P2SC-ROB-WR-231 - 20140825 Weekly report #231	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Aug 25 to Sun Aug 31, 2014 19 Sep 2014 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

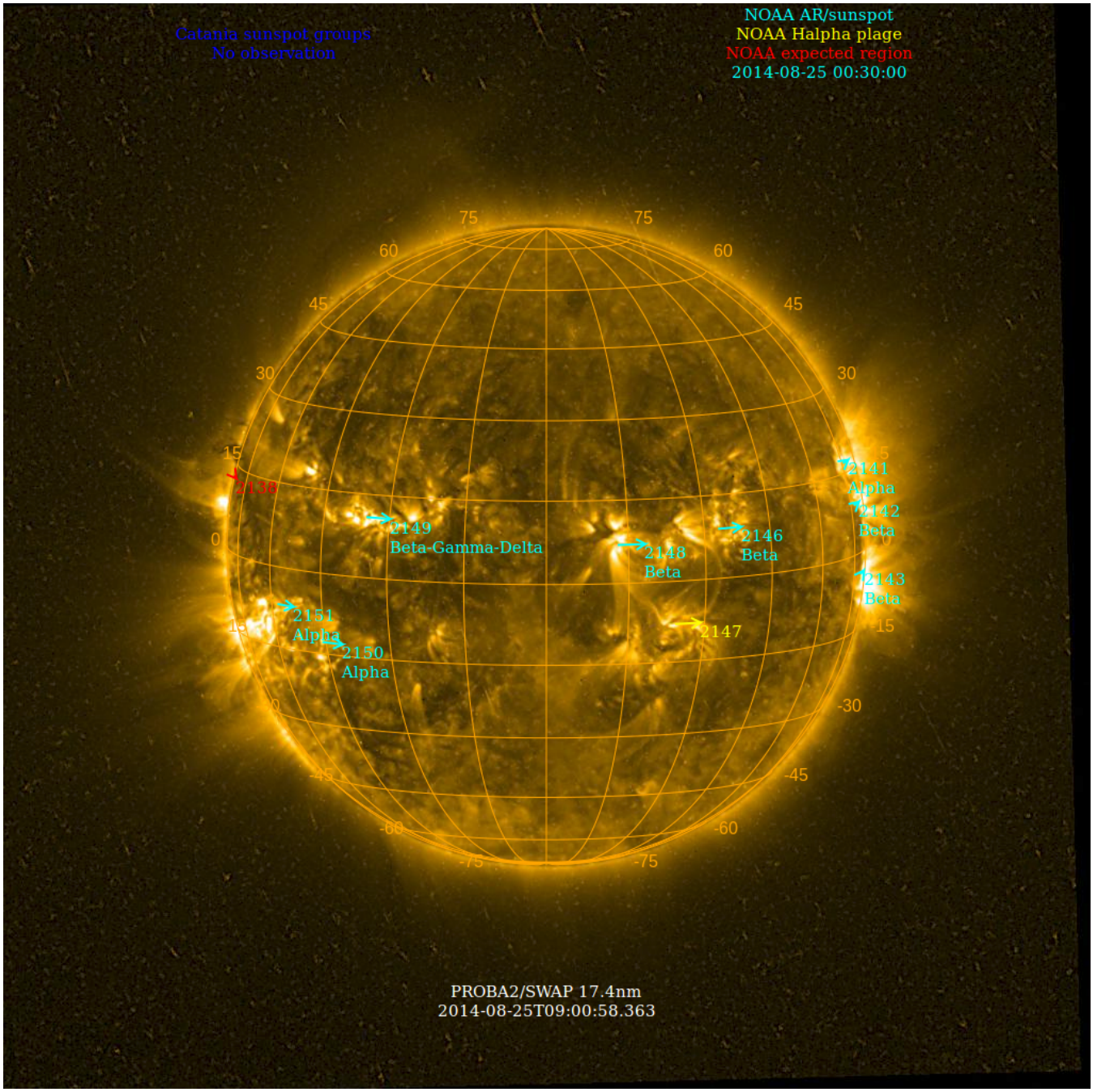
The level of solar activity[1] fluctuated between **low** and **moderate** this week.

