


P2SC-ROB-WR-176-20130805 Weekly report #176	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon August 05 to Sun August 11, 2013 14 Aug 2013 Erik Pylyser Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

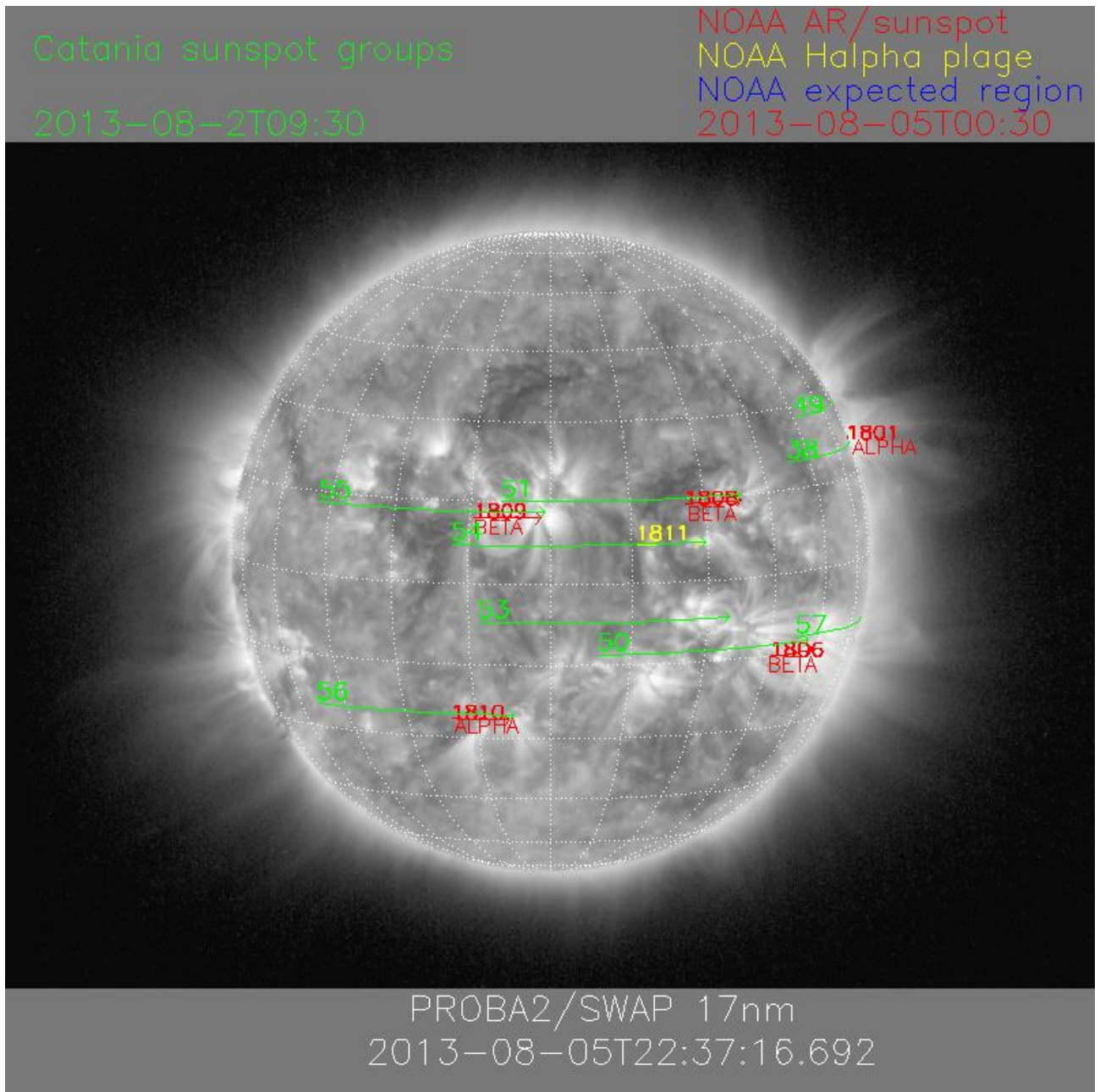
The level of solar activity¹ this week evolved from **very low to low** this week. Activity was peaking on late Sunday with a C8.4 flare, most activity coming from AR 11817.

