P2SC-ROB-WR-185- 20130907 Weekly report #185	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Oct 07 to Sun Oct 13, 2013 07 October 2013 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

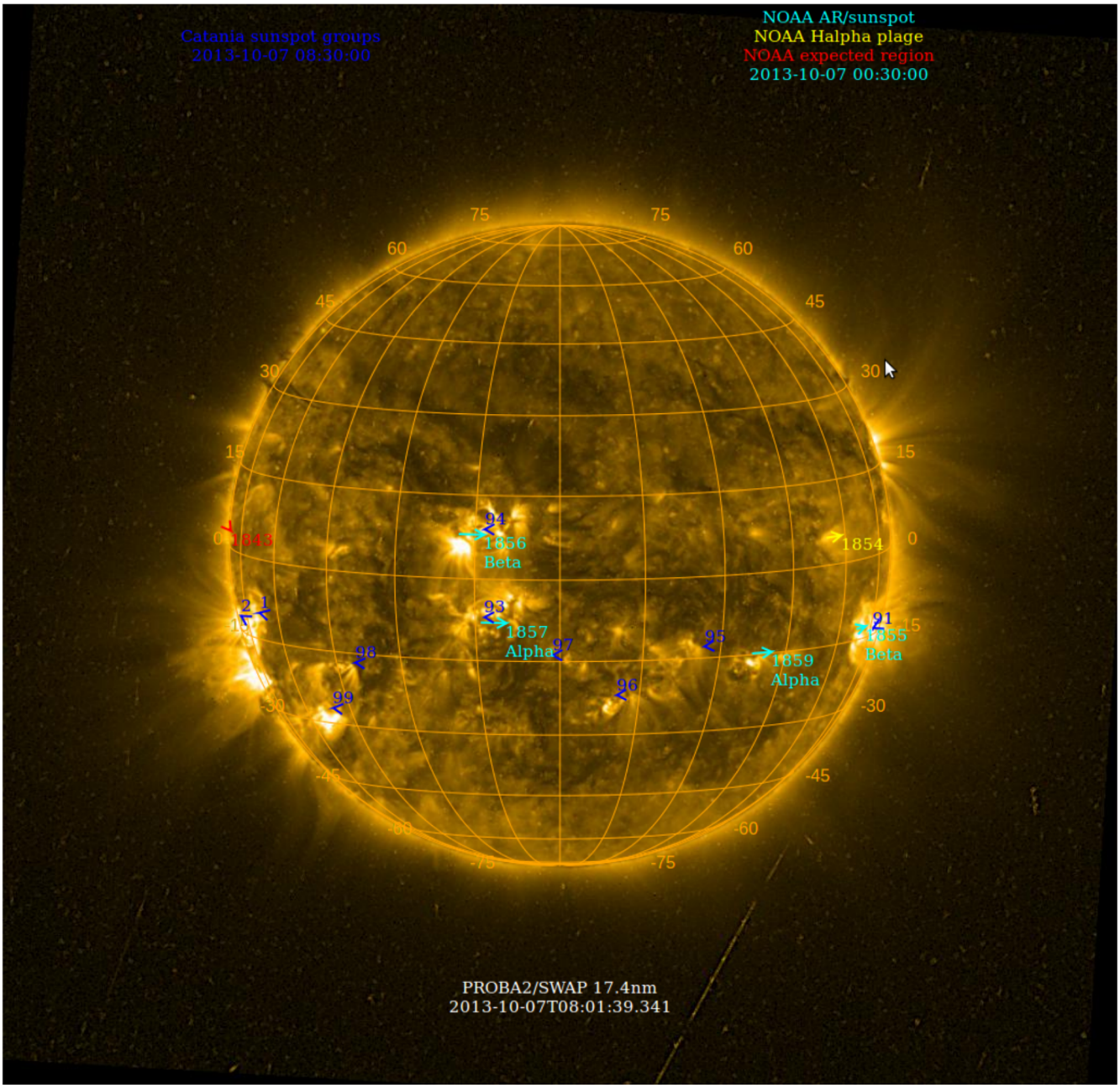
The level of solar activity[1] this week varied between **very low and moderate** this week.

