P2SC-ROB-WR-169- 20130617 Weekly report #169	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Jun 17 to Sun Jun 23, 2013 26 June 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

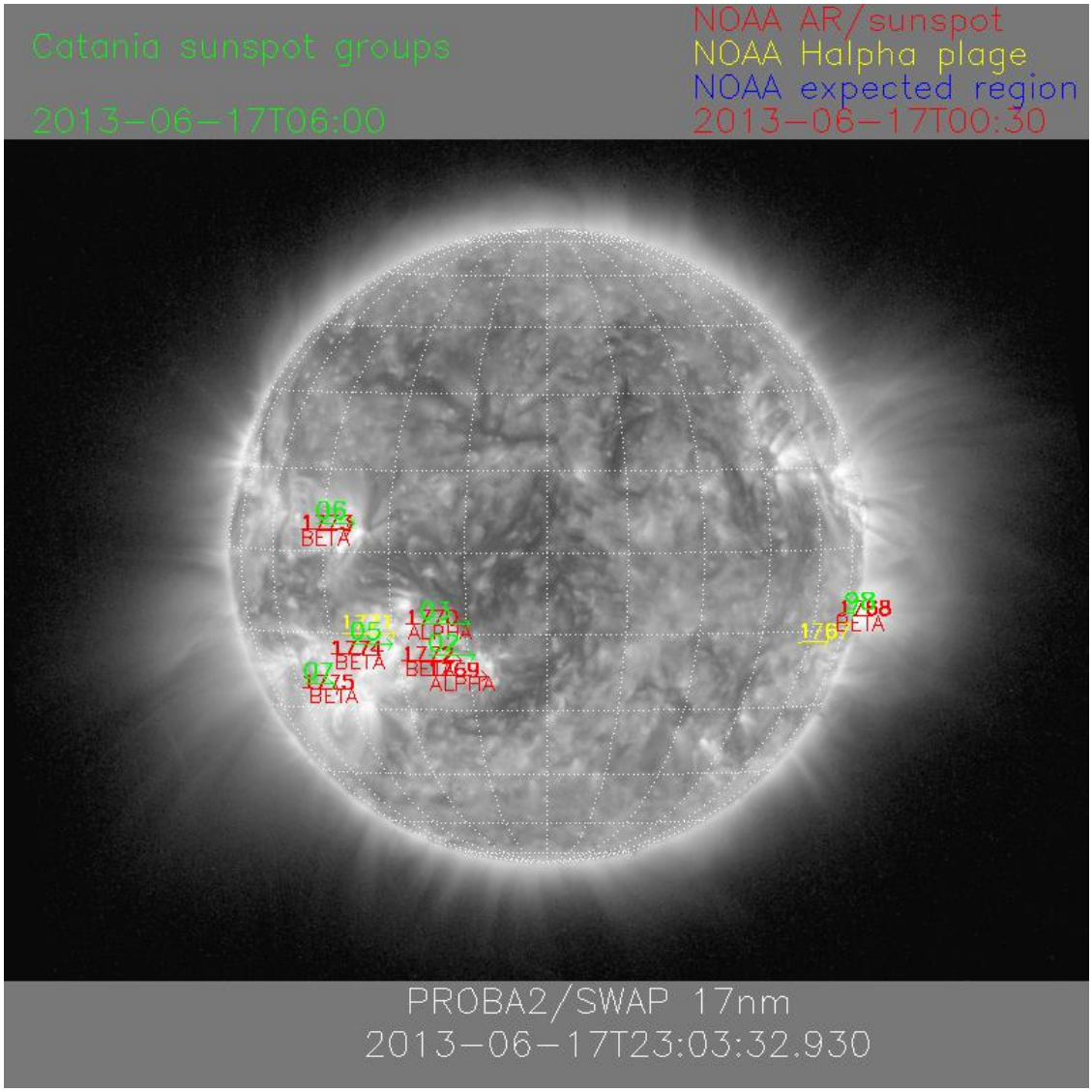
Solar & Space weather events

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

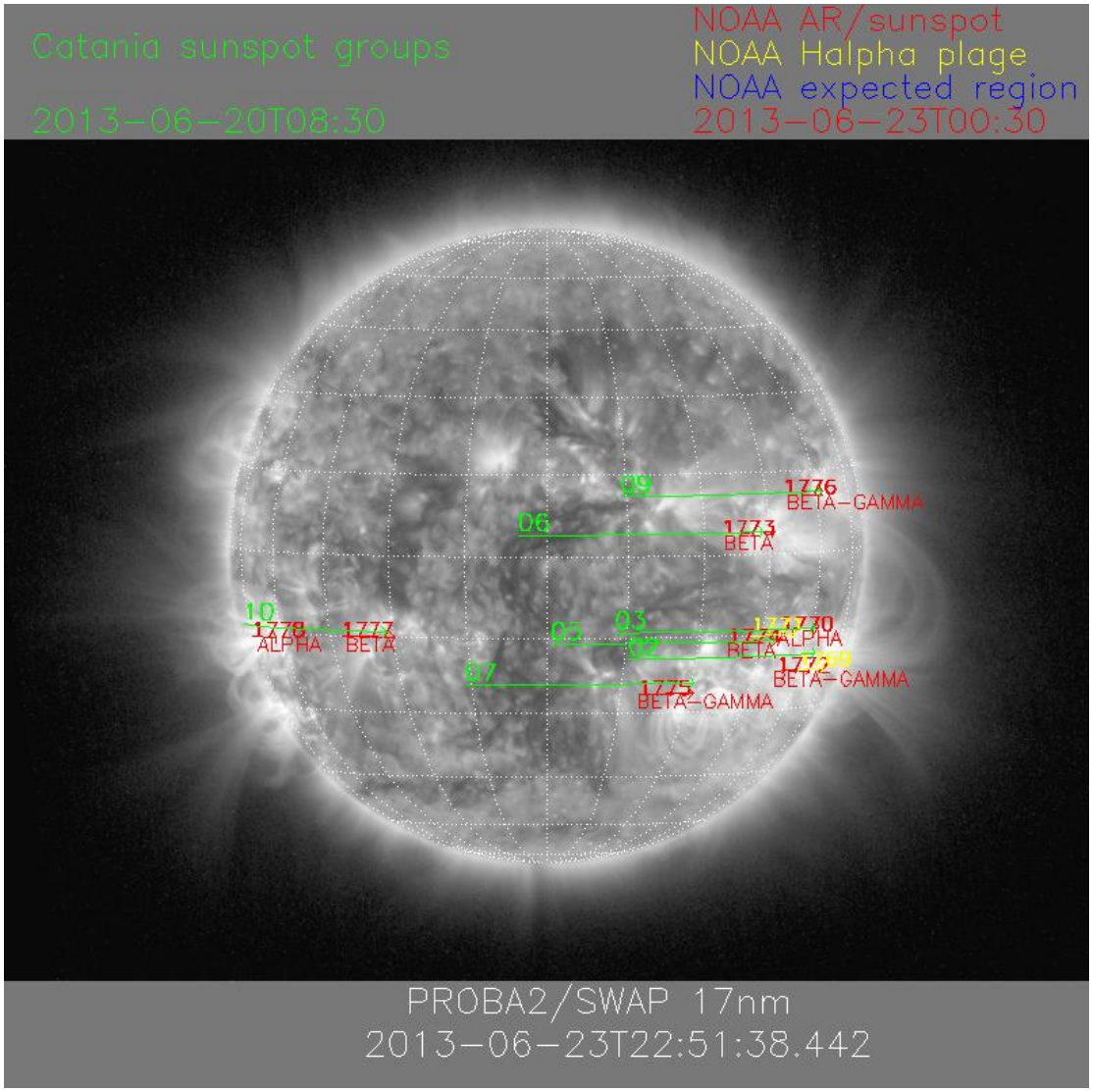
	Monday 17 Jun	Tuesday 18 Jun	Wednesday 19 Jun	Thursday 20 Jun	Friday 21 Jun	Saturday 22 Jun	Sunday 23 Jun
Activity	low	low	low	low	moderate	low	moderate
Flares	-	-	-	-	**M2.9@02:30**	-	**M2.9@20:48**

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

The SWAP images of June 17 and June 23 are shown below, with annotated active regions.



