P2SC-ROB-WR-174- 20130722 Weekly report #174	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon July 22 to Sun July 28, 2013 30 July 2013 Erik Pylyser Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
To:	LYRA PI, marie.dominique@sidc.be SWAP Deputy PI, dan.seaton@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, Stefano.Santandrea@esa.int	

1. Science

Solar & Space weather events

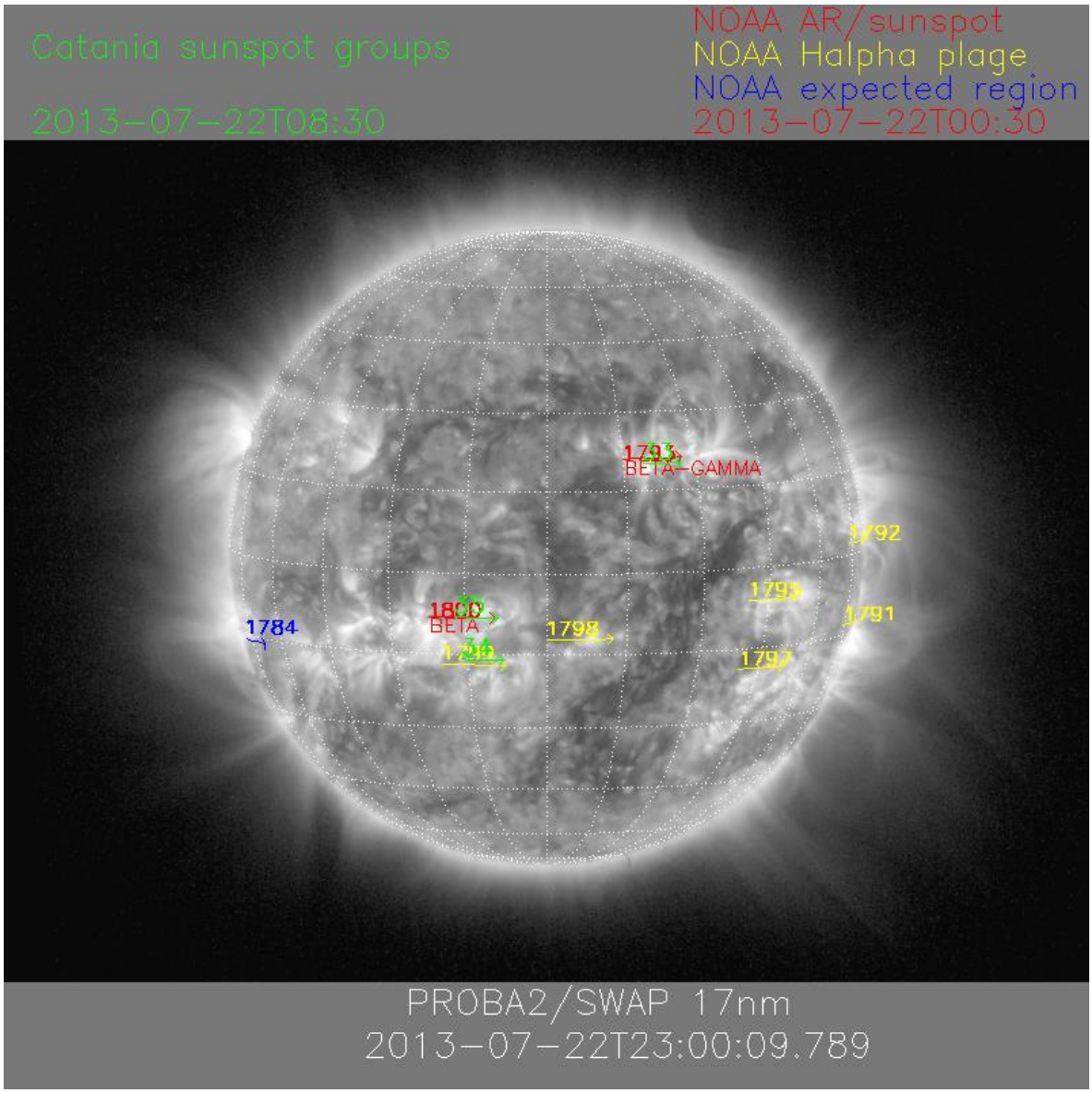
The level of solar activity[1] this week evolved from **very low to low** this week.

