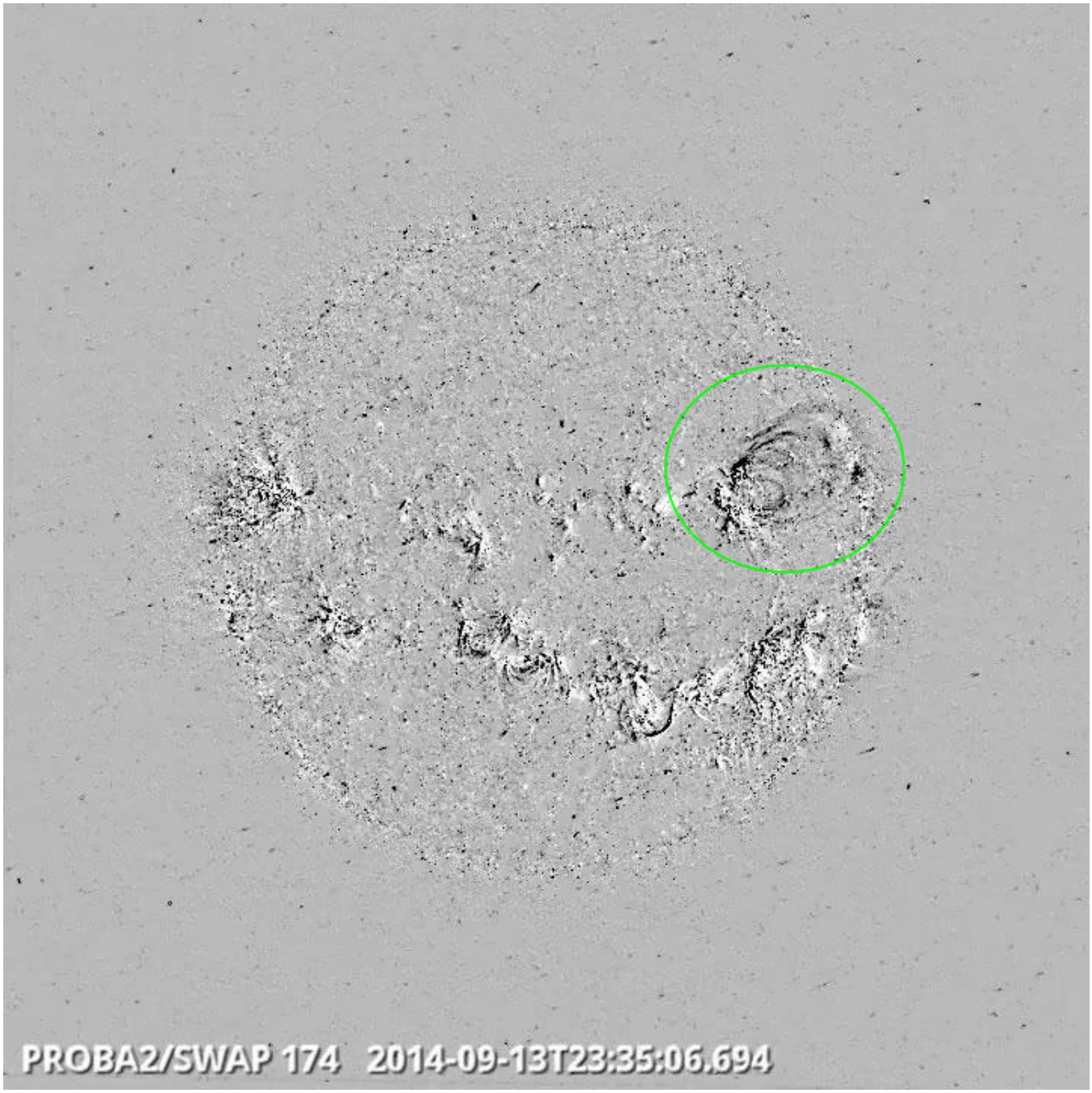
Friday Sep 12



Eruption on the far side of the Sun @ 19:14 - SWAP difference image

Find a movie of the event **here** (SWAP difference movie)