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



Solar Activity

Solar (flaring) activity was **low** to **moderate**.

The solar activity during the first part of the week was characterized by a large number (> 8) of sizeable filament/prominence eruptions in about 2 days, and by two M2.9 flares from newly appeared active regions along the East limb at the end of 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 (SWAP174/AIA304 combination; HelioViewer.org).

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

Monday June 17th - 2 prominence eruptions:

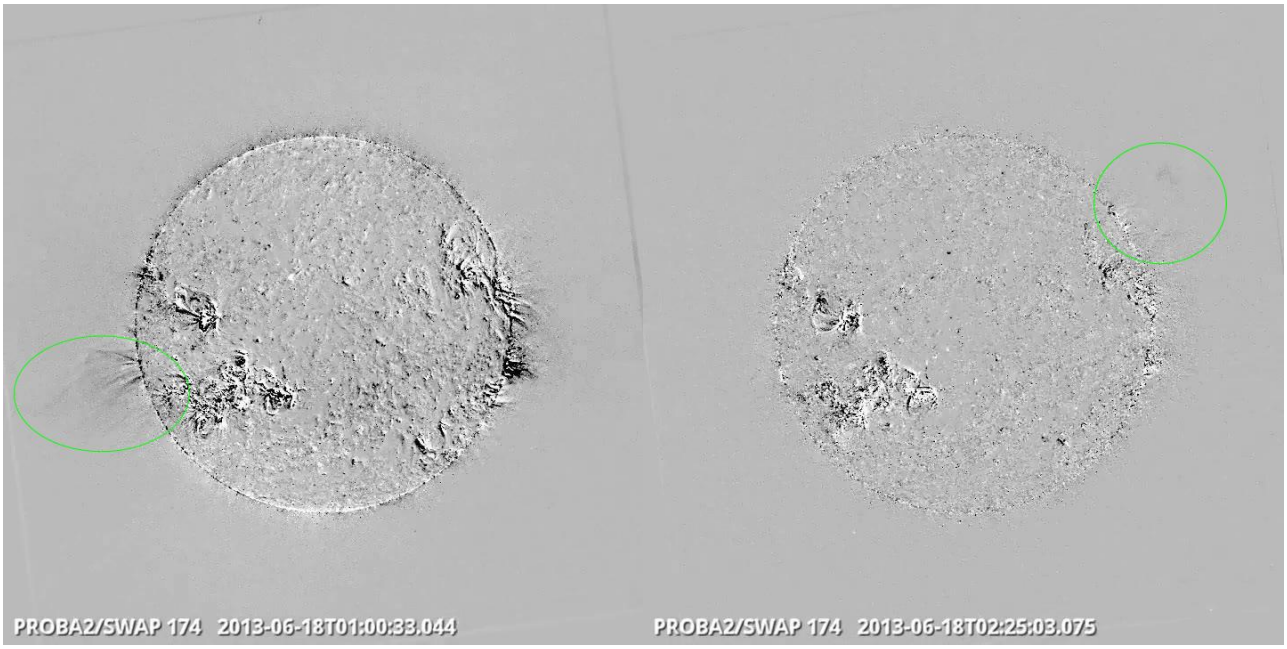
Prominence Eruption North East limb @ 07:14 - SWAP difference image

Find a movie of both this event **here** (SWAP difference movie)