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

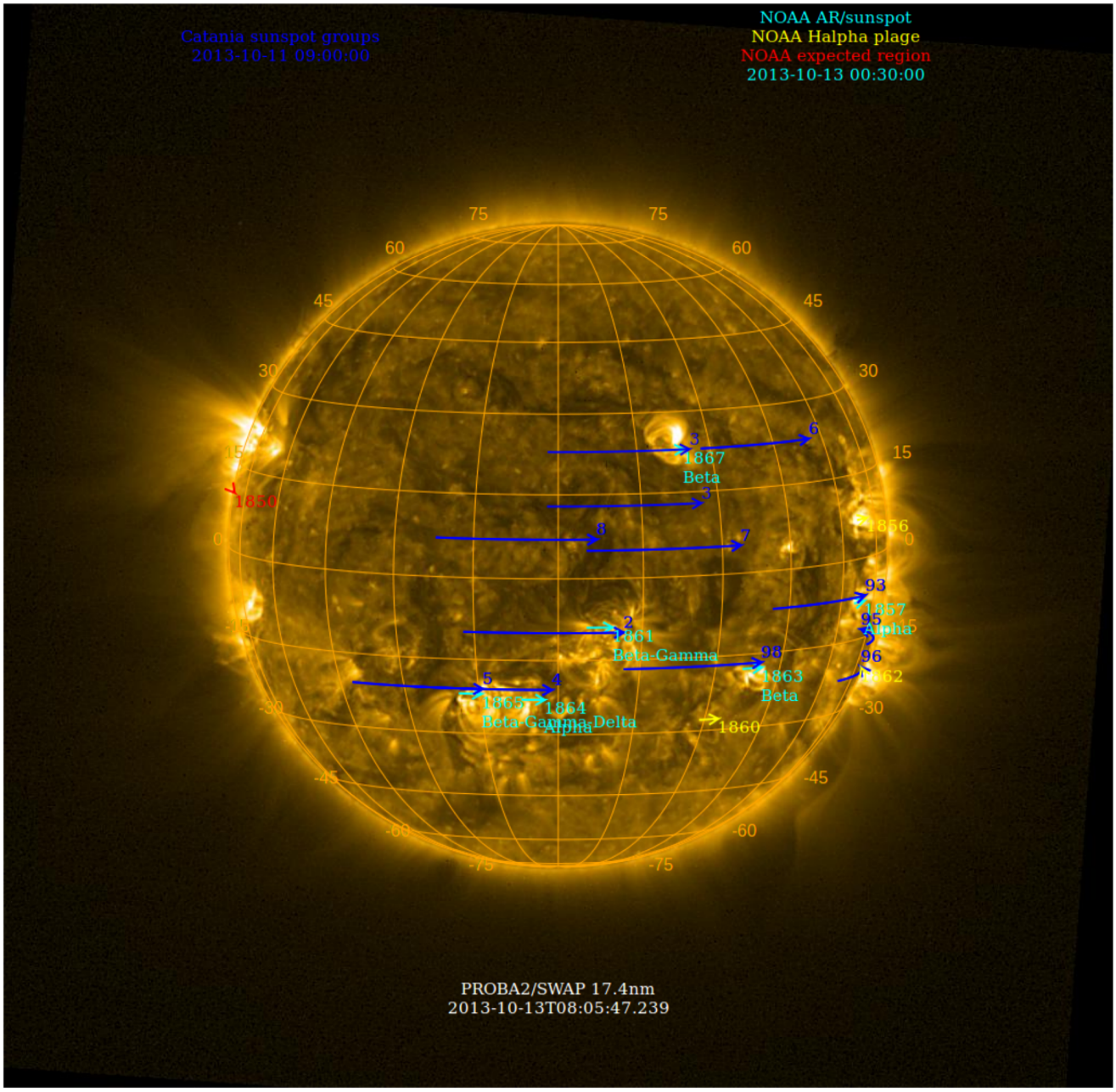
	Monday 07 Oct	Tuesday 08 Oct	Wednesday 09 Oct	Thursday 10 Oct	Friday 11 Oct	Saturday 12 Oct	Sunday 13 Oct
Activity	low	very low	moderate	low	moderate	low	moderate
Flares	-	-	**M2.8@01:48**	-	**M1.5@07:25**	-	**M1.7@00:43**

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

The SWAP images of Oct 07 and Oct 13 are shown below, with annotated active regions.



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


Catania sunspot groups
2013-10-11 09:00:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2013-10-13 00:30:00
75
60
45
30
15
0
-30
-45
-60
-75
3
1867
Beta
6
1850
3
8
7
1856
93
1857
Alpha
95
2
1861
Beta-Gamma
98
1863
Beta
96
1862
5
4
1865
1864
Beta-Gamma-Delta
Alpha
1860
PROBA2/SWAP 17.4nm
2013-10-13T08:05:47.239

Solar Activity
Solar (flaring) activity increased slightly from low to moderate during the week. The highest level M-flare was a M2.8 on the 9th Wednesday.