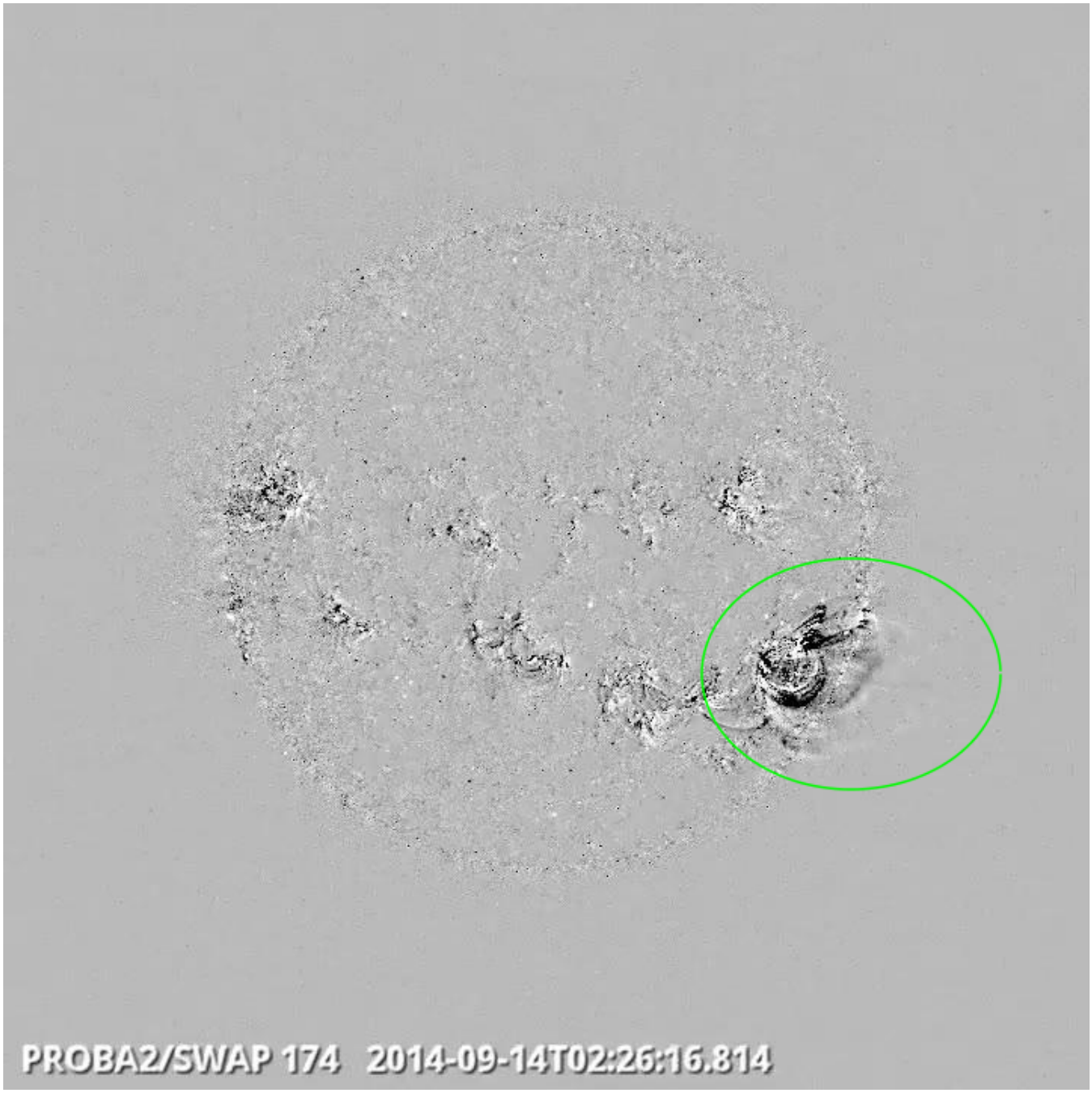
Saturday Sep 13



Eruption on the north west quad @ 23:35 - SWAP difference image

Find a movie of the event **here** (SWAP difference movie)

