P2SC-ROB-WR-170- 20130624 Weekly report #170	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Jun 24 to Sun Jun 30, 2013 03 July 2013 Erik Pylyser, D.B. Seaton, & L.A. Rachmeler Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

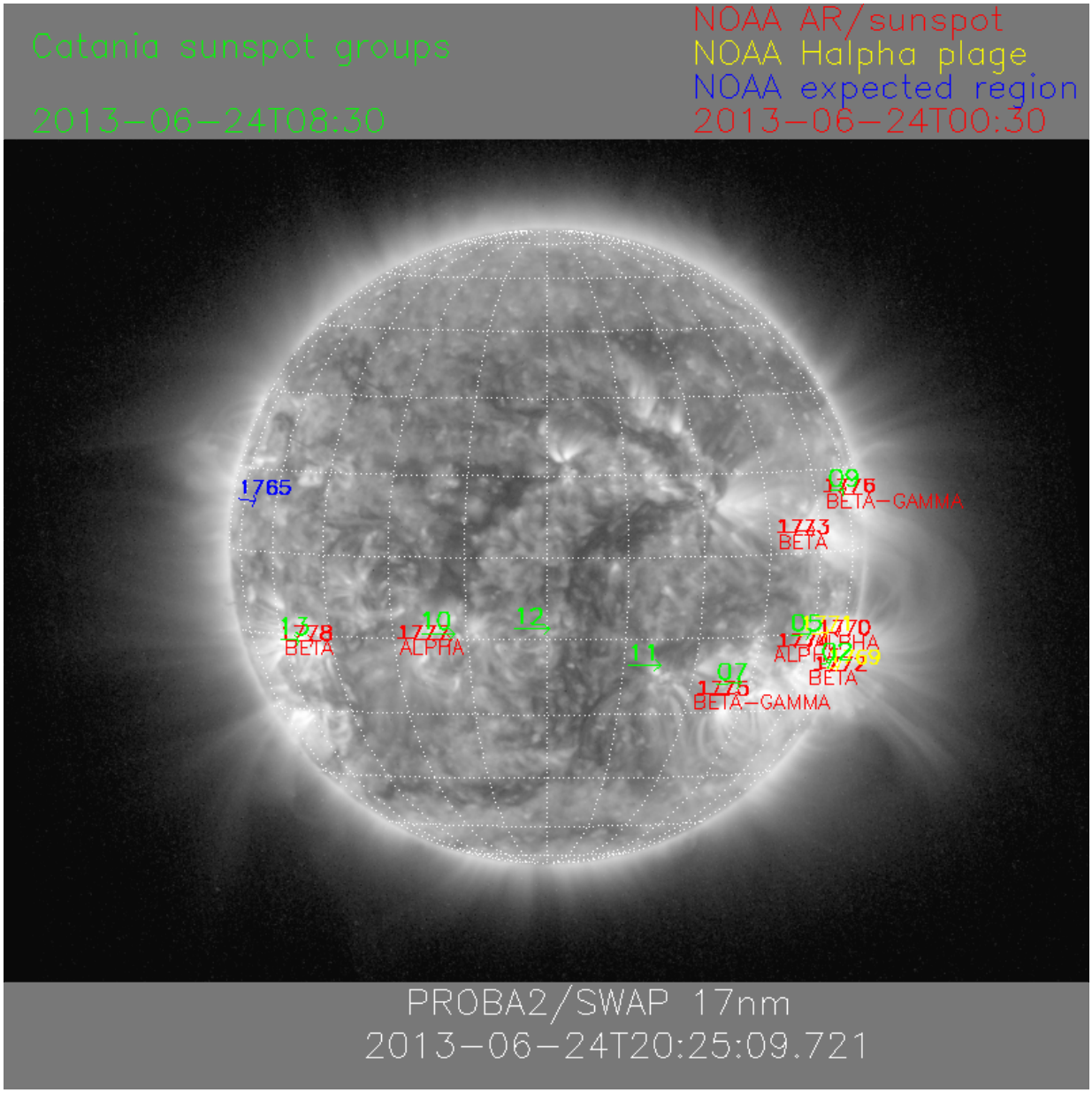
Solar & Space weather events

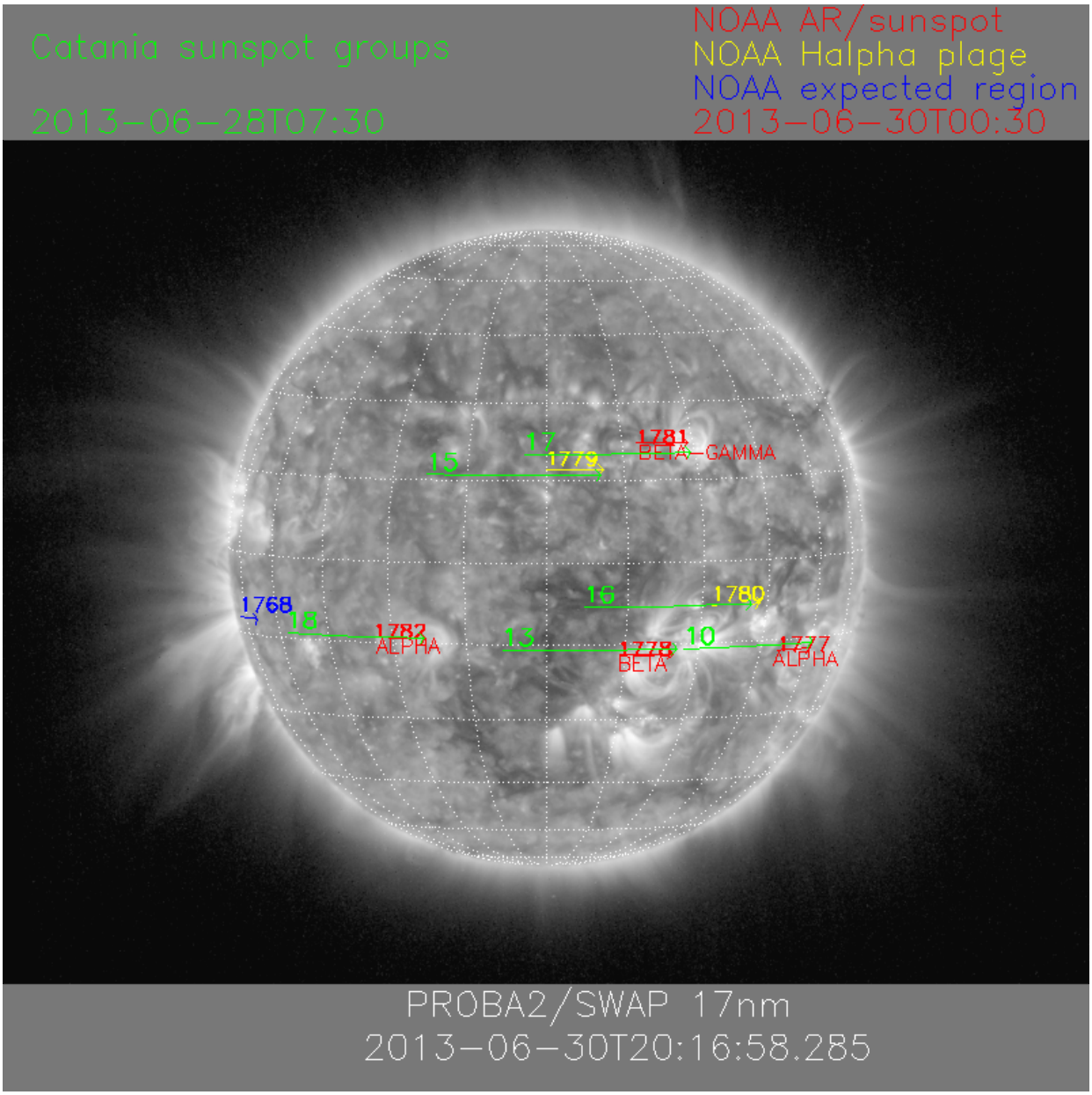
The level of solar activity[1] this week was **low**. Only M- and X-flares are mentioned, the most energetic one(s) per day are presented in **bold**:

	Monday 24 Jun	Tuesday 25 Jun	Wednesday 26 Jun	Thursday 27 Jun	Friday 28 Jun	Saturday 29 Jun	Sunday 30 Jun
Activity	low	low	low	low	low	low	low
Flares	-	-	-	-	-	-	-

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

The SWAP images of June 24 and June 30 are shown below, with annotated active regions.





Solar Activity

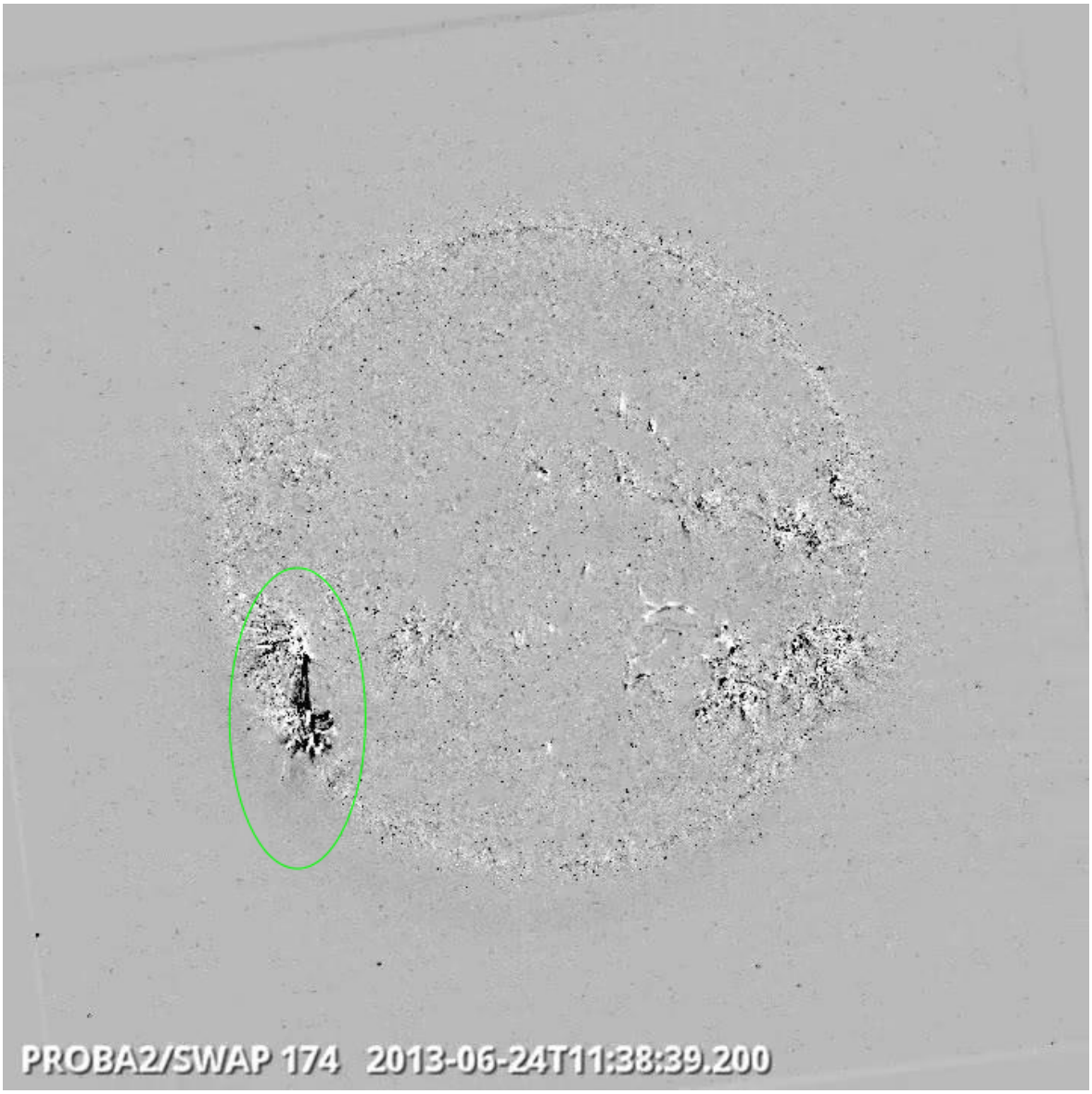
Solar (flaring) activity was very low to low this week. A new set of sunspot groups emerged around the East limb, but not much activity has been seen.

