P2SC-ROB-WR-271 - 20150601 Weekly report #271	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Jun 01 to Sun Jun 07, 2015 10 June 2015 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	

1. Science

Solar & Space weather events

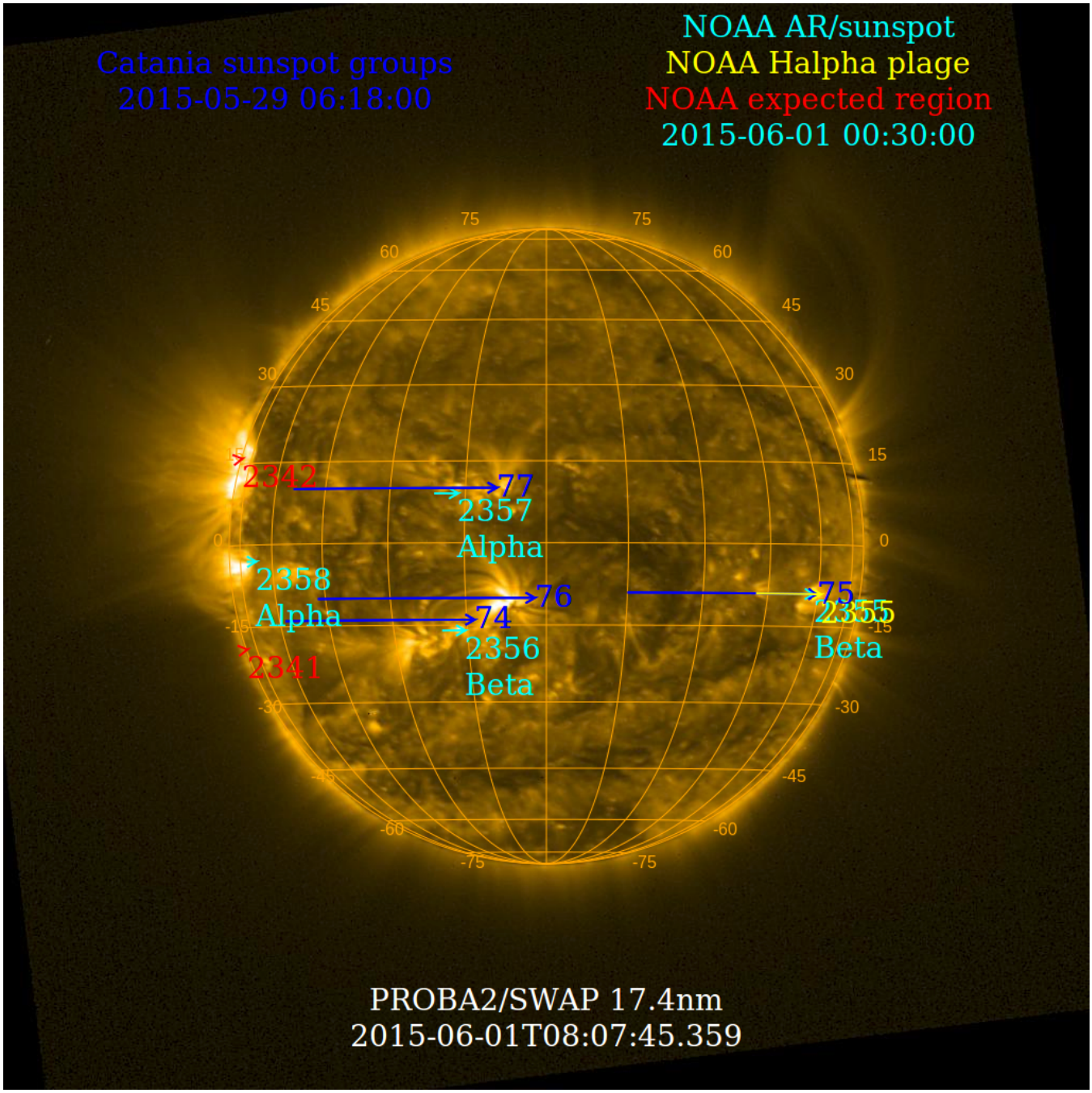
The level of solar activity[1] fluctuated between **very low** and **low** this week.