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

	Monday 05 Aug	Tuesday 06 Aug	Wednesday 07 Aug	Thursday 08 Aug	Friday 09 Aug	Saturday 10 Aug	Sunday 11 Aug
Activity	very low	very low	very low	very low	low	low	low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

The SWAP images of August 05 and Aug 11 are shown below, with annotated active regions.

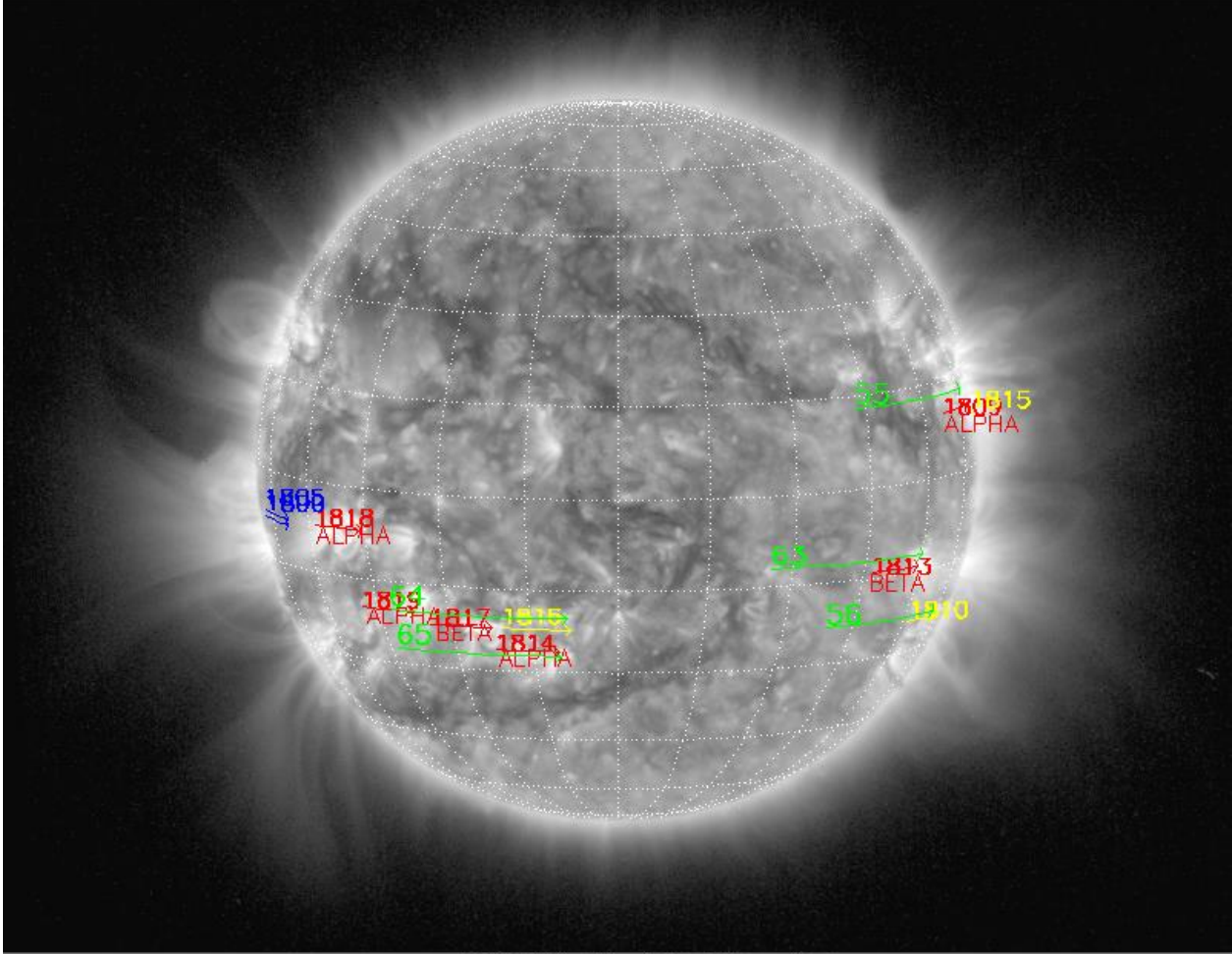


<http://sidc.be/html/CmapPage.html>

Catania sunspot groups

2013-08-09T09:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2013-08-11T00:30



PROBA2/SWAP 17nm
2013-08-11T22:29:25.276

Solar Activity

Solar (flaring) activity evolved from very low to low during the week, strongly increasing to C8.4 during the week-end. Most of the stronger flares originated from AR 11817.