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

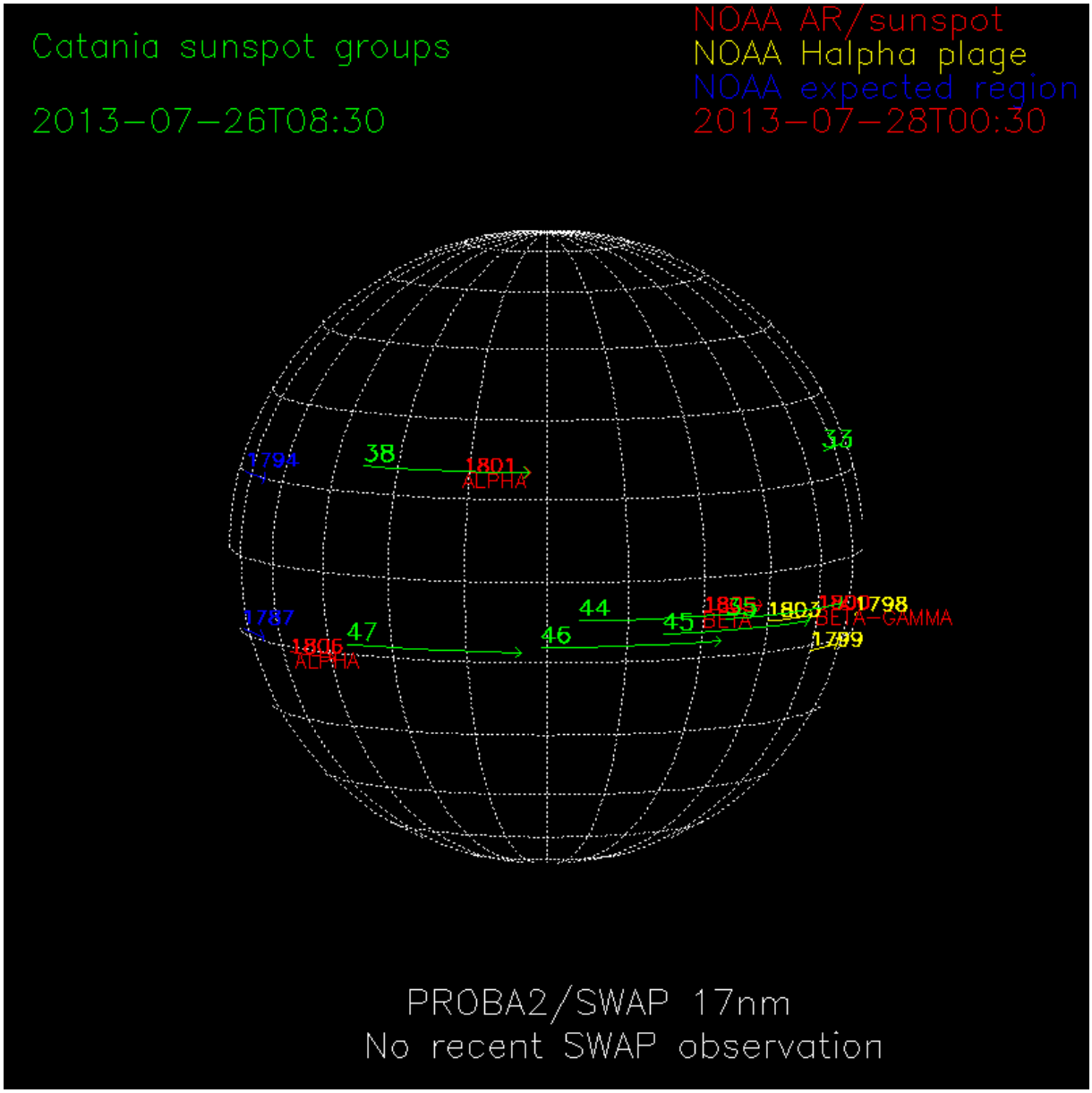
	Monday 22 Jul	Tuesday 23 Jul	Wednesday 24 Jul	Thursday 25 Jul	Friday 26 Jul	Saturday 27 Jul	Sunday 28 Jul
Activity	very low	very low	low	low	low	low	low
Flares	-	-	-	-	-	-	-