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

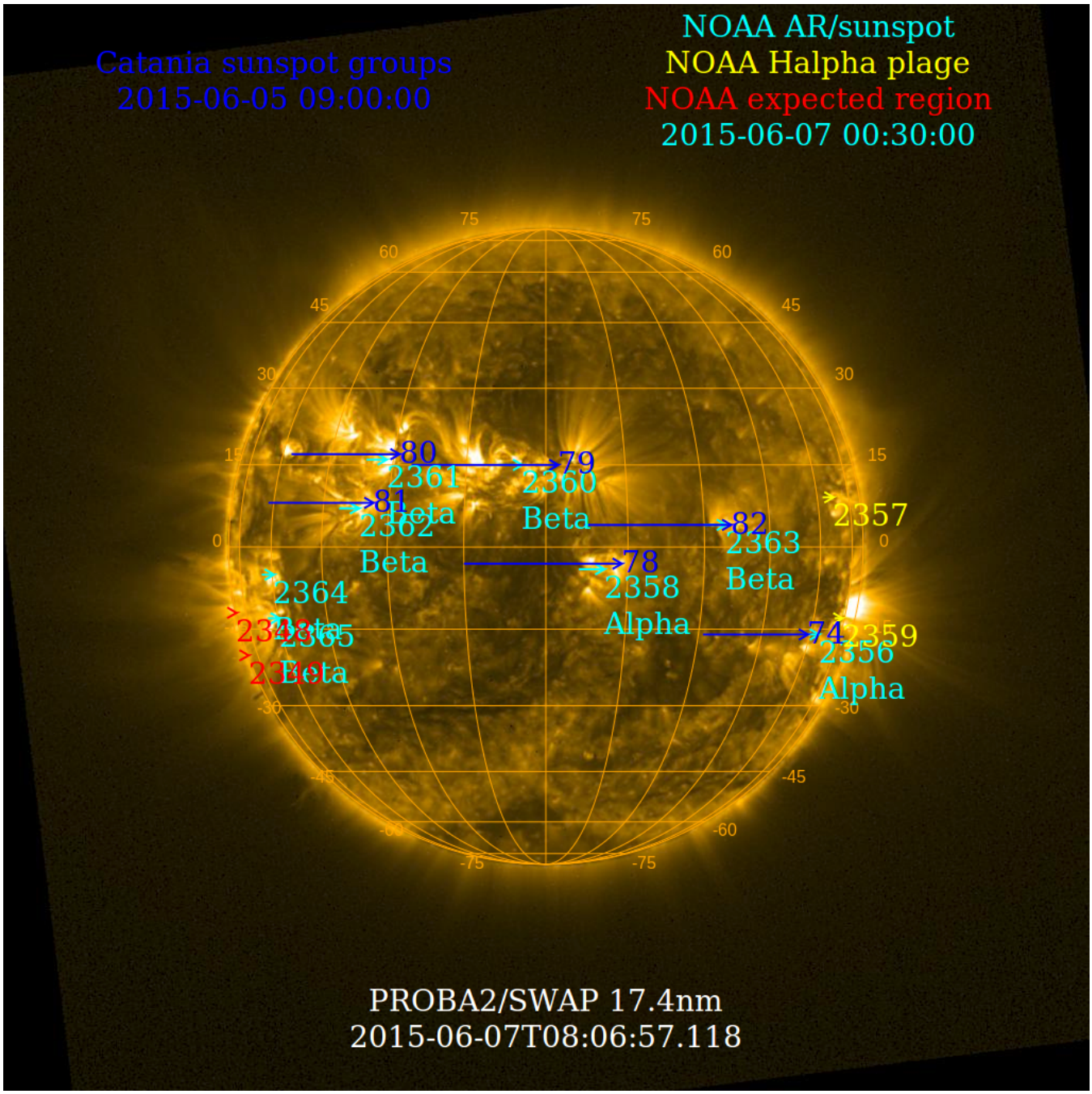
	Monday 01 Jun	Tuesday 02 Jun	Wednesday 03 Jun	Thursday 04 Jun	Friday 05 Jun	Saturday 06 Jun	Sunday 07 Jun
Activity	very low	low	low	low	low	low	low
Flares	-	-	-	-	-	-	-

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

The SWAP images of Jun 01 and Jun 07 are shown below, with annotated active regions.