In order to view the activity of this week in more detail, we suggest going 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; HelioViewer.org).

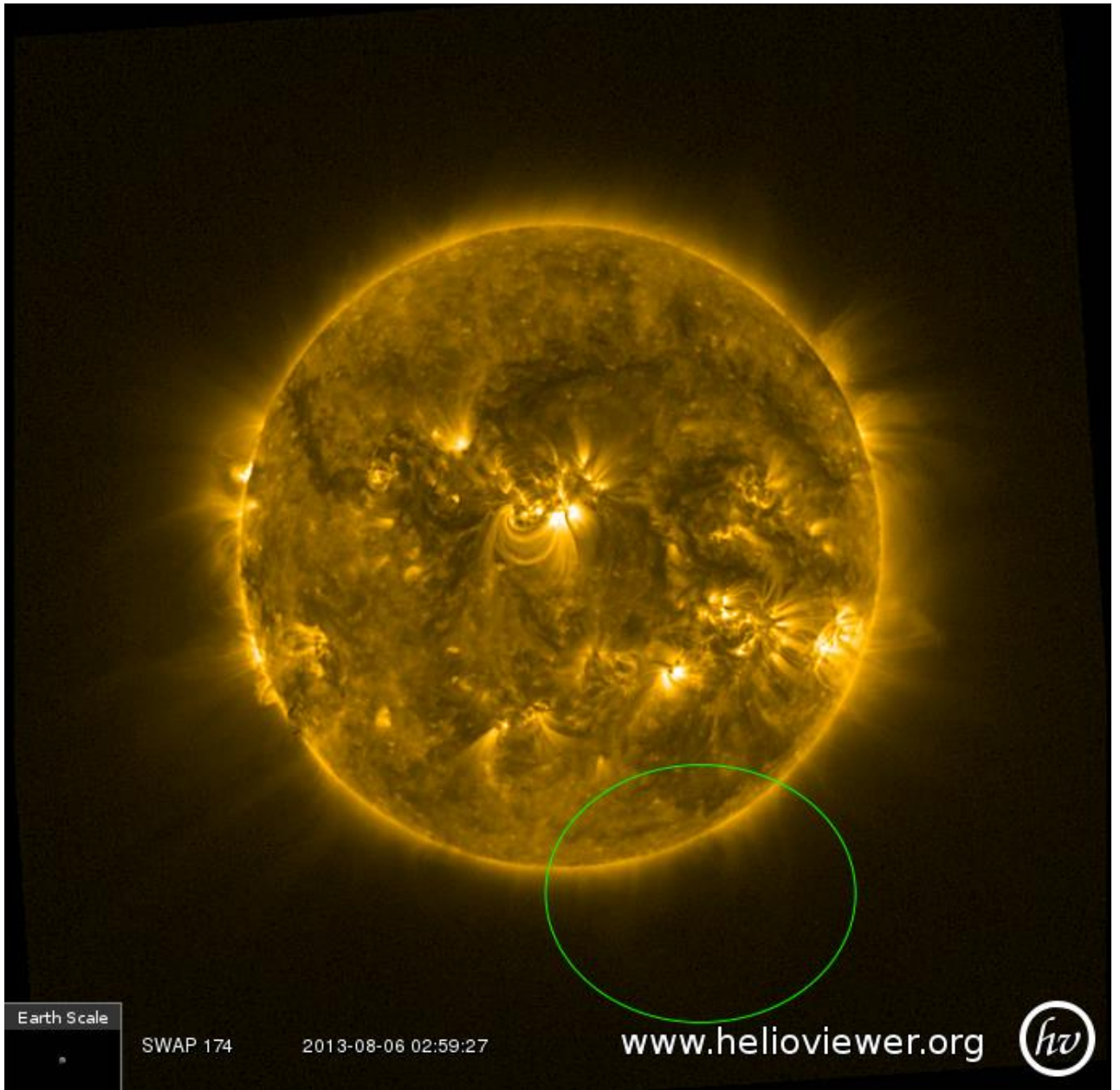
Details about some of this week's events can be found further below.