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

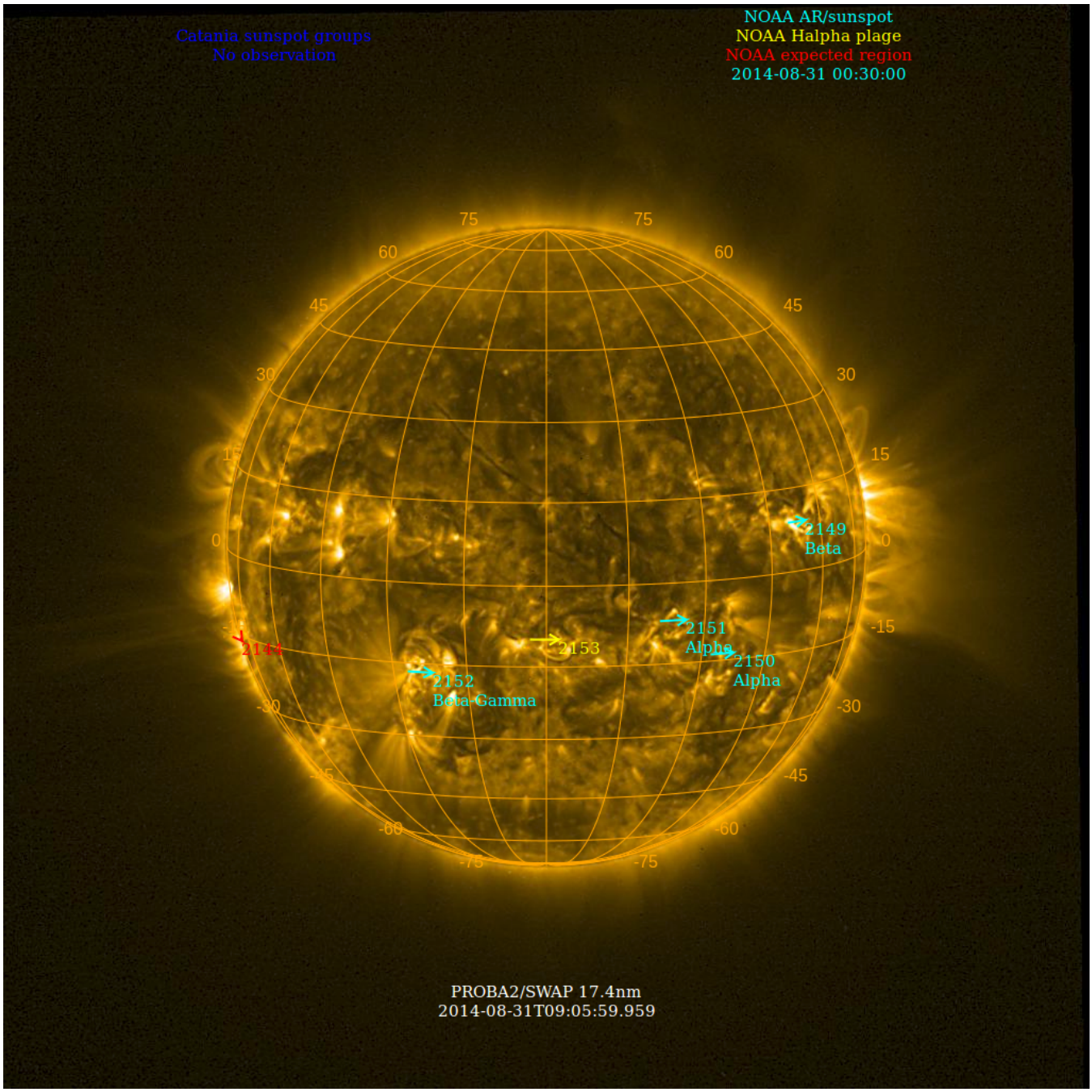
	Monday 25 Aug	Tuesday 26 Aug	Wednesday 27 Aug	Thursday 28 Aug	Friday 29 Aug	Saturday 30 Aug	Sunday 31 Aug
Activity	moderate	low	low	low	low	low	low
Flares	**M3.9@20:21** **M2.0@15:11**	-	-	-	-	-	-

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

The SWAP images of Aug 25 and Aug 31 are shown below, with annotated active regions.