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


Catania sunspot groups
2015-06-05 09:00:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2015-06-07 00:30:00
80
2361
Beta
79
2360
Beta
81
2362
Beta
82
2363
Beta
2357
78
2358
Alpha
2364
2365
Beta
74
2359
2356
Alpha
PROBA2/SWAP 17.4nm
2015-06-07T08:06:57.118

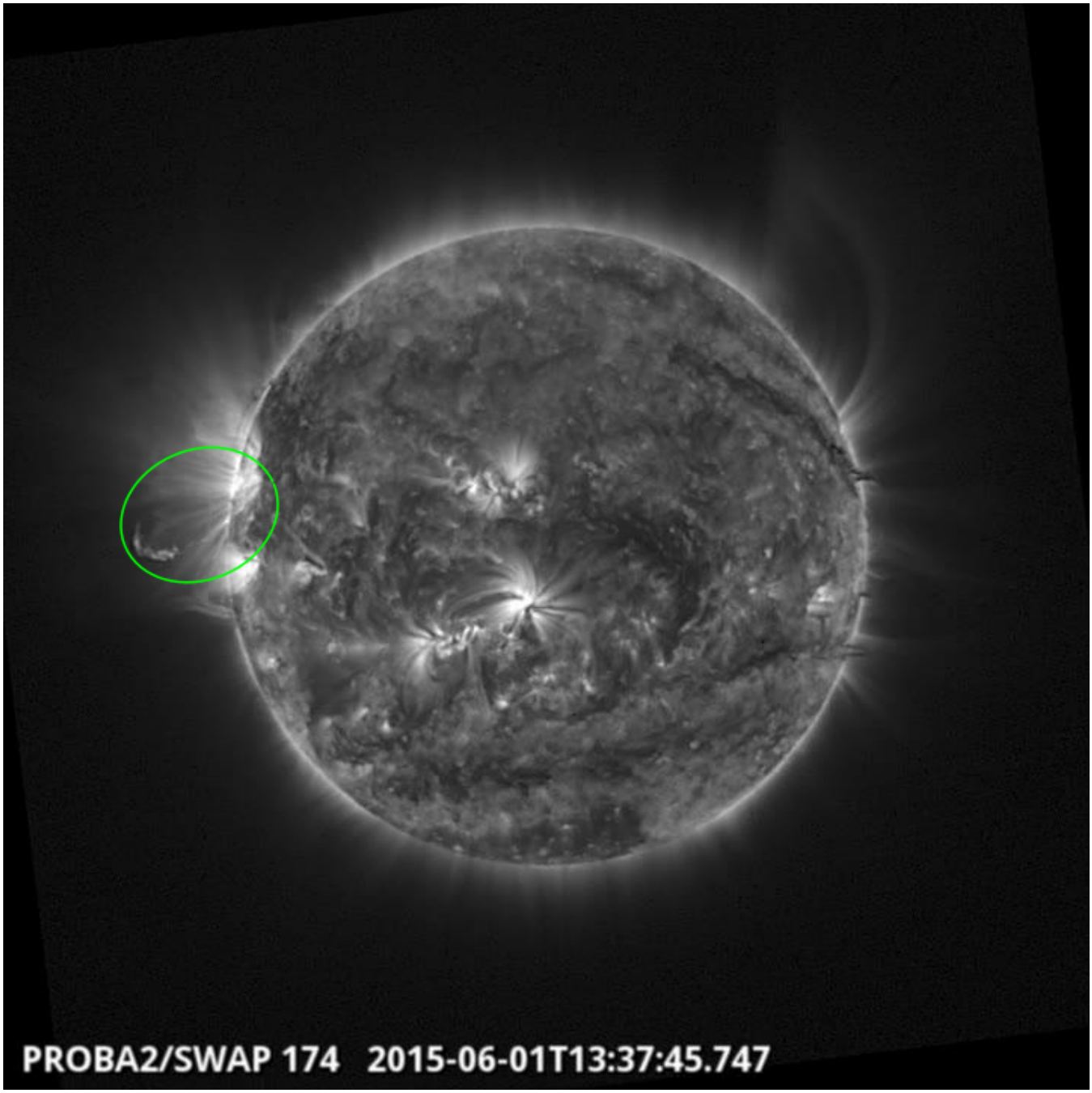
Solar Activity

Solar flare activity fluctuated between very low and low 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 271).