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.

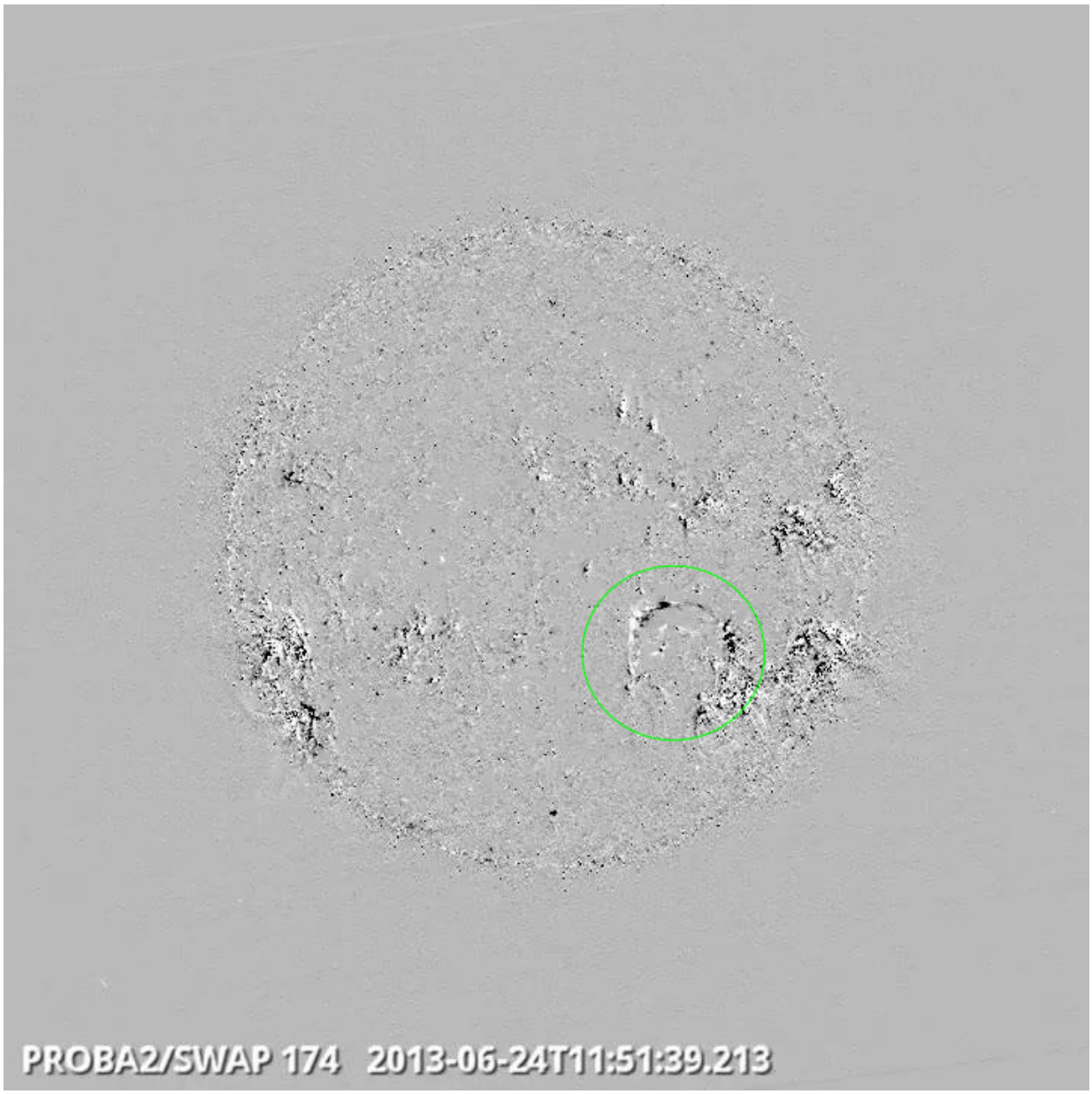
A weekly overview movie can be found here (AIA171 HelioViewer.org).