In order to view the activity of this week in more detail, we suggest visiting 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 185).

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

Tuesday October 08th:

Large scale long duration filament eruption on the east half @ 09:49 - SWAP difference image

Flow on the south east quad @ 16:28 - SWAP difference image

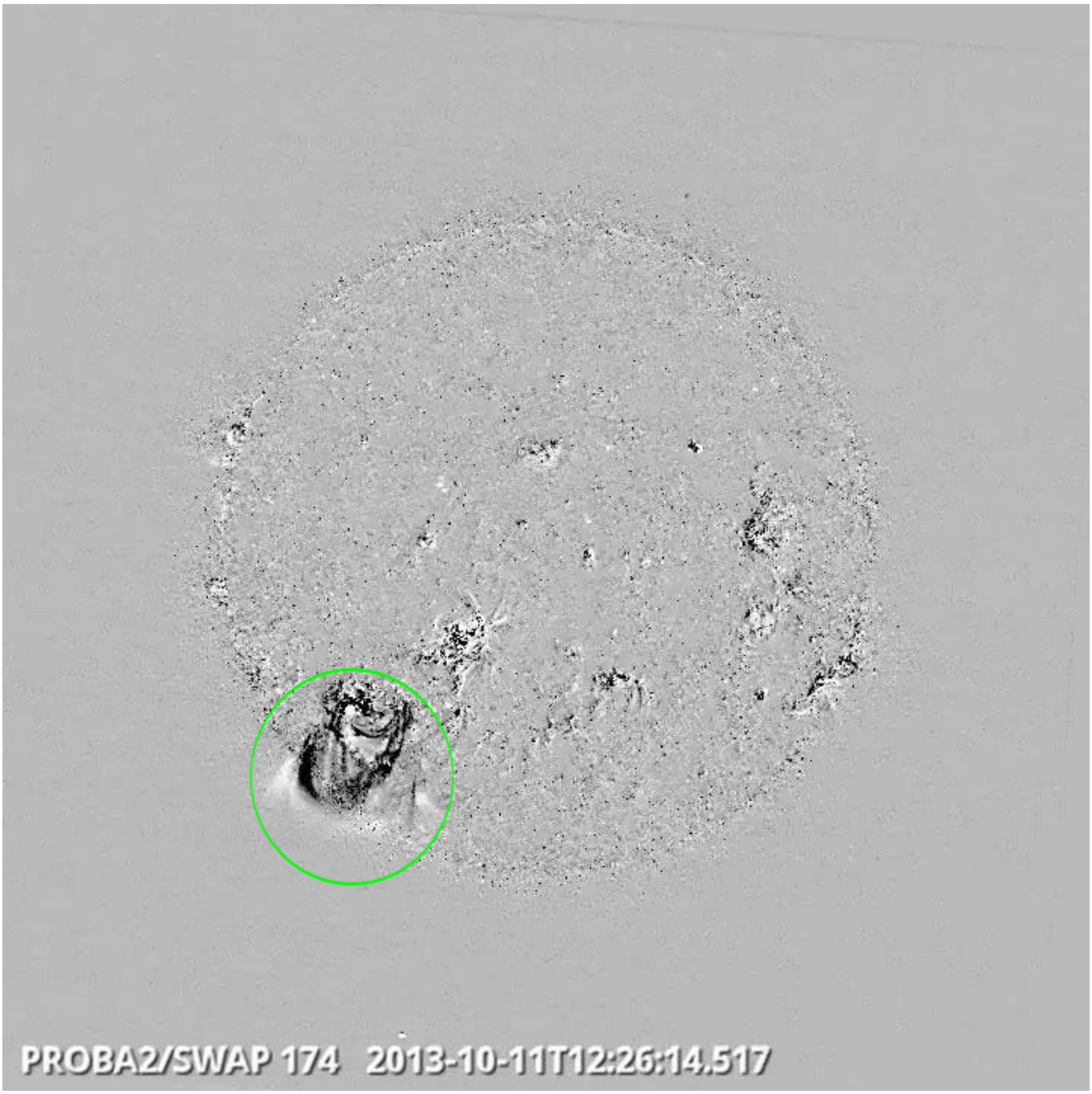
Find a movie of this event and the large filament eruption shown above this picture **here** (SWAP difference movie)

Wednesday October 09th:

Eruption on south east limb @ 01:45 - SWAP difference image
Find a movie of the complete event **here** (SWAP difference movie)