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

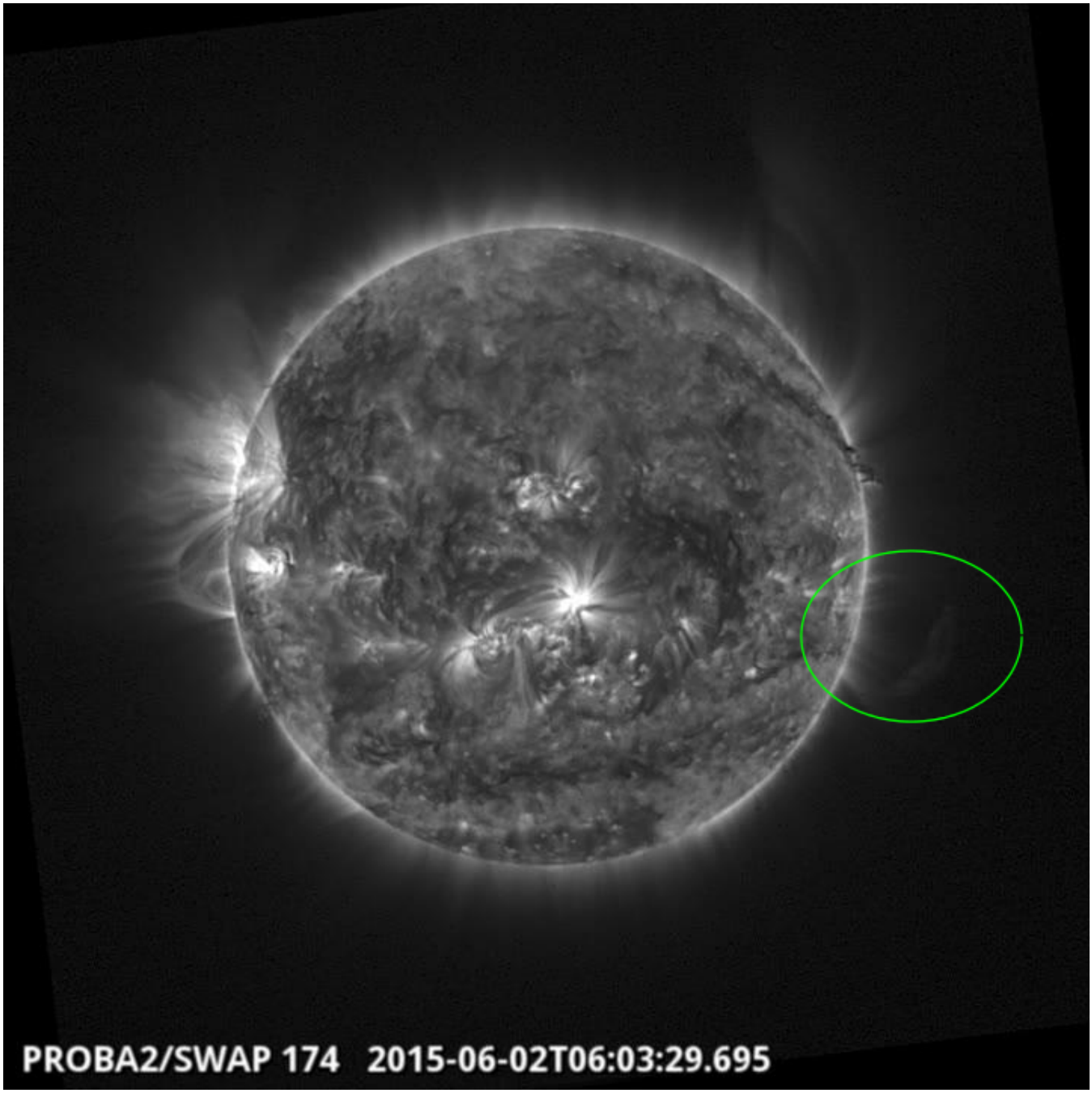
Monday Jun 01