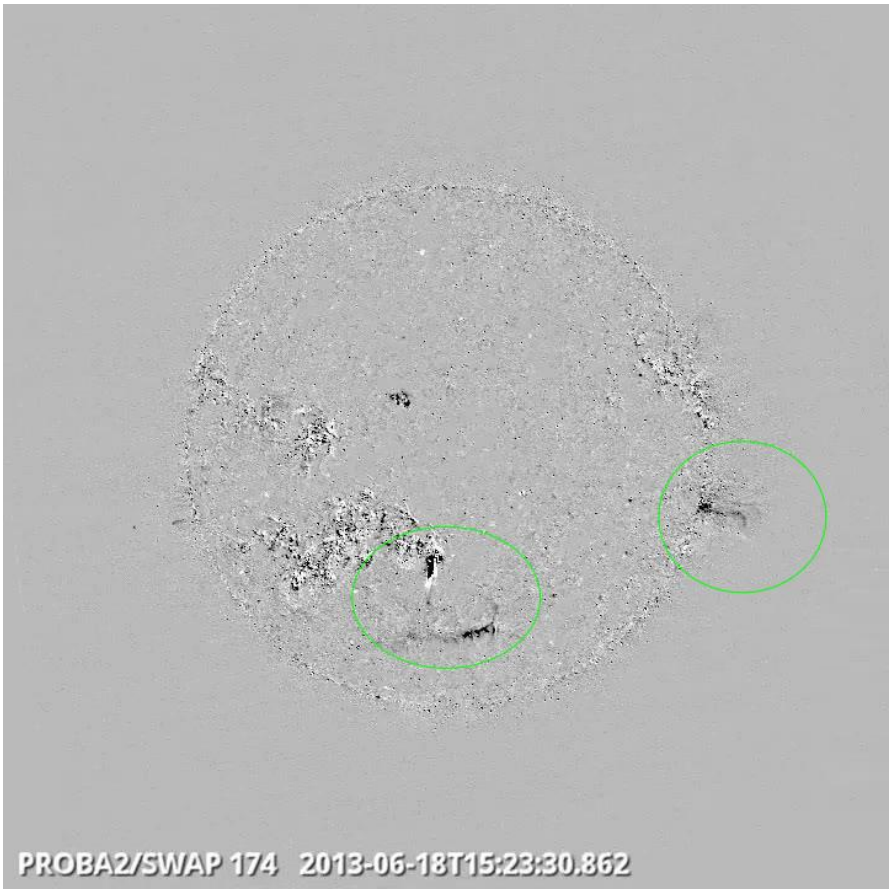
Prominence Eruption South South East limb @ 16:46 - SWAP difference image

Find a movie of both this event **here** (SWAP difference movie)

Tuesday June 18th - 3 prominence eruptions:



Two prominence eruptions recorded in the early morning.



Prominence Eruption West limb, as well as an eruption South Center @ 15:23 - SWAP difference image

Find a movie of both this event **here** (SWAP difference movie)