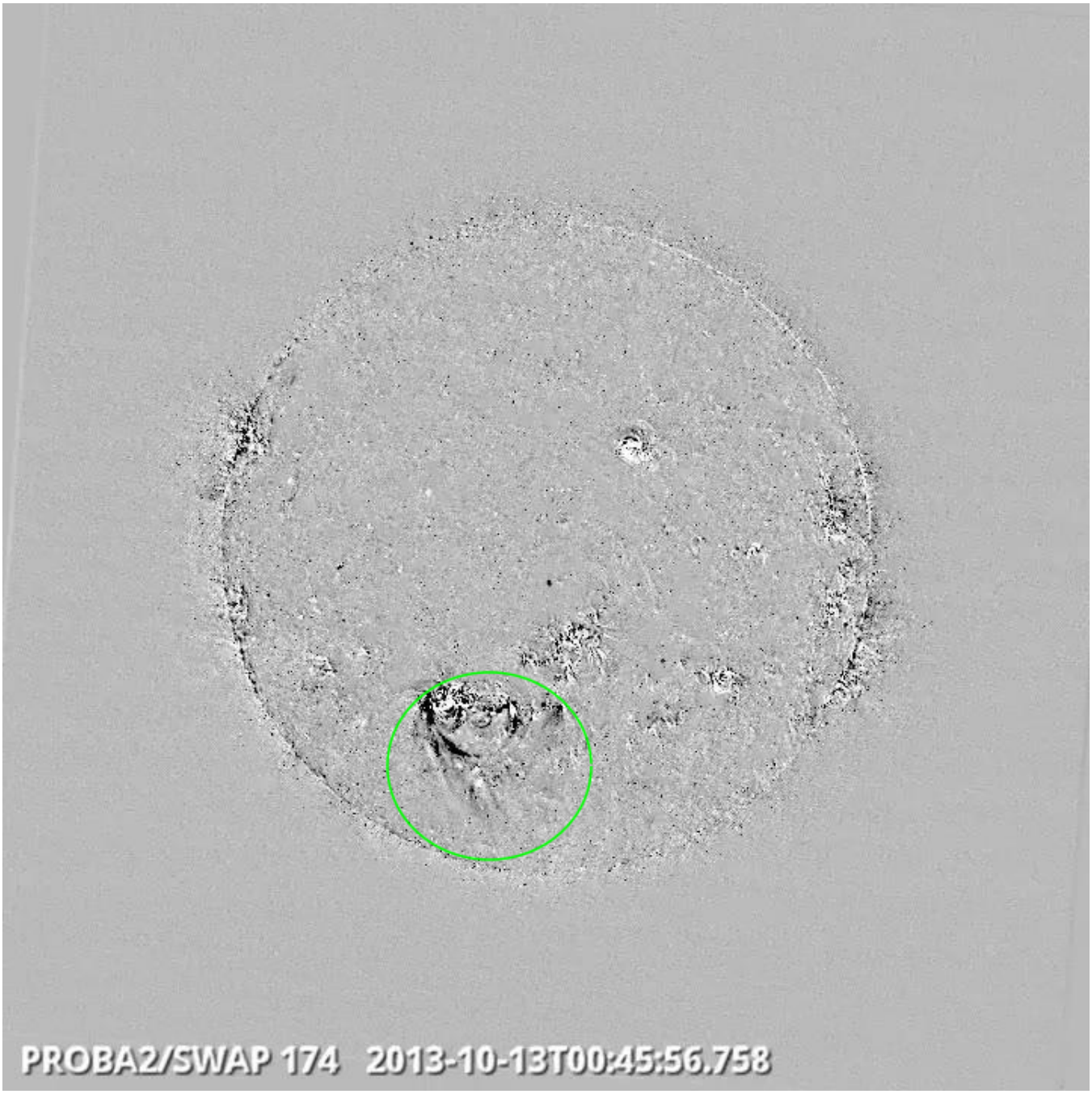
Friday October 11th:

Eruption on east limb @ 07:25 - SWAP difference image
Find a movie of the complete event **here** (SWAP difference movie)