Eruption on the east limb @ 13:37 - SWAP image

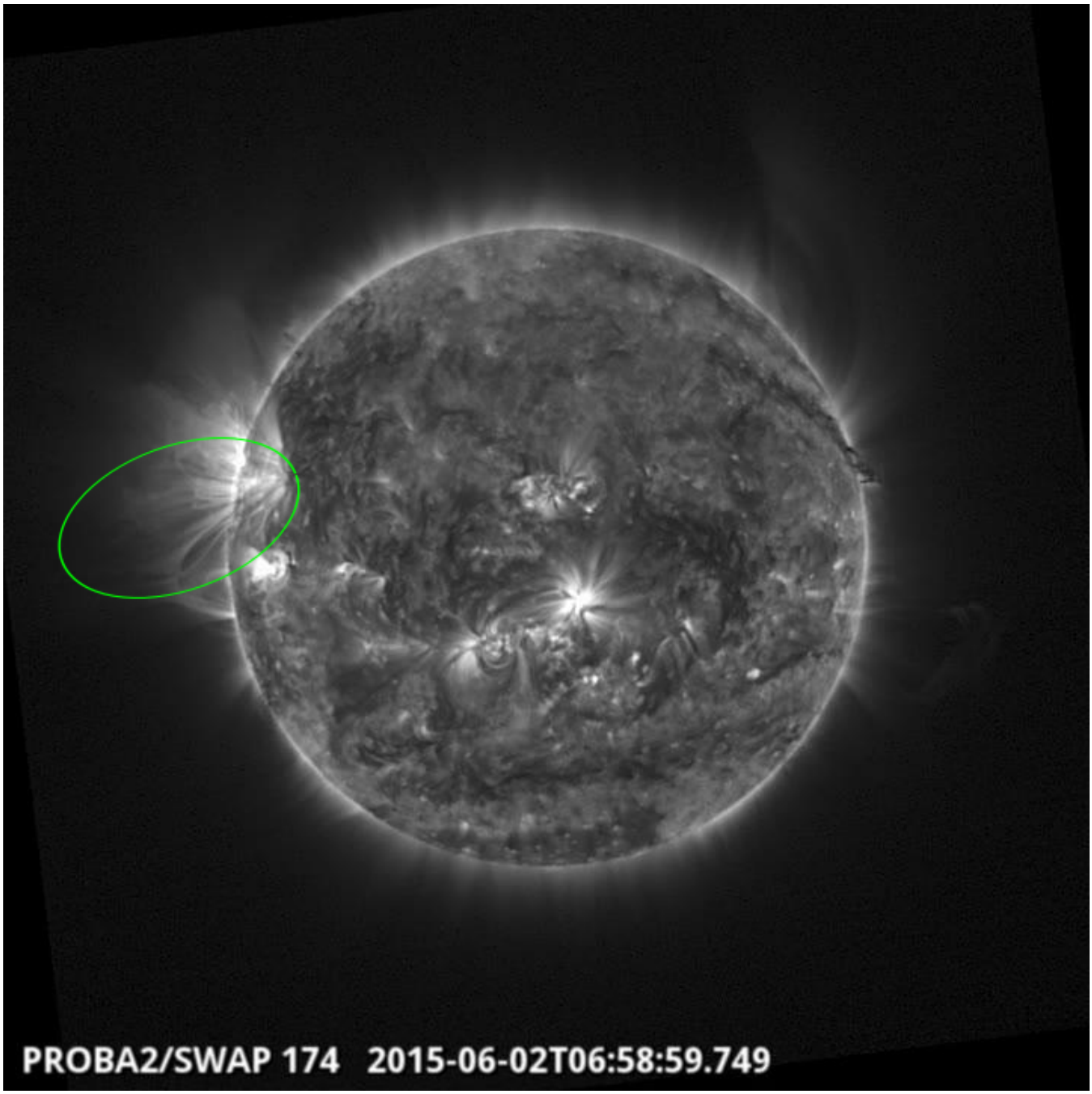
Find a movie of the events **here** (SWAP movie)