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

The SWAP images of July 22 and July 28 are shown below, with annotated active regions.



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



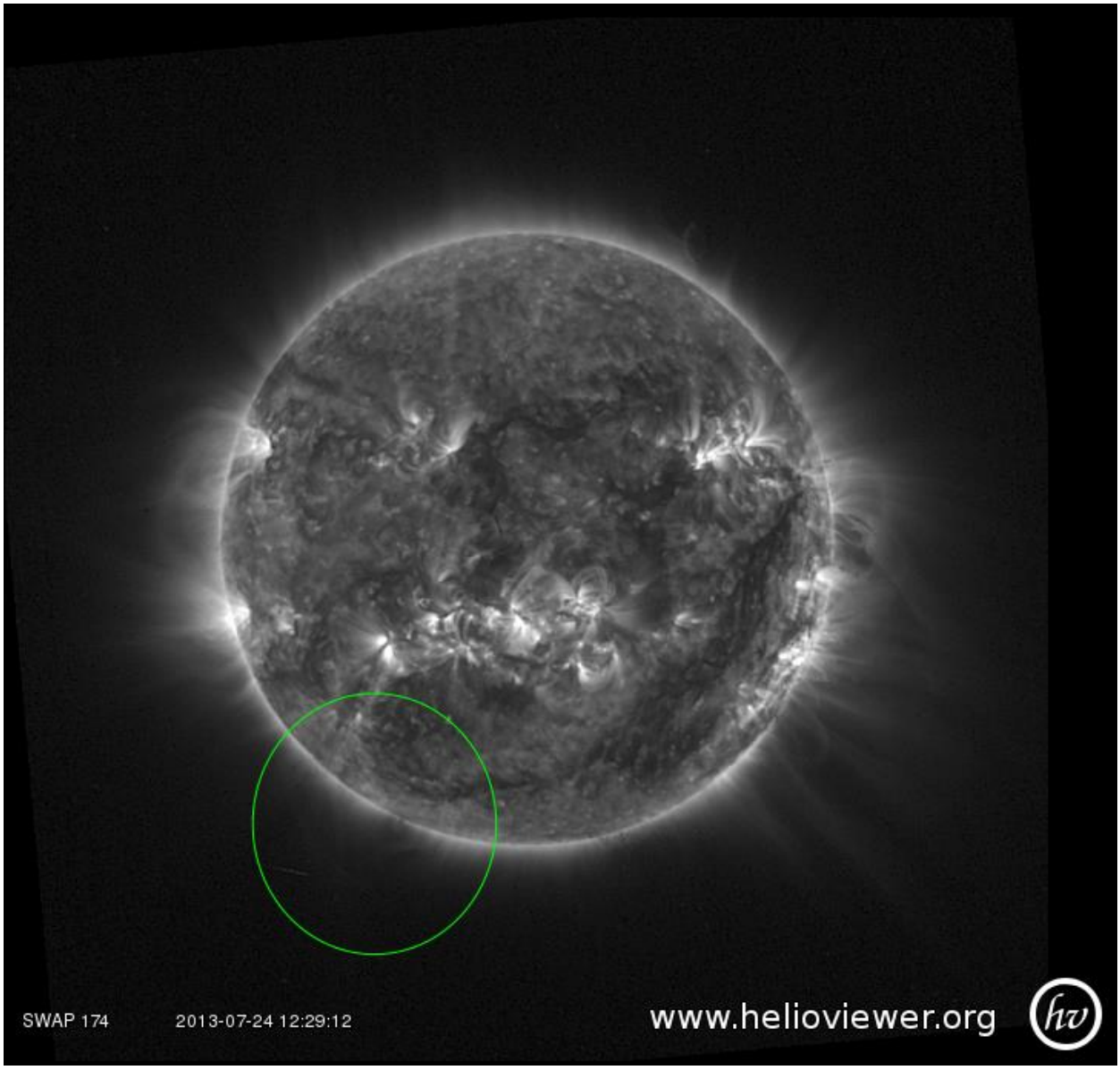
SWAP was off-pointed during the above period and the image was not automatically adjusted. Therefore the SWAP image is not included in the image above.