Sunday Sep 14

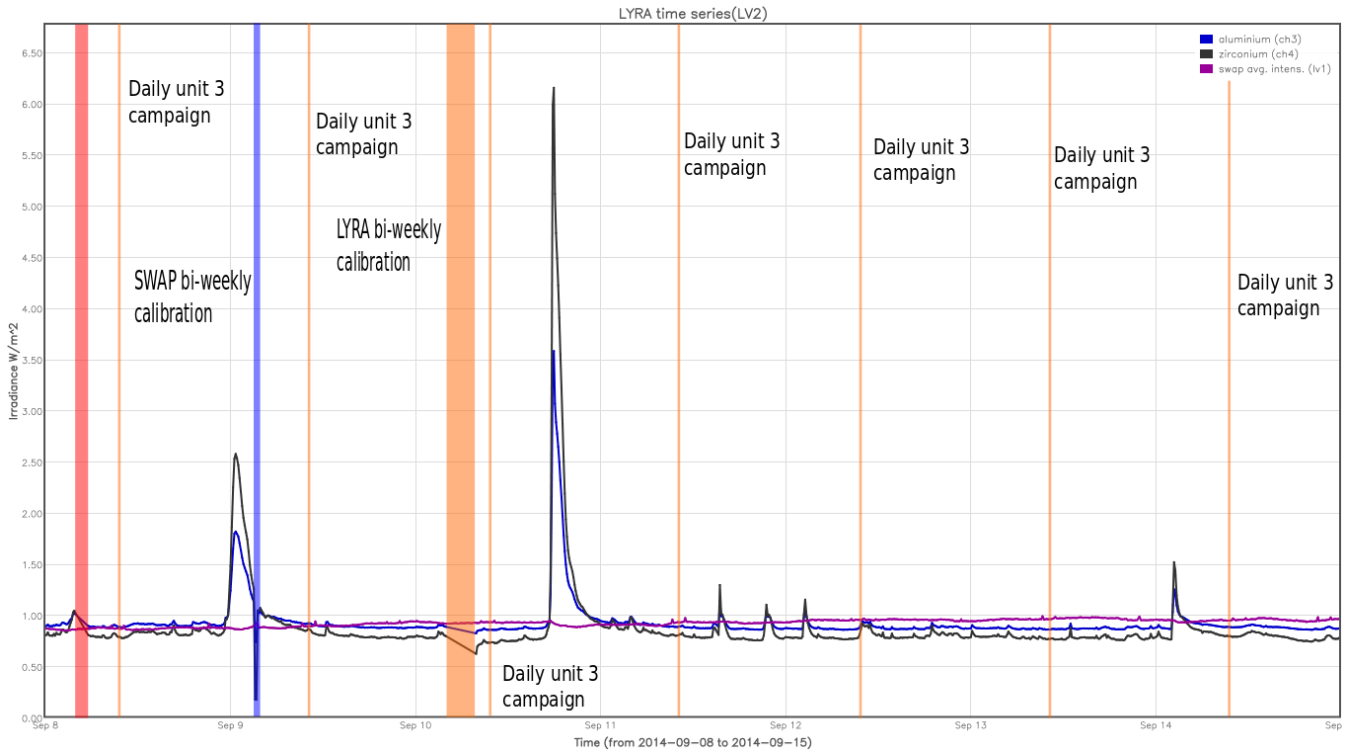


Eruption on the south west quad @ 02:26 - SWAP difference image

Find a movie of the event **here** (SWAP difference movie)

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 blue shaded periods correspond to, from left to right:

- bi-weekly calibration

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

- daily unit 3 campaign, two times
- bi-weekly calibration
- daily unit 3 campaign, five times

The red shaded period corresponds to:

- A data gap in the LYRA data

The data gap between 2014-Sep-08T03:53:38Z and 2014-Sep-08T05:30:30Z is caused by weak signal stability between the satellite and the antenna during pass 15175

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.

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

Nine presentations concerning PROBA2 were presented at the European Space Physics Meeting 2014 2014 September 08 – 12:

- Magdalenic, J. et al. presented "Type III radio bursts observed with LOFAR and Nancay radioheliograph "
- D'Huys et al. presented "Observational Characteristics of CMEs without Low Coronal Signatures"
- Ryan, D.F. et al presented "New Flare Detection Algorithm And Flare List for PROBA2/LYRA"
- West M. J. et al presented "Evolution and Dynamics of a failed eruption: Analysis from Multi-instrument Observations"
- Seaton, D.B. presented "Solar cycle 24 and the large-Scale evolution of the EUV corona"
- Rachmueler et al. presented "A Hybrid Double-streamer/Pseudostreamer"
- Bonte et al. presented "Analysis of dynamic events detected by SoFAST in SWAP EUV images"
- Vansintjan, R., et al. "A study of successive EUV waves in PROBA2/SWAP observations"
- Dominique, M., et al presented "High-frequency quasi-periodic pulsations in solar flares, as observed by PROBA2/LYRA"

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 08 Sep	Tuesday 09 Sep	Wednesday 10 Sep	Thursday 11 Sep	Friday 12 Sep	Saturday 13 Sep	Sunday 14 Sep
Nominal acquisition + daily U3 LYIOS00417	Nominal acquisition + daily U3 LYIOS00417	Nominal acquisition + daily U3 + bi-weekly calibration LYIOS00417	Nominal acquisition + daily U3 LYIOS00417	Nominal acquisition + daily U3 LYIOS00417	Nominal acquisition + daily U3 LYIOS00417	Nominal acquisition + daily U3 LYIOS00417

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- bi-weekly calibration

LYRA detector temperature

LYRA detector 2 temperature globally varied between 46.3 and 48.5 °C, taking into account the daily U3 activation periods and the bi-weekly calibration.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 21739 to 21904.
The number of MCPM unrecoverable errors remained at 1657.

IOS & operations

Monday 08 Sep	Tuesday 09 Sep	Wednesday 10 Sep	Thursday 11 Sep	Friday 12 Sep	Saturday 13 Sep	Sunday 14 Sep
Nominal acquisition IOS00536 542 images	Nominal acquisition + bi weekly calibration IOS00536 676 images	Nominal acquisition IOS00536 662 images	Nominal acquisition IOS00536 665 images	Nominal acquisition IOS00536 650 images	Nominal acquisition IOS00536 602 images	Nominal acquisition IOS00536 589 images

Special operations for SWAP, this week:

- bi-weekly calibration

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1 and -0.16 °C.

4. PROBA2 Science Center Status

The main operator is Robbe Vansintjan.

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 15173 to 15235) 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 Sep 08 0UT and 2014 Sep 15 0UT: 4458
Highest cadence in this period: 30 seconds
Average cadence in this period: 135.64 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:

- 15175

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)