Tuesday Jun 02



Eruption on the west limb @ 06:03 - SWAP image

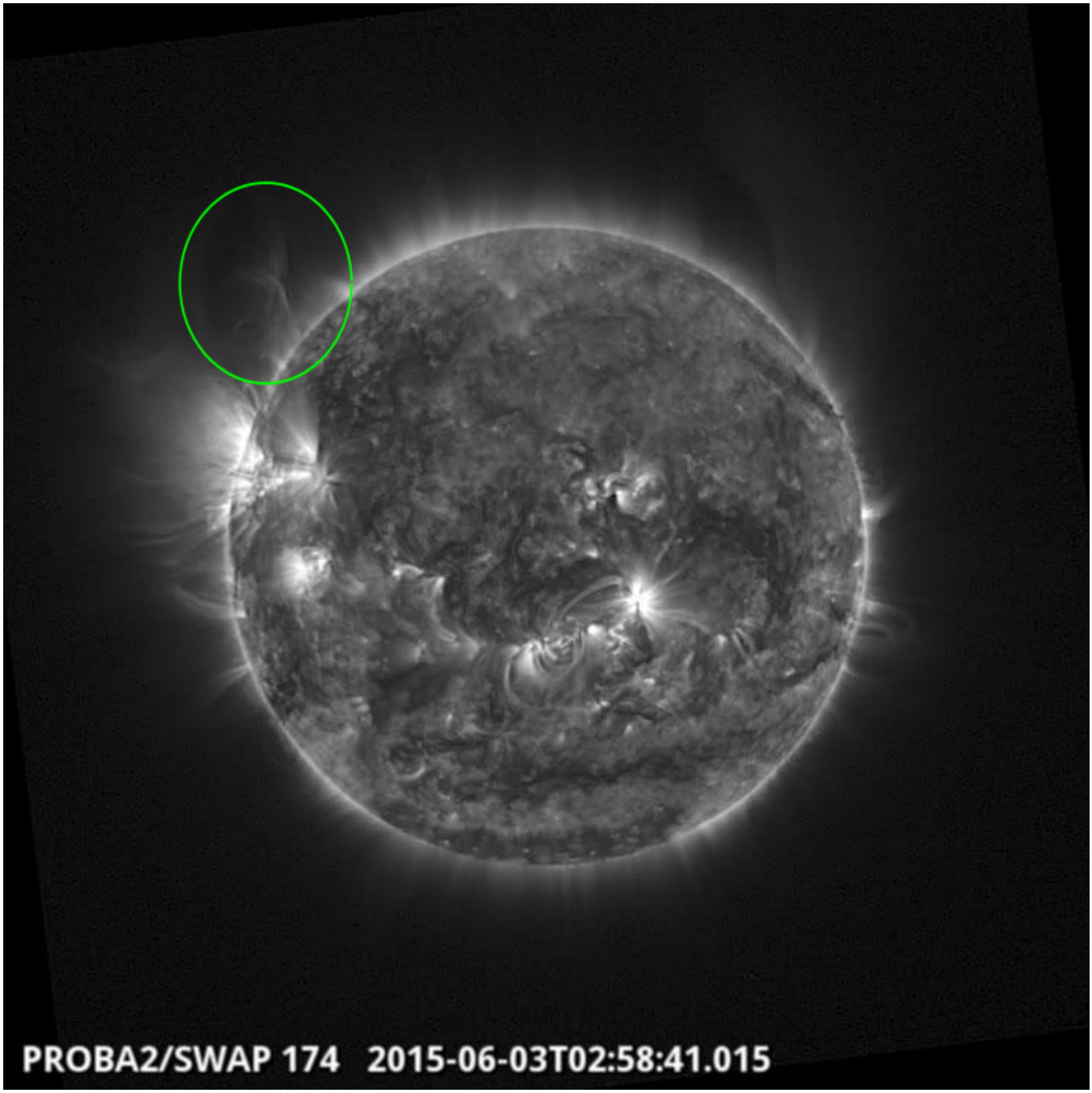
Find a movie of the events **here** (SWAP movie)