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

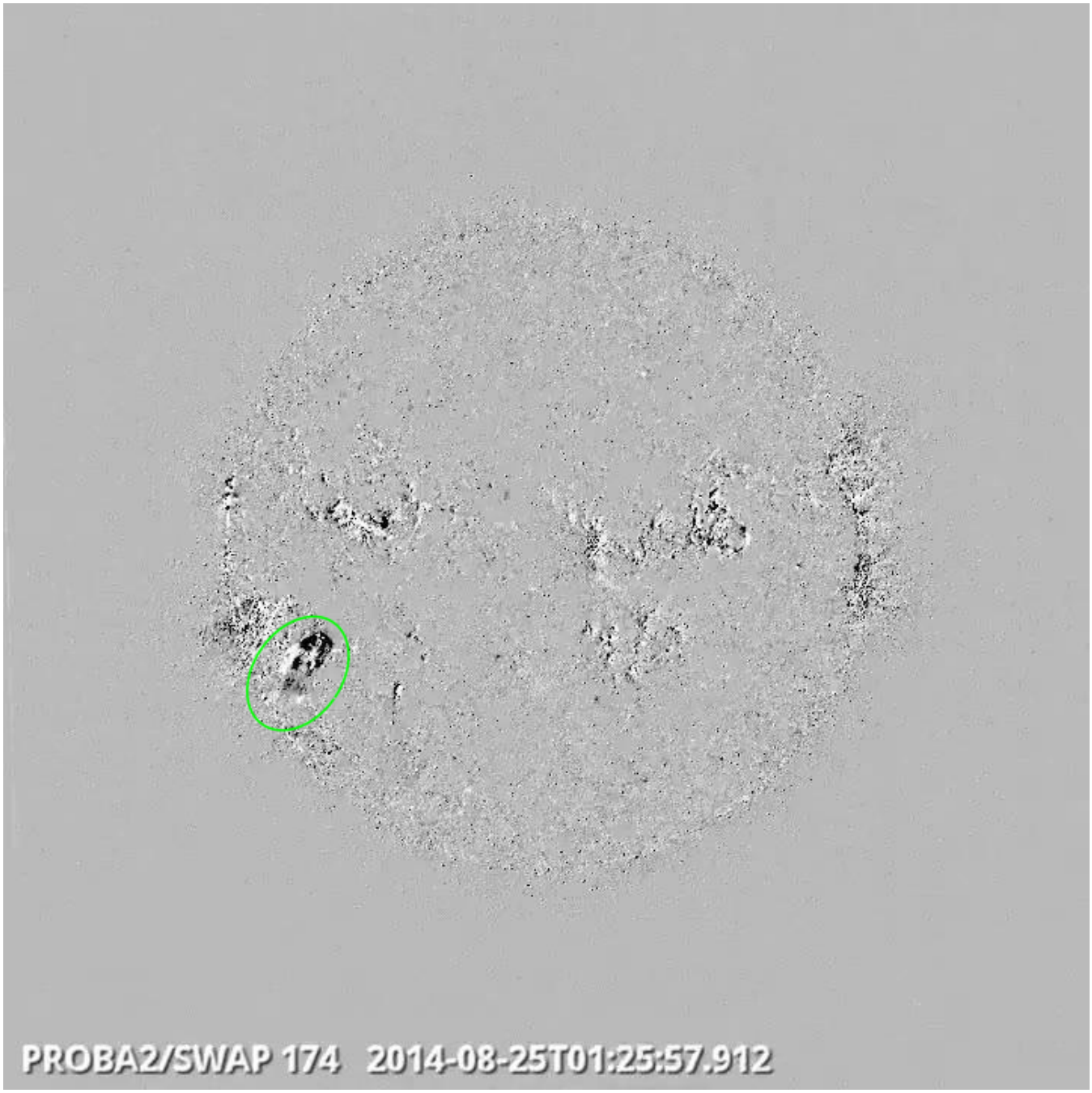

Catania sunspot groups
No observation
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2014-08-31 00:30:00
75
75
60
60
45
45
30
30
15
15
0
0
-15
-30
-30
-45
-60
-60
-75
-75
2149
Beta
2151
Alpha
2153
2150
Alpha
2144
2152
Beta-Gamma
PROBA2/SWAP 17.4nm
2014-08-31T09:05:59.959

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 231).