Tuesday August 6th:

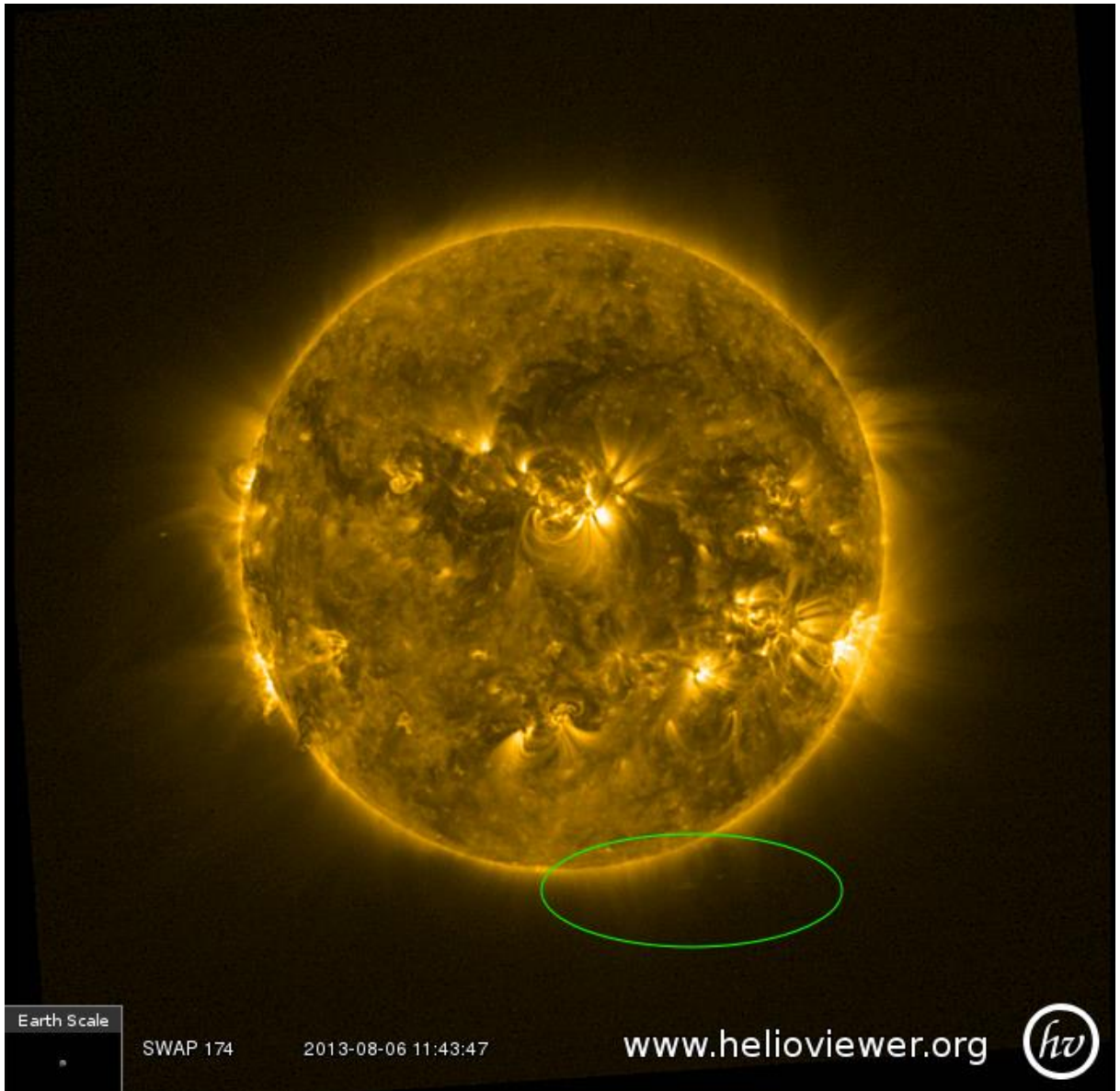


PROBA2/SWAP 174 2013-08-06T01:50:06.936
B4.5 flare eruption in North East Quadrant + Prominence Eruption on West Limb @ 01:50
- SWAP difference image

Find a movie of the event [here](#) (SWAP difference movie)