Further details about some of this week's events, can be found below.

Monday June 24th:



Eruption South East Quadrant @ 11:38 - SWAP difference image



Prominence Eruption South West Quadrant @ 11:51 - SWAP difference image

Tuesday June 25th:

On Tuesday, a huge filament erupted during the morning in the Northern hemisphere. By doing so, it expanded an already big and north-centered coronal hole. Find a SWAP movie of this event **here** (SWAP difference movie). A single frame image does not show the extent of this event.

There was also a small eruption on the South West limb.

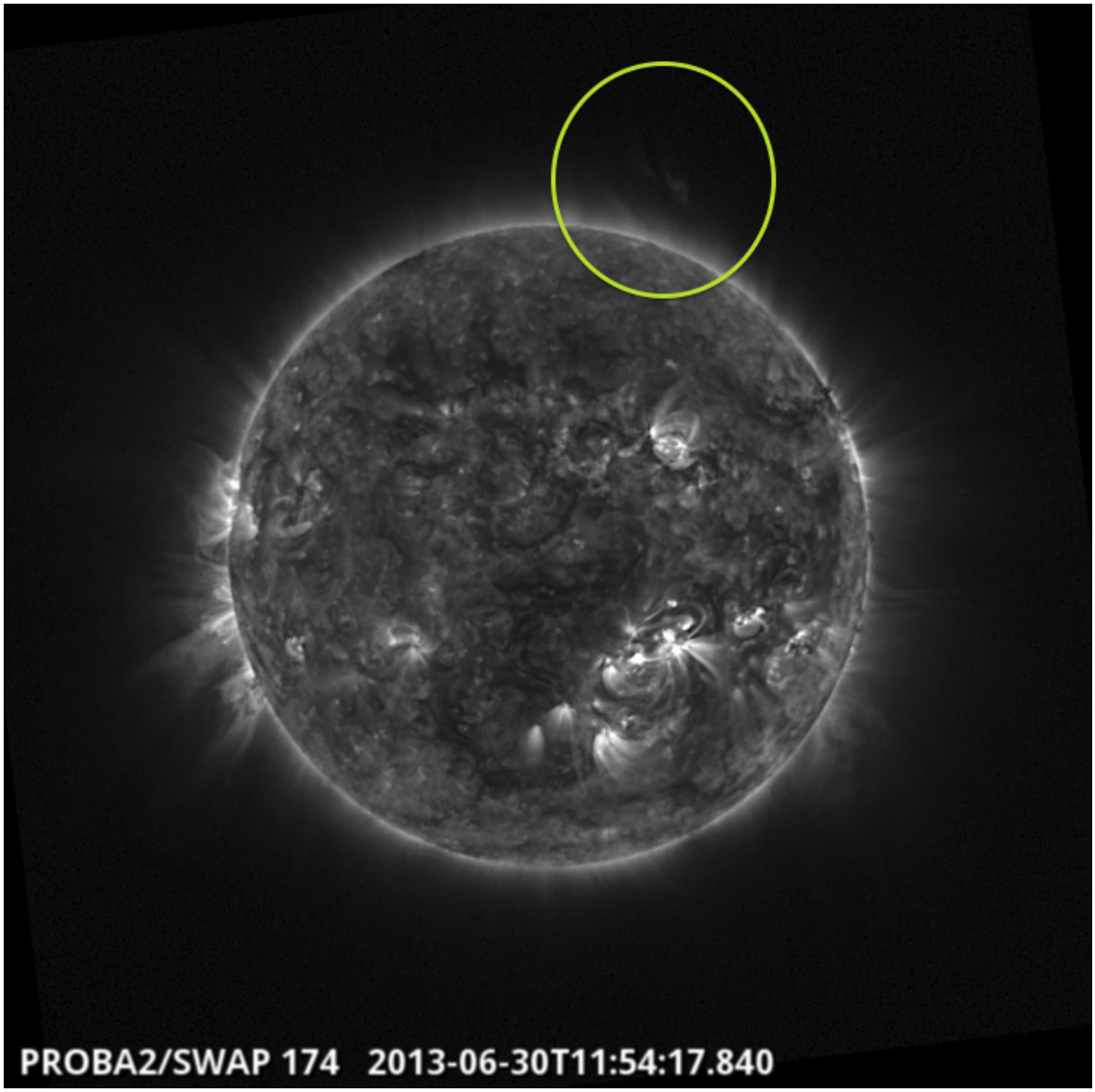
Eruption South West Limb @ 17:30 - SWAP difference image