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

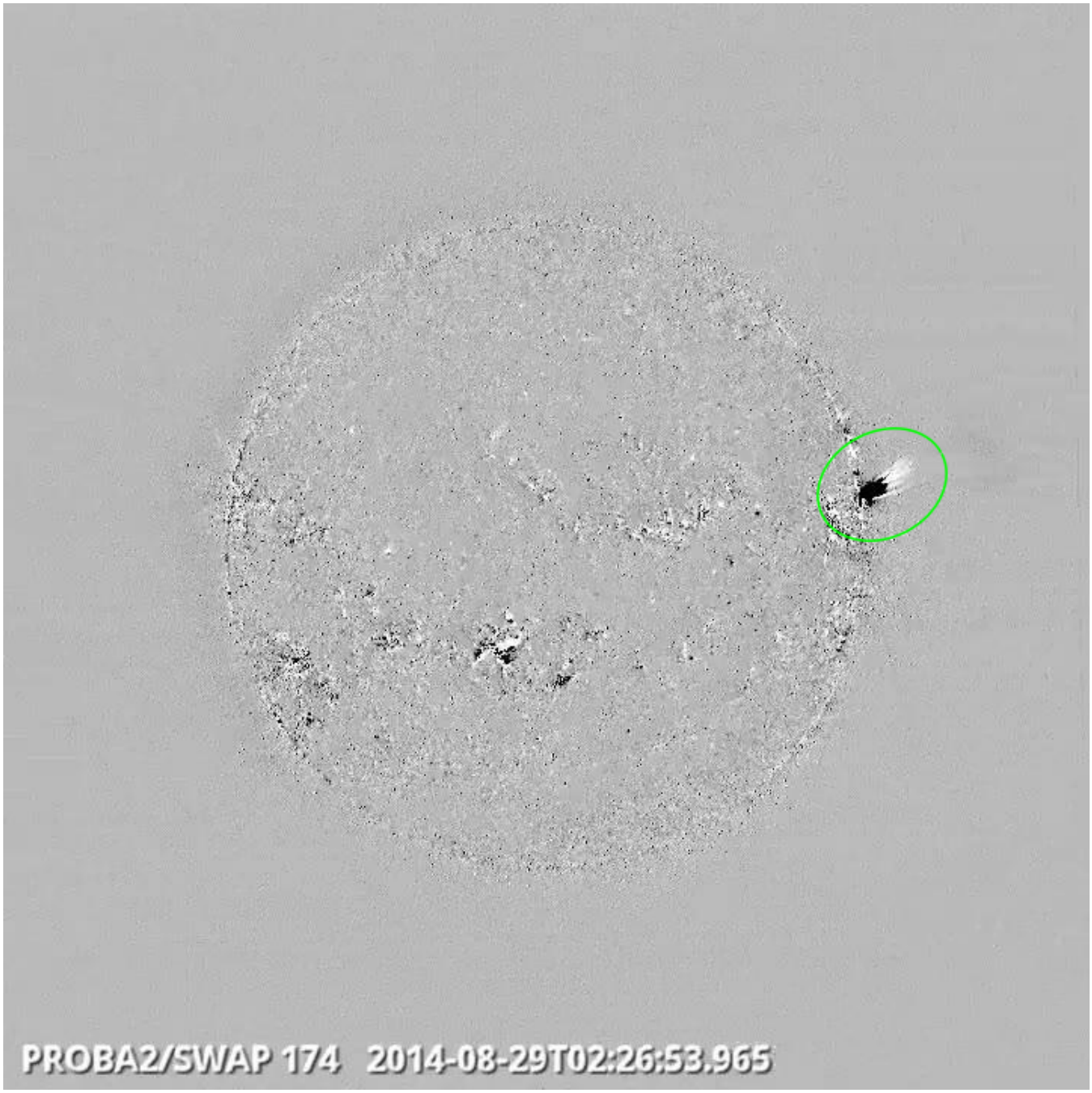
Monday Aug 25



Eruption on the south east