Eruption on the east limb @ 06:58 - SWAP image

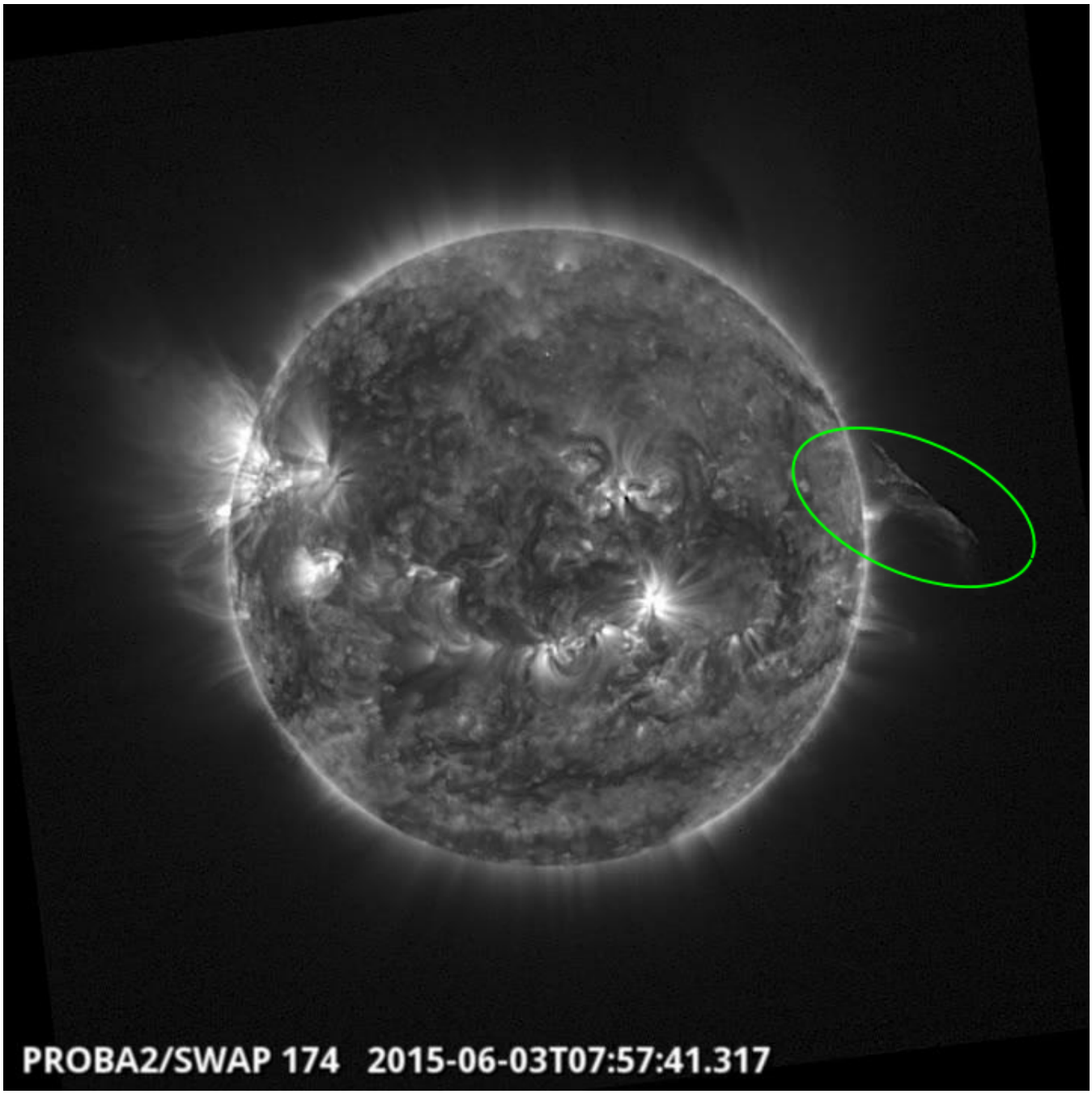
Find a movie of the events **here** (SWAP movie)