Prominence Eruption on South West Limb @ 02:59 - SWAP normal colorized image



Prominence Eruption on South West Limb @ 11:43 - SWAP normal colorized image

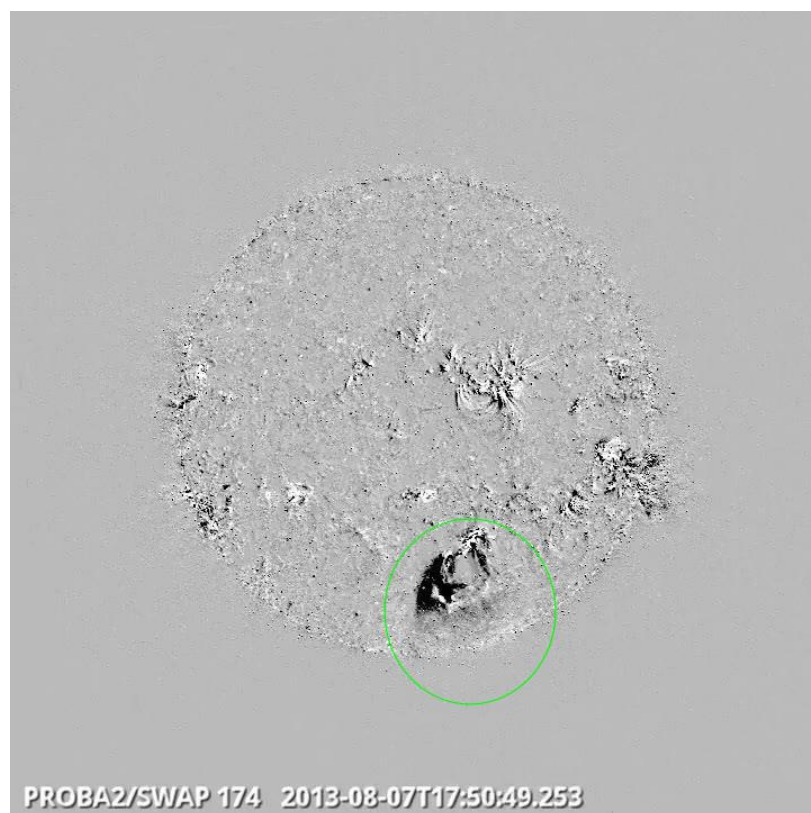
Wednesday August 7th:



Prominence Eruption on South East Limb @ 19:56 - SWAP difference image
Find a movie of the event [here](#) (SWAP difference movie)