Solar Activity

Solar (flaring) activity evolved from very low to low during 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.

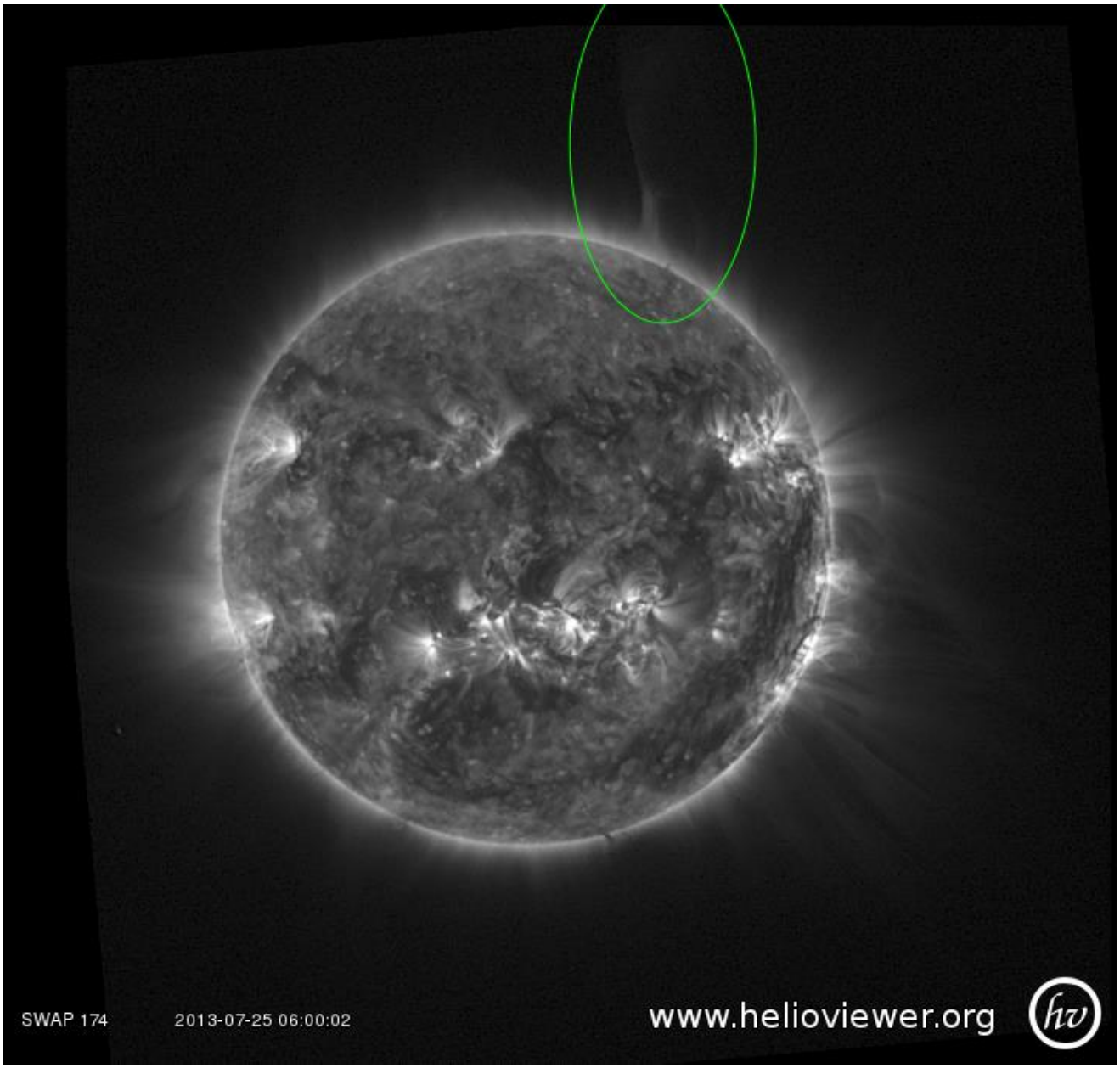
A weekly overview movie can be found here (SWAP174/AIA304 combination; HelioViewer.org).
Note that PROBA2 was off-pointed for a large part of the week, to follow a large filament towards its evolution to the West limb.
Details about some of this week's events, can be found further below.