Wednesday June 19th

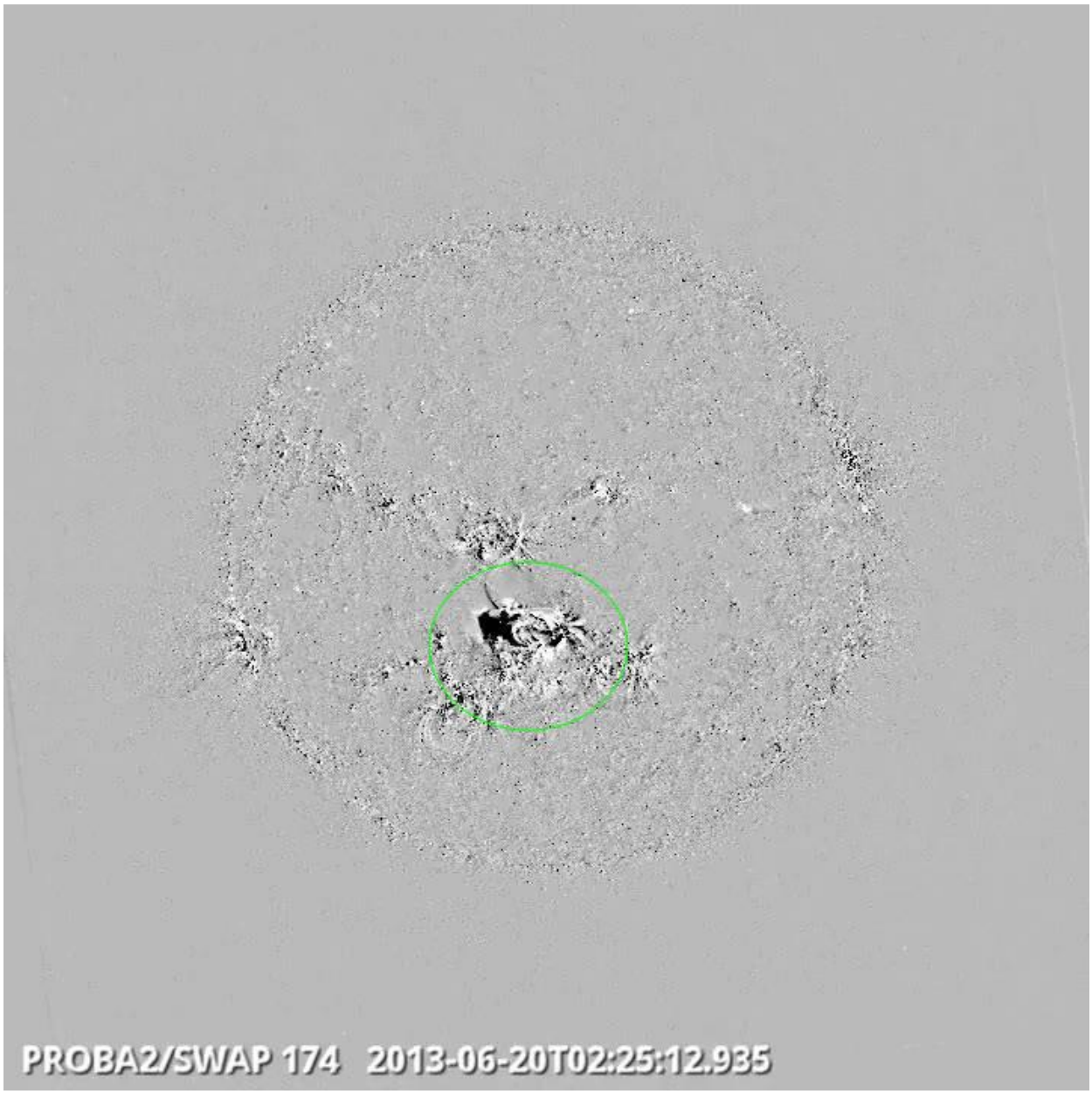
Prominence Eruption South West limb @ 03:18 - SWAP difference image

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

Eruption East limb @ 09:59 - SWAP difference image

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

Thursday June 20th:



Eruption Center Disk @ 02:25 - SWAP difference image

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

Eruption Center Disk @ 11:52 - SWAP difference image

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

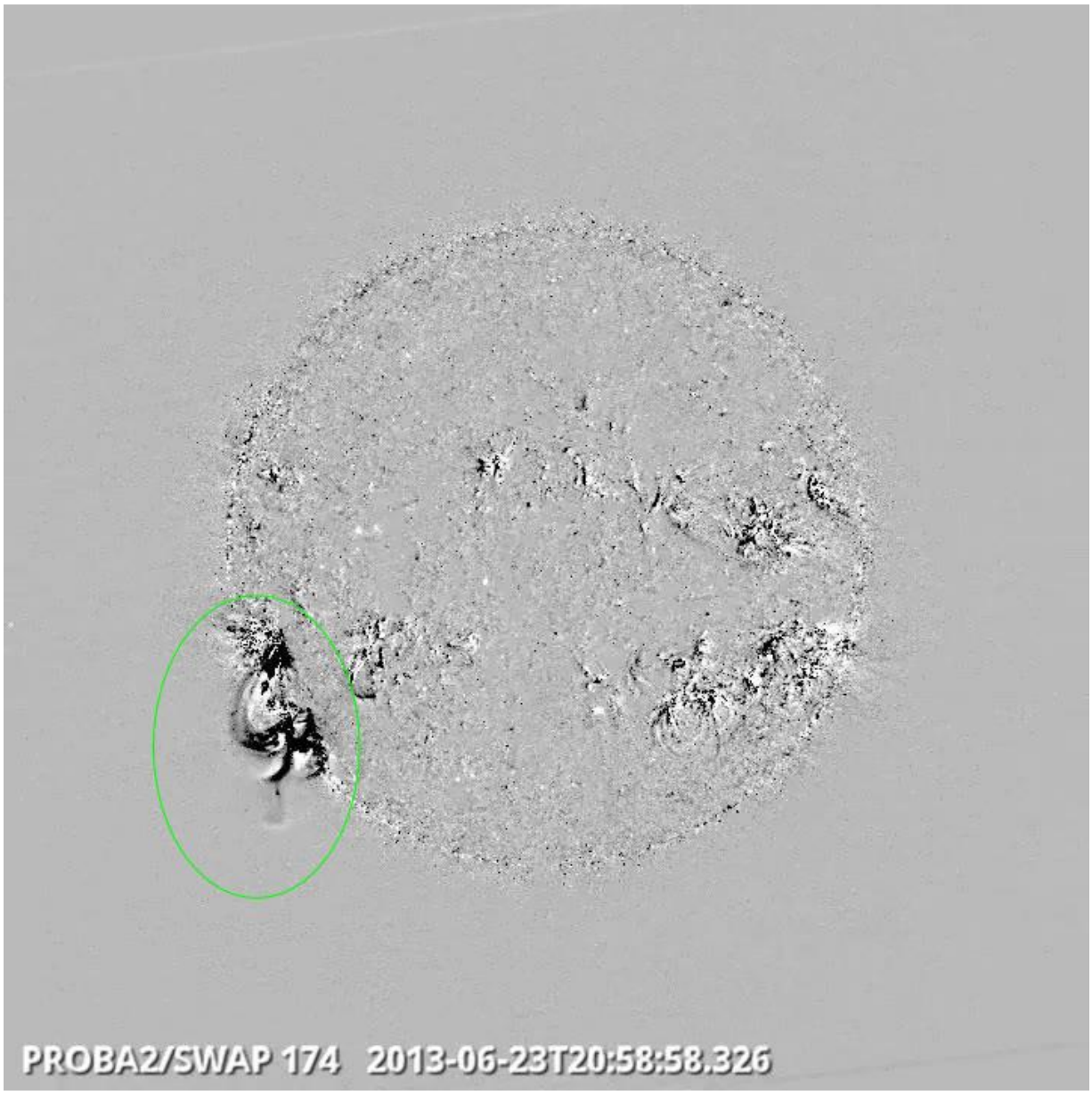
Friday June 21st:

M2.9 Flare on the East limb @ 03:09 - SWAP difference image

Find a movie of this event **here** (SWAP difference movie),
here (SWAP colored movie; HelioViewer.org), and **here** (SWAP171/AIA174/AIA304).

The ejected material can be followed practically up the edge of the field of view of SWAP.

Sunday June 23rd:

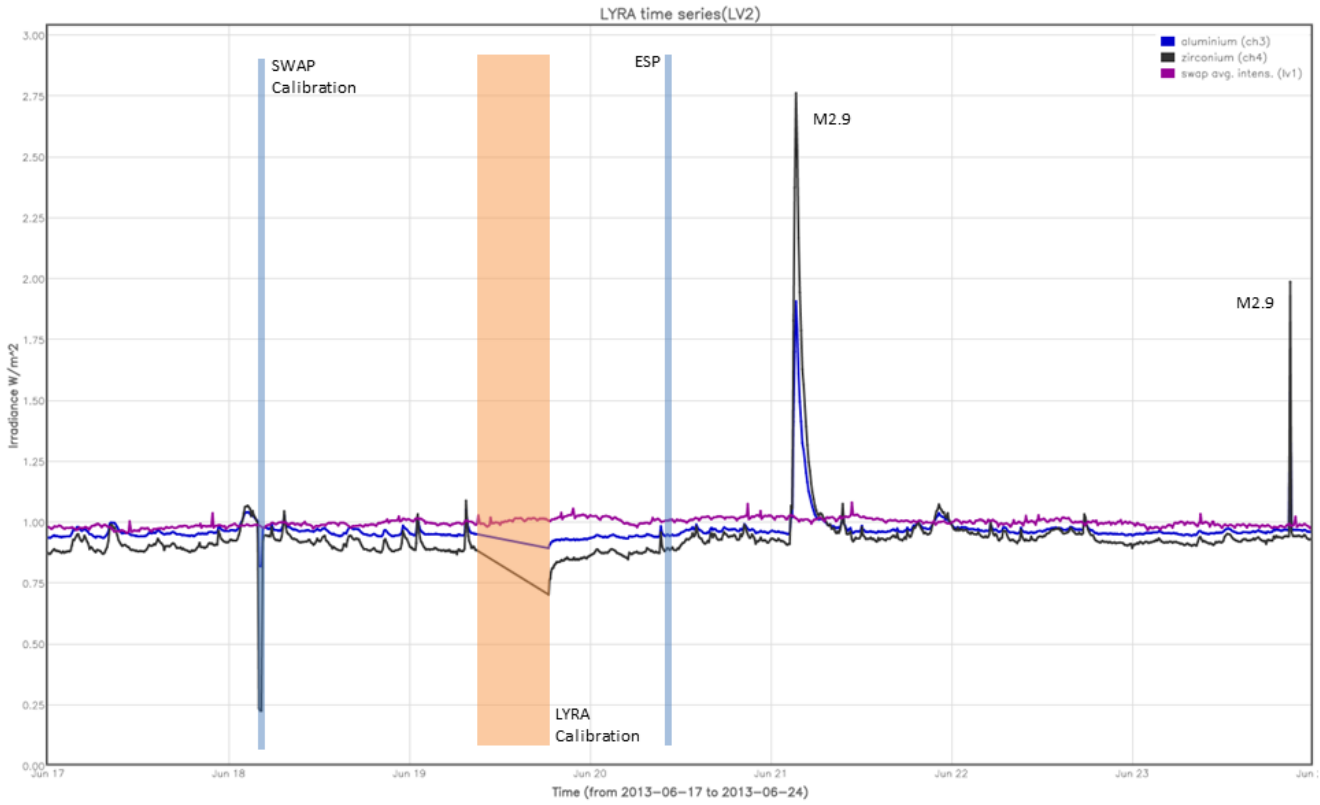


M2.9 Flare on the East limb @ 20:59 - SWAP difference image

Find a movie of this 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 (solar intensity derived from ‘integrated’ SWAP images)



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

- SWAP calibration on Tuesday
- ESP experiment on Thursday

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

- LYRA Calibration on Wednesday

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).

A few weeks ago, an invitation for a splinter session during the ESWW10 next November was issued. Subscribing for this splinter can still be done here.

"Prominence Cavity Regions Observed Using SWAP 174 Å Filtergrams and Simultaneous Eclipse Flash Spectra", Bazin et al. 2013, Solar Physics ADS Link SolPhys Link arXiv Link.

“Magnetic properties of coronal pseudo-streamers”; Laurel Rachmeler et al., Poster at IAUS300, Paris, June 10-14.

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

LYRA calibration on Wednesday.

IOS & operations

Monday 17 Jun	Tuesday 18 Jun	Wednesday 19 Jun	Thursday 20 Jun	Friday 21 Jun	Saturday 22 Jun	Sunday 23 Jun
Nominal acquisition + daily U3 LYIOS00334	Nominal acquisition + daily U3 LYIOS00334	Nominal acquisition + daily U3 + calibration 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 46.50 and 47.44 degrees C, taking into account the daily U3 activation periods; the latter result in a temperature increase of about 0.6 degrees C. During calibration, temperature dropped to 45.50 degrees C.

To be explored

- None

3. SWAP instrument status

Calibration

SWAP calibration on Tuesday.

MCPM errors

The number of MCPM recoverable errors increased from 8641 to 8925.
The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 17 Jun	Tuesday 18 Jun	Wednesday 19 Jun	Thursday 20 Jun	Friday 21 Jun	Saturday 22 Jun	Sunday 23 Jun
Nominal acquisition IOS00468 517 images	Nominal acquisition + calibration IOS00468 565 images	Nominal acquisition IOS00468 599 images	Nominal acquisition + ESP IOS00468 576 images	Nominal acquisition IOS00468 587 images	Nominal acquisition IOS00468 518 images	Nominal acquisition IOS00468 540 images

Special operations for SWAP, this week:

- ESP jump on Thursday

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.37 and -0.32 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 11302 to 11361) 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 17 0UT and 2013 Jun 24 0UT: 4098
Highest cadence in this period: 30 seconds
Average cadence in this period: 147.55 seconds
Number of image gaps larger than 300 seconds: 4
Largest data gap: 34.33 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?)