quad @ 01:25 - SWAP difference image

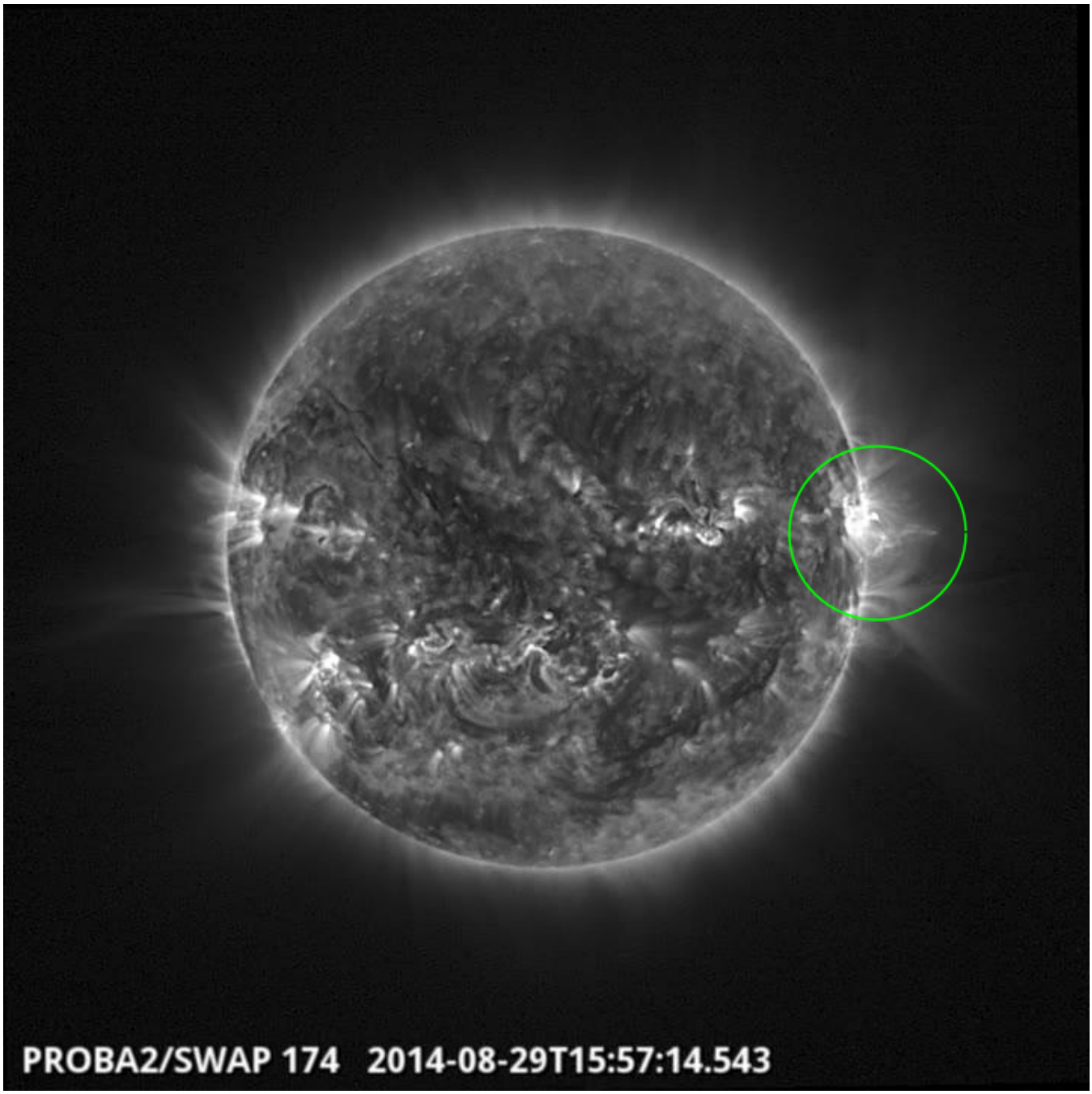
Find a movie of the events **here** (SWAP difference movie)