Wednesday July 24th:



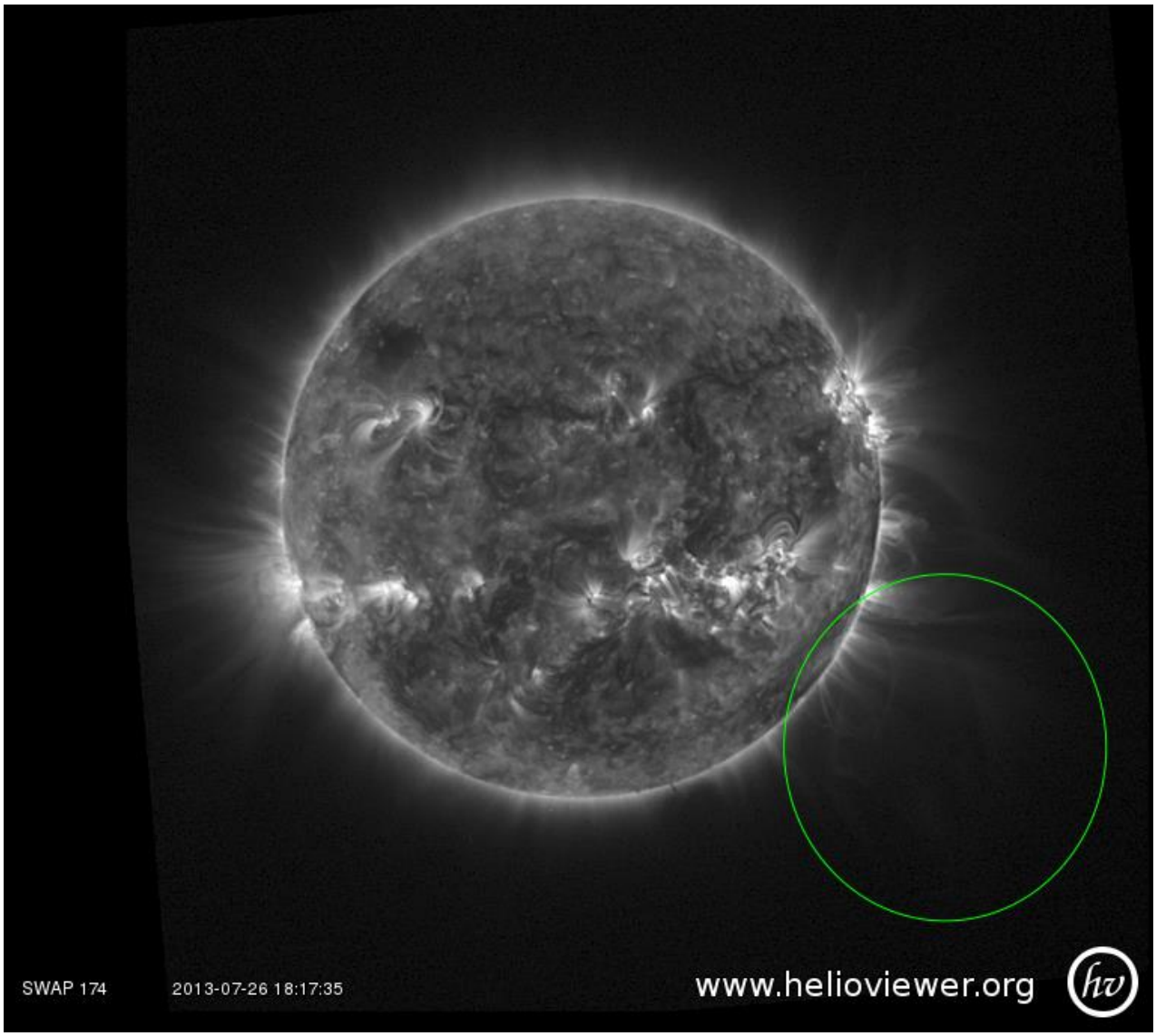
Prominence Eruption on South East limb @ 12:29 - SWAP normal image
Find a movie of the event **here** (SWAP normal movie)