Eruption on south east quad @ 12:26 - SWAP difference image

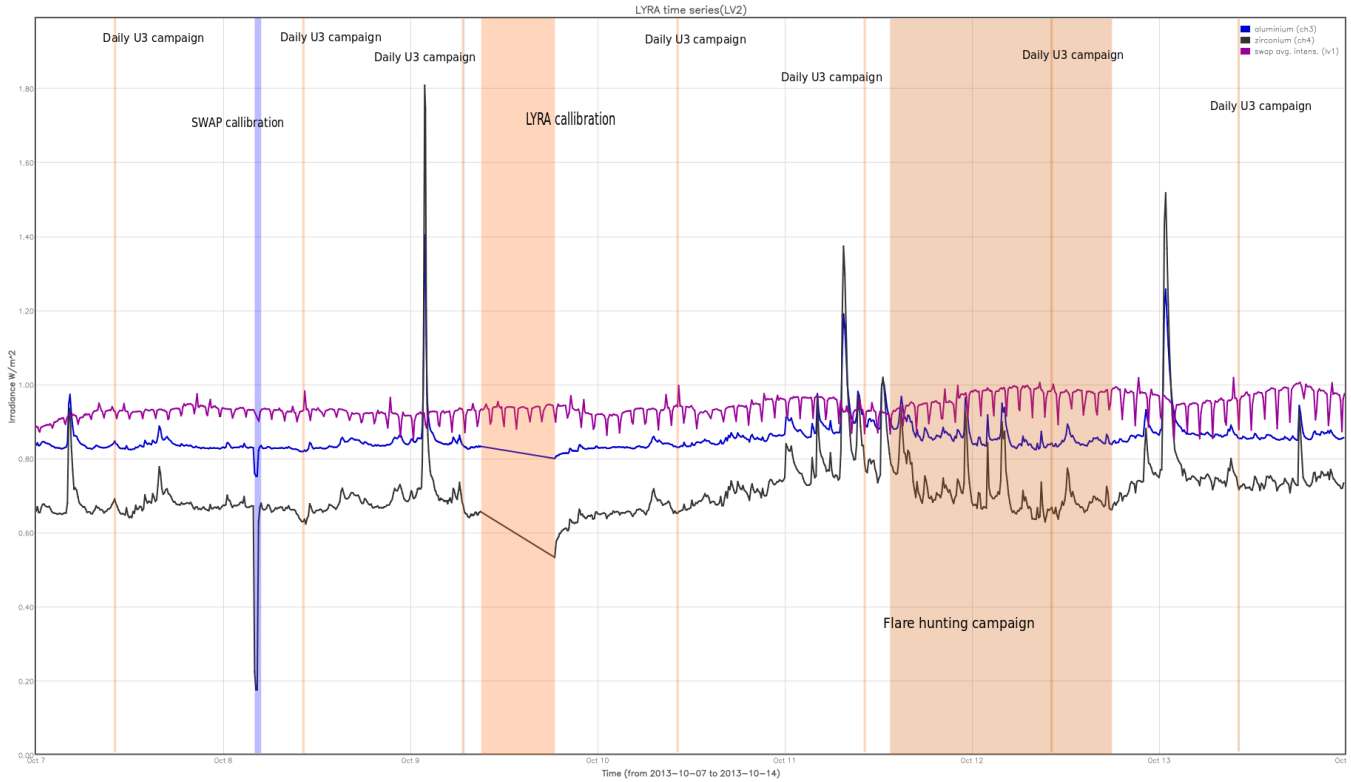
Sunday October 13th:



Eruption on south east quad @ 00:45 - SWAP difference image
Find a movie of the complete 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

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

- Three daily Unit 3 campaigns
- LYRA calibration on Wednesday
- Two more daily Unit 3 campaigns
- The flare hunting campaign
- Two more daily Unit 3 campaigns

The red shaded period corresponds to:

- None

Activity level periods are indicated per day by horizontal arrows.

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

- None

2. LYRA instrument status

Calibration

LYRA calibration on Wednesday.

IOS & operations

Monday 07 Oct	Tuesday 08 Oct	Wednesday 09 Oct	Thursday 10 Oct	Friday 11 Oct	Saturday 12 Oct	Sunday 13 Oct
Nominal acquisition + daily U3 LYIOS00342	Nominal acquisition + daily U3 LYIOS00342	Nominal acquisition + daily U3 + calibration LYIOS00342	Nominal acquisition + daily U3 LYIOS00342	Nominal acquisition + daily U3 + Flare hunting campaign LYIOS00342->LYIOS00343	Nominal acquisition + daily U3 + Flare hunting campaign LYIOS00343	Nominal acquisition + daily U3 LYIOS00343

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- flare hunting campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 49.2 and 52.1 °C, taking into account the daily U3 activation periods and flare hunting campaign; the daily U3 result in a temperature increase of about 1 °C and the flare hunting campaign results in a temperature increase of about 2.9 °C.
During calibration, temperature decreased