Friday Aug 29



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

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

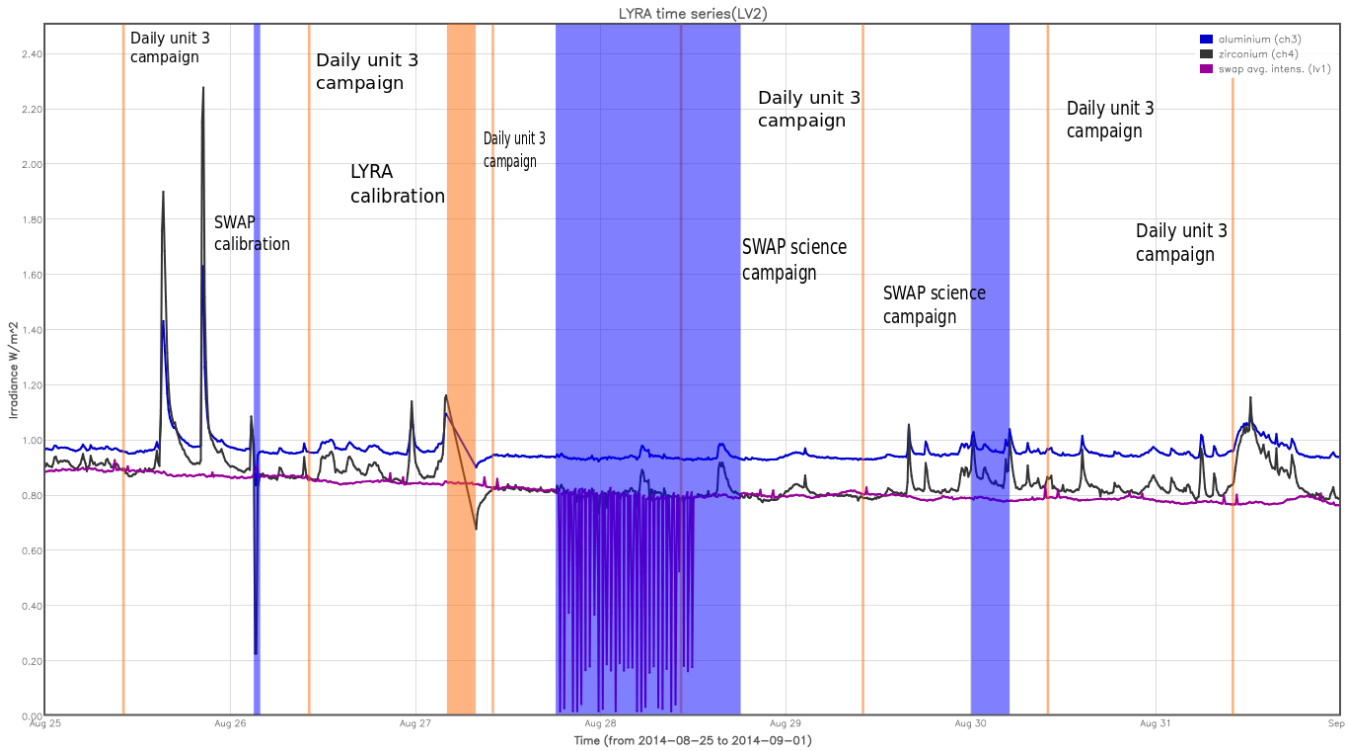


Eruption on the west limb @ 15:57 - SWAP image

Find a movie of the events **here** (SWAP 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
- Science campaign for Craig Deforest, two times.

The dips in the irradiance on the 27th and the 28th were caused by a wrongly implemented IOS.

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

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).

Three presentations concerning PROBA2 were presented at the Seventh Solar Information Processing Workshop 2014 August 18 – 21:

- Pant et al. presented "Automated tracking of coronal mass ejections using CACTus"
- Bonte et al. presented "Analysis of dynamic events detected by SoFAST in SWAP EUV images"
- Byrne et al. presented "The new 'CORIMP' CME catalog & 3D reconstructions"

Guest Investigator Program

- Jason Byrne visited the P2SC to work on “SWAP Studying the Low-Corona Initiation Phase of CMEs”

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 25 Aug	Tuesday 26 Aug	Wednesday 27 Aug	Thursday 28 Aug	Friday 29 Aug	Saturday 30 Aug	Sunday 31 Aug
Nominal acquisition + daily U3 LYIOS00414	Nominal acquisition + daily U3 LYIOS00415	Nominal acquisition + daily U3 + bi weekly calibration LYIOS00415	Nominal acquisition + daily U3 LYIOS00415	Nominal acquisition + daily U3 LYIOS00415	Nominal acquisition + daily U3 LYIOS00415	Nominal acquisition + daily U3 LYIOS00415

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 45.8 and 48.2 °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 21486 to 21560.
The number of MCPM unrecoverable errors remained at 1657.

IOS & operations

Monday 25 Aug	Tuesday 26 Aug	Wednesday 27 Aug	Thursday 28 Aug	Friday 29 Aug	Saturday 30 Aug	Sunday 31 Aug
Nominal acquisition IOS00530 645 images	Nominal acquisition + bi-weekly calibration IOS00531 680 images	Nominal acquisition + science campaign IOS00531 -> IOS00532 692 images	Nominal acquisition + science campaign IOS00532 -> IOS00533 722 images	Nominal acquisition IOS00533 664 images	Nominal acquisition + science campaign IOS00534 664 images	Nominal acquisition IOS00534 644 images

Special operations for SWAP, this week:

- bi-weekly calibration
- two science campaigns requested by Craig Deforest

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.36 and -0.73 °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 15054 to 15112) 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 25 0UT and 2014 Sep 01 0UT: 4730
Highest cadence in this period: 30 seconds
Average cadence in this period: 127.85 seconds
Number of image gaps larger than 300 seconds: 33
Largest data gap: 5.75 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)