Thursday July 25th:



Prominence Eruption on North West Limb @ 06:00 - SWAP normal image
Find a movie of the event **here** (SWAP normal movie)

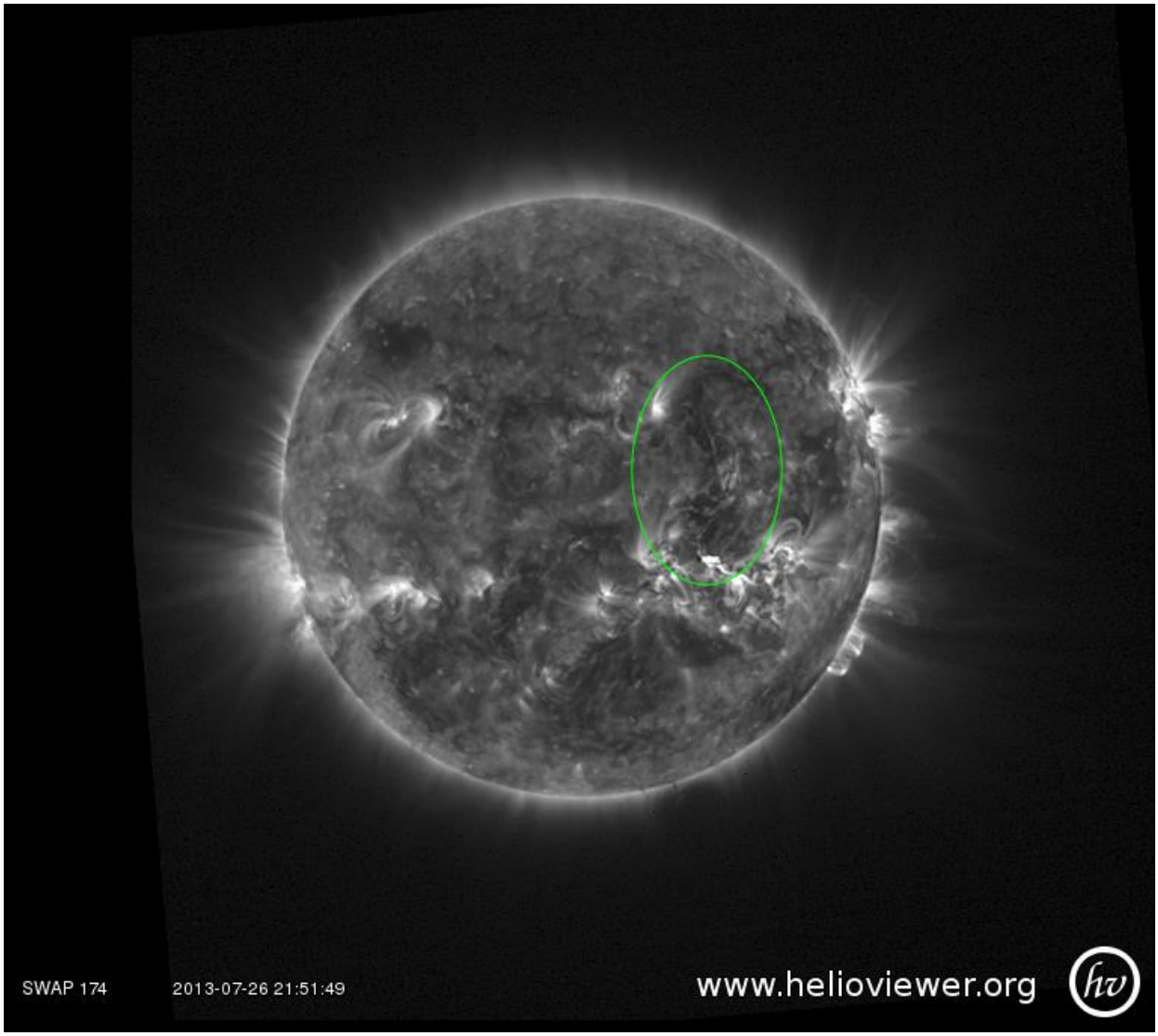
Friday July 26th:



Prominence Eruption on South West Limb @ 18:17 - SWAP normal image

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

Capturing the eruption of the above prominence was the primary reason for the SWAP off-pointing campaign.

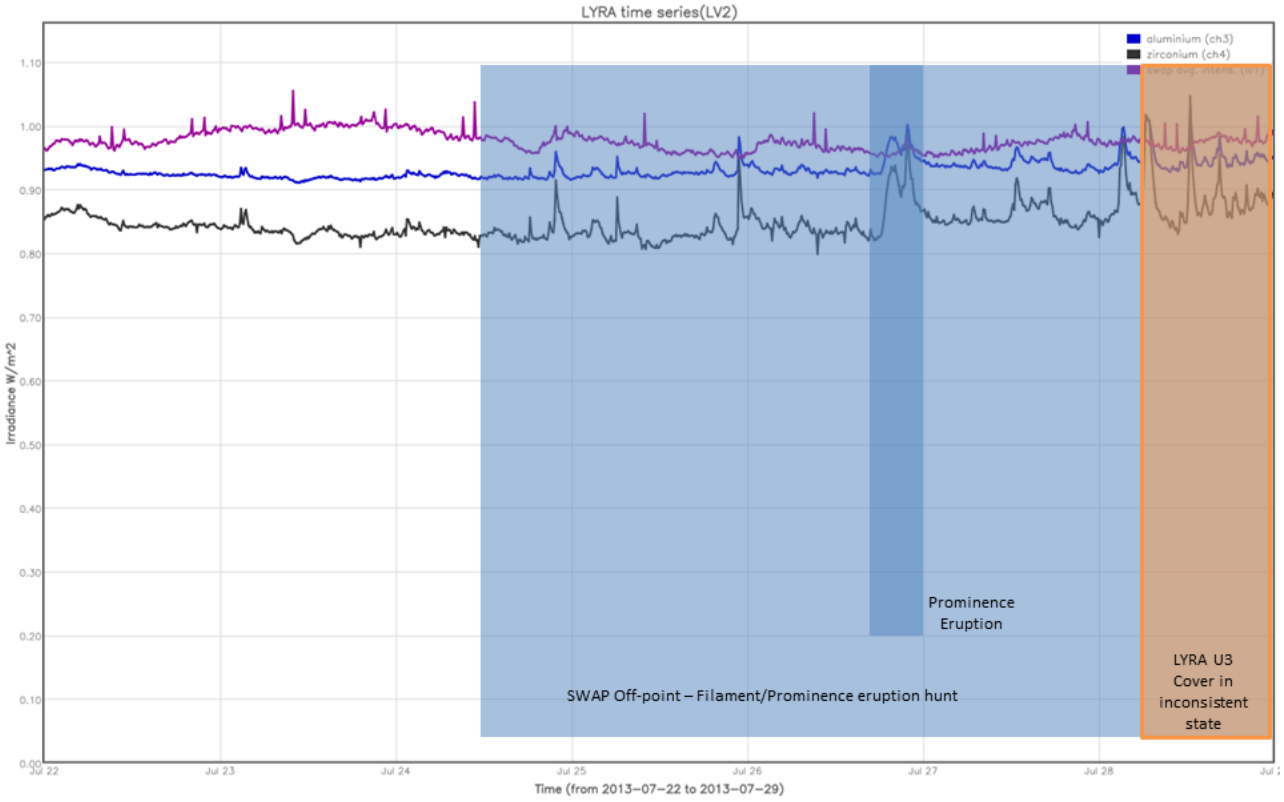


C1.8 Eruption, with material transfer from South to North hemisphere @ 21:51 - SWAP normal image

Find a movie of the event **here** (SWAP normal 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 (solar intensity derived from ‘integrated’ SWAP images)



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

- SWAP off-point (prominence eruption hunt) between Wednesday 24 Jul 13:05 and Monday 29 Jul 13:45.
- Prominence Eruption on Friday 26th, starting at 18:30.

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

- LYRA Unit 3 in inconsistent state (both open and closed)

The red shaded period corresponds to:

- None

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).

Guest Investigator Program

- Nandita Srivastava (SWAP/LYRA) - Role of eruptive filaments/prominences in initiation and propagation of CMEs in heliosphere using SWAP & LYRA Observations:
  (from June 20 to July 23)

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 22 Jul	Tuesday 23 Jul	Wednesday 24 Jul	Thursday 25 Jul	Friday 26 Jul	Saturday 27 Jul	Sunday 28 Jul
Nominal acquisition + daily U3 LYIOS00336	Nominal acquisition + daily U3 LYIOS00336	Nominal acquisition + daily U3 LYIOS00336	Nominal acquisition + daily U3 LYIOS00336	Nominal acquisition + daily U3 LYIOS00336	Nominal acquisition + daily U3 LYIOS00336	Nominal acquisition + daily U3 LYIOS00336