Friday June 28th:

This eruption caused a minor geomagnetic storm on June 30 when it reached Earth.

Prominence Eruption South West Quadrant @ 1:43 - SWAP difference image

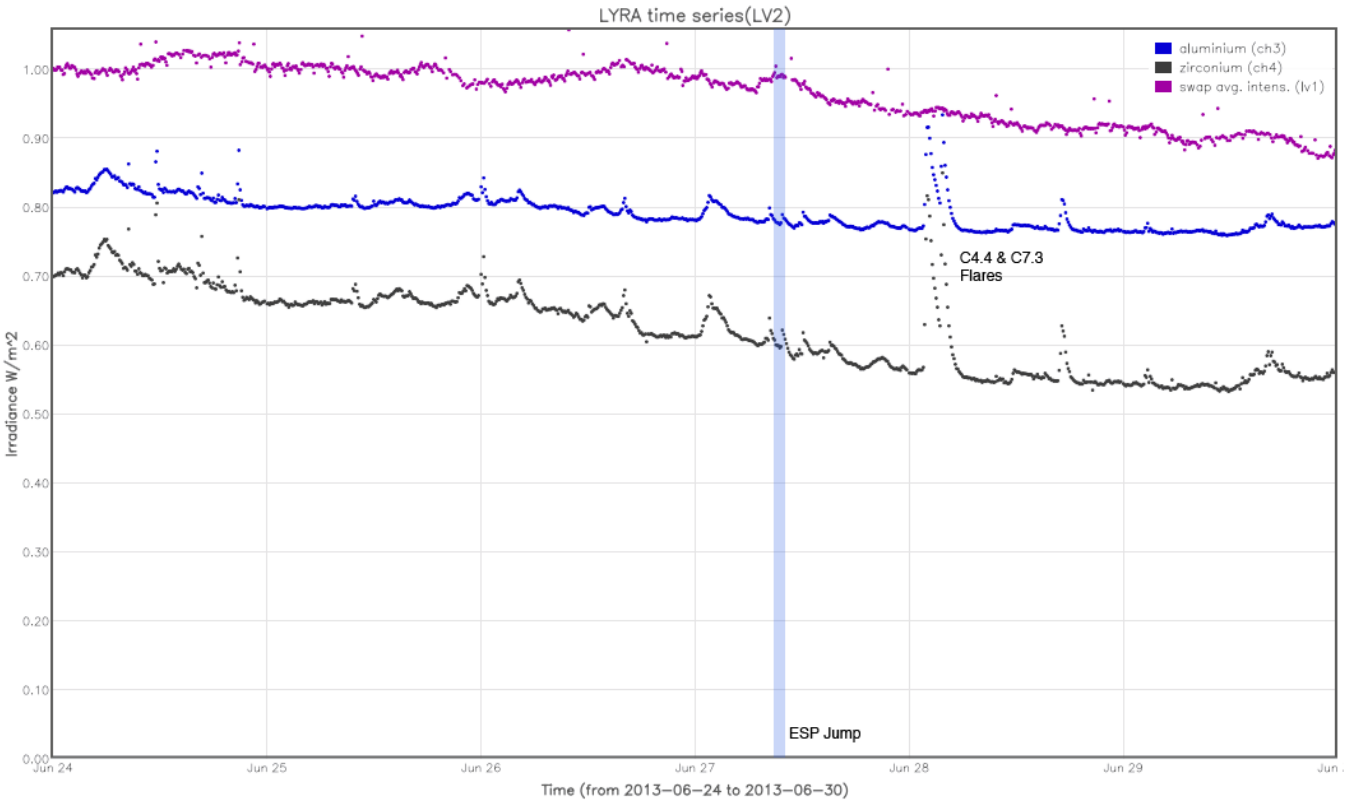
Sunday June 30th:



Slow cavity eruption on the North West Limb @ 04:30 - 23:00 - SWAP 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 (solar intensity derived from ‘integrated’ SWAP images)



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

- ESP experiment on Thursday

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

- Andrew Inglis (LYRA) - Enhancing understanding of pulsations in flares using LYRA data; second visit (from June 17 to 25)

- 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 24 Jun	Tuesday 25 Jun	Wednesday 26 Jun	Thursday 27 Jun	Friday 28 Jun	Saturday 29 Jun	Sunday 30 Jun
Nominal acquisition + daily U3 LYIOS00334	Nominal acquisition + daily U3 LYIOS00334	Nominal acquisition + daily U3 + LYIOS00334	Nominal acquisition + daily U3 LYIOS00334	Nominal acquisition + daily U3 LYIOS00334	Nominal acquisition + daily U3 LYIOS00334	Nominal acquisition + daily U3 LYIOS00334

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 46.5 and 47.4 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 8925 to 9171.
The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 24 Jun	Tuesday 25 Jun	Wednesday 26 Jun	Thursday 27 Jun	Friday 28 Jun	Saturday 29 Jun	Sunday 30 Jun
Nominal acquisition IOS00468 627 images	Nominal acquisition + IOS00468 616 images	Nominal acquisition IOS00468 632 mages	Nominal acquisition + ESP IOS00468 607 images	Nominal acquisition IOS00468 650 images	Nominal acquisition IOS00468 552 images	Nominal acquisition IOS00468 566 images

Special operations for SWAP, this week:

- ESP jump on Thursday

SWAP detector temperature

The SWAP Cold Finger Temperature, globally varied between -1.44 and -0.33 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:

- Improvements to JPEG2000 generation for SWAP images.

5. Data reception & discussions with MOC

Passes

The delivery of the passes for this week (passes 11362 to 11423) 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 2013 Jun 24 0UT and 2013 Jun 30 0UT: 4250
Highest cadence in this period: 130 seconds
Average cadence in this period: 142.29 seconds
Number of image gaps larger than 300 seconds: 2
Largest data gap: 36.50 minutes

The largest gap is due to the ESP campaign on Thursday.

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?)