Wednesday Jun 03



Eruption on the east limb @ 02:58 - SWAP image

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

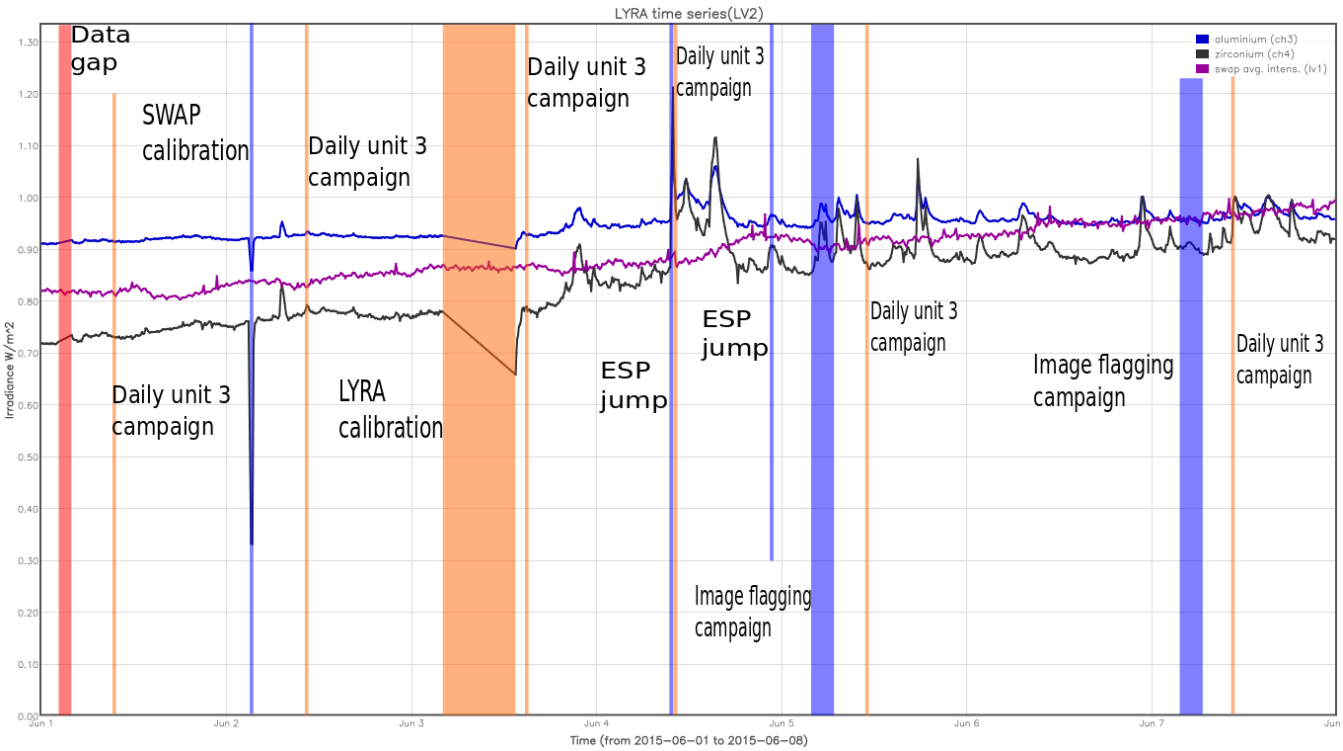


Failed eruption on the west limb @ 07:57 - SWAP image

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 SWAP calibration campaign, 2015-06-02
- ESP-jump, 2015-06-04
- ESP-jump, 2015-06-04
- Image flagging campaign, 2015-06-05
- Image flagging campaign, 2015-06-07

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

- Daily unit 3 campaign, 2015-06-01
- Daily unit 3 campaign, 2015-06-02
- Long LYRA calibration campaign, 2015-06-03
- Daily unit 3 campaign, 2015-06-03
- Daily unit 3 campaign, 2015-06-04
- Daily unit 3 campaign, 2015-06-05
- Daily unit 3 campaign, 2015-06-07

The red shaded period corresponds to:

- Data gap in the LYRA data, 2015-06-01

The was caused because pass 17535 had a corrupted ‘lump’ in the BINLYRA file causing the data pipeline to fail. Updates to the software are planned and the data will become available at a later date.

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).

- M Dominique presented “Sub-minute quasi-periodic oscillations in solar flares” at the CHARM meeting held at ROB
- A Katsiyannis presented “LYRA detections of Aurora events” at ROB

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

Calibration campaign on 2015-06-03 this week.

IOS & operations

Monday 01 Jun	Tuesday 02 Jun	Wednesday 03 Jun	Thursday 04 Jun	Friday 05 Jun	Saturday 06 Jun	Sunday 07 Jun
Nominal acquisition + daily U3 LYIOS00475	Nominal acquisition + daily U3 LYIOS00475	Nominal acquisition + daily U3 + calibration LYIOS00475	Nominal acquisition + daily U3 LYIOS00475	Nominal acquisition + daily U3 + LYIOS00476	Nominal acquisition LYIOS00476	Nominal acquisition + daily U3 LYIOS00476

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- long calibration campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 46.2 and 48.3 °C.

3. SWAP instrument status

Calibration

Calibration campaign on 2015-06-02 this week.

MCPM errors

The number of MCPM recoverable errors increased from 25 to 69.
The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 01 Jun	Tuesday 02 Jun	Wednesday 03 Jun	Thursday 04 Jun	Friday 05 Jun	Saturday 06 Jun	Sunday 07 Jun
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition + ESP jump	Nominal acquisition + image priority flagging test campaign	Nominal acquisition	Nominal acquisition + image priority flagging test campaign
IOS00580	IOS00580 -> IOS00581	IOS00581	IOS00581 -> IOS00582 -> IOS00583	IOS00583 -> IOS00584	IOS00584	IOS00584
578 images	735 images	647 images	551 images	735 images	530 images	709 images

Special operations for SWAP, this week:

- bi-weekly calibration
- ESP jump
- Image priority flagging test campaign

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.1 and 0.05 °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 17534 to 17594) 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 2015 Jun 01 00:00UT and 2015 Jun 08 00:00UT: 4512
Highest cadence in this period: 29 seconds
Average cadence in this period: 134.02 seconds
Number of image gaps larger than 300 seconds: 69
Largest data gap: 34.33 minutes

The data gap is caused by the ESP-jump

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
SoFAST	Solar Feature Automated Search Tool
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)