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 46.33 and 47.47 degrees C, taking into account the daily U3 activation periods; the latter result in a temperature increase of about 0.6 degrees C.

To be explored

- None

3. SWAP instrument status

Calibration

No calibration this week.

MCPM errors

The number of MCPM recoverable errors increased from 9920 to 10213.
The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 22 Jul	Tuesday 23 Jul	Wednesday 24 Jul	Thursday 25 Jul	Friday 26 Jul	Saturday 27 Jul	Sunday 28 Jul
Nominal acquisition IOS00470 660 images	Nominal acquisition IOS00470 600 images	Nominal acquisition + off-point IOS00470->471 612 images	Nominal acquisition + off-point IOS00471 578 images	Nominal acquisition + off-point IOS00471->472 597 images	Nominal acquisition + off-point IOS00472 566 images	Nominal acquisition + off-point IOS00472 551 images

Special operations for SWAP, this week:

- SWAP off-point between Wednesday 24 Jul 13:05 and Monday 29 Jul 13:45, to track an on-disk filament rotating towards the West limb.

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.70 and -0.73 degrees C.

To be explored

- None

4. PROBA2 Science Center Status

The main operator is Koen Stegen.

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 11603 to 11663) was nominal, except for:

- None.

At the end of pass 11613 and 11630, a bad data reception period occurred, resulting in the loss of 4 images for each of these passes.

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 2013 Jul 22 0UT and 2013 Jul 29 0UT: 4249
Highest cadence in this period: 130 seconds
Average cadence in this period: 142.33 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)
(+ extreme?)