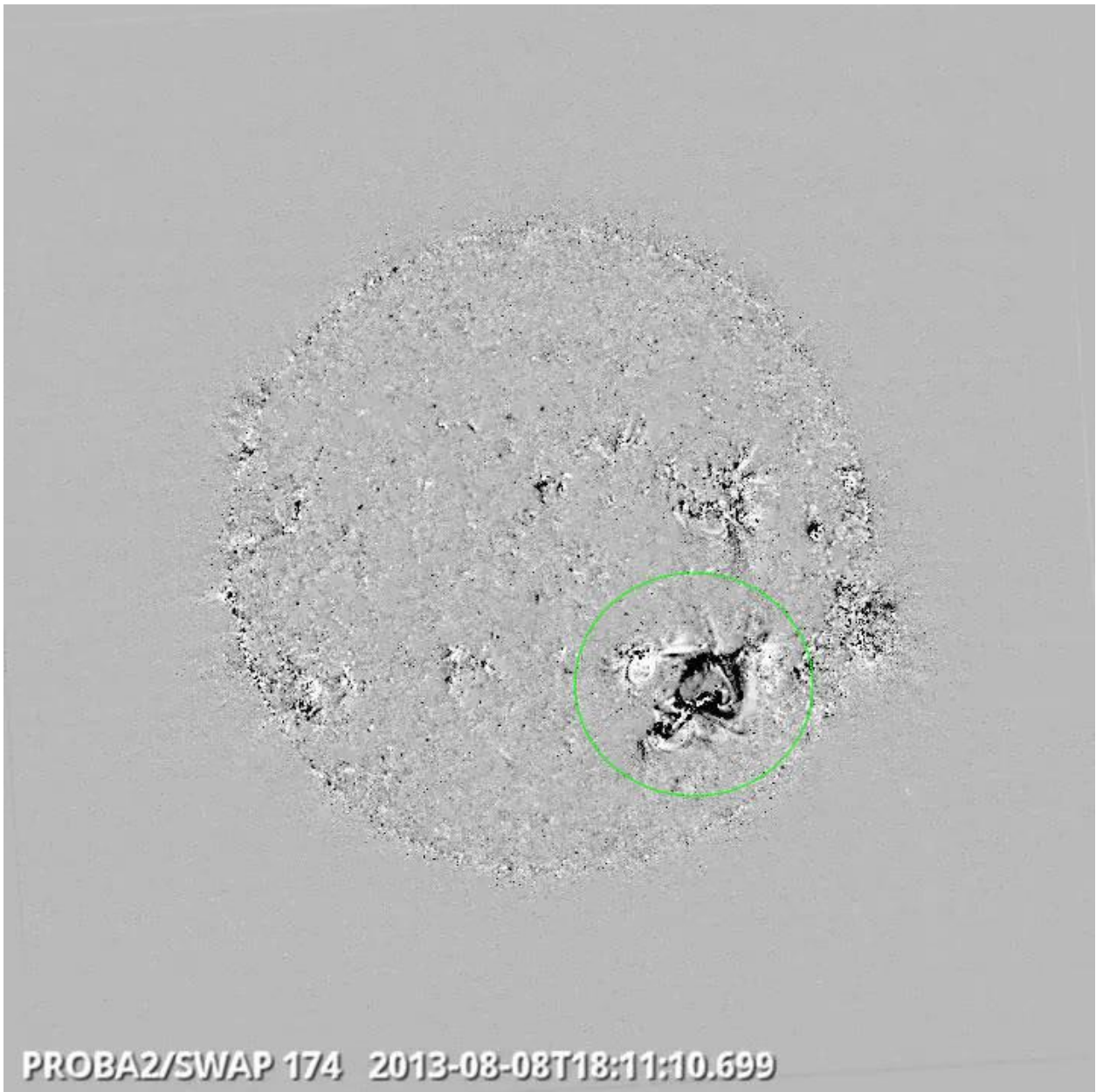
B4.8 flare eruption in South West Quadrant - AR 11810 @ 14:59 - SWAP difference image



B6.3 Eruption in South West Quadrant - AR 11810 @ 17:50 - SWAP difference image

Find a movie of the event [here](#) (SWAP difference movie)

Thursday August 8th:



B4.2 flare eruption in South West Quadrant - AR 11810 @ 18:11 - SWAP difference image
Find a movie of the event [here](#) (SWAP difference movie)

Friday August 9th:



Eruption on East limb @ 20:26 - SWAP difference image
Find a movie of the event [here](#) (SWAP difference movie)

Saturday August 10th:



Prominence Eruption in South West Quadrant @ 08:45 - SWAP difference image
Find a movie of the event [here](#) (SWAP difference movie)

Sunday August 11th:

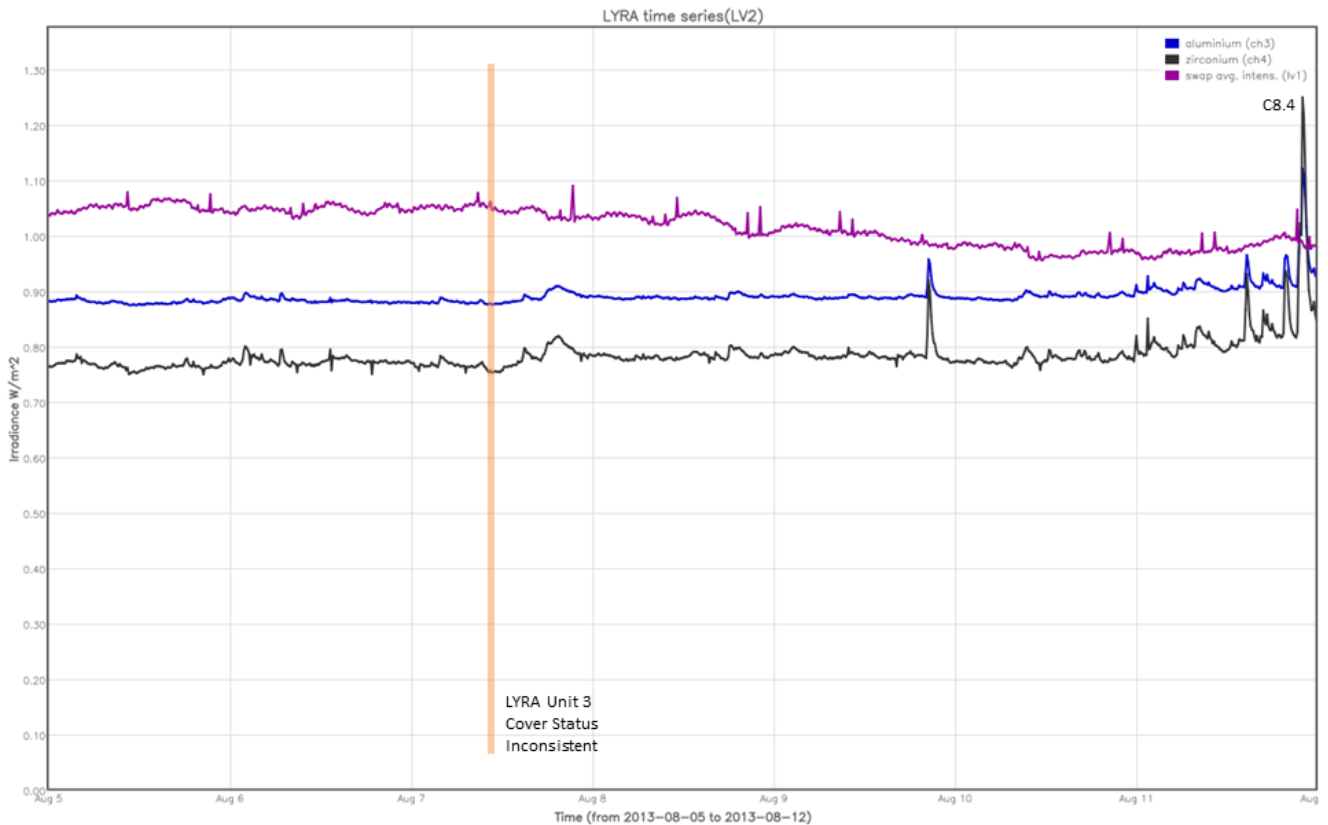


C8.4 Flare eruption in South East Quadrant - AR 11817 @ 21:54 - SWAP difference image
Find a movie of the event [here](#) (SWAP difference movie)

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:

- None

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

- Short period of inconsistent housekeeping data on the status of the cover of LYRA Unit 3, during the daily Unit 3 campaign.

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>).

'Reconstruction of the Solar EUV Irradiance as observed with SOHO/SEM and PROBA2/LYRA'; Margit Haberreiter et al. (abstract submitted to AGU 2013; San Francisco, California, December 9-13)

'Progress Towards Understanding the Degradation and Performance Characteristics of the PROBA2-LYRA Instrument'; Andrew Jones et al. (abstract submitted to AGU 2013; San Francisco, California, December 9-13)

On Thursday 8th of August, Guest Investigator Nandita Srivastava gave a presentation of her GI work (erupting prominences/filaments using SWAP, LYRA, and H-alpha observations) at ROB.

Guest Investigator Program

- presentation by Nandita Srivastava (see above)

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 05 Aug	Tuesday 06 Aug	Wednesday 07 Aug	Thursday 08 Aug	Friday 09 Aug	Saturday 10 Aug	Sunday 11 Aug
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00337	LYIOS00337	LYIOS00337	LYIOS00337	LYIOS00337	LYIOS00337	LYIOS00337

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

On Wednesday 07th, the housekeeping data for the cover of LYRA U3 indicated that the cover did not open during the daily U3 campaign. However, data was recorded and downlinked.

LYRA detector temperature

LYRA detector 2 temperature globally varied between 46.43 and 47.33 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 10448 to 10698.

The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 05 Aug	Tuesday 06 Aug	Wednesday 07 Aug	Thursday 08 Aug	Friday 09 Aug	Saturday 10 Aug	Sunday 11 Aug
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00473 635 images	IOS00473 566 images	IOS00473 583 images	IOS00473 591 images	IOS00473 612 images	IOS00473 576 images	IOS00473 531 images

Special operations for SWAP, this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.69 and -0.89 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 11724 to 11783) 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 Aug 05 0UT and 2013 Aug 12 0UT: 4230

Highest cadence in this period: 130 seconds

Average cadence in this period: 142.97 seconds

Number of image gaps larger than 300 seconds: 2

Largest data gap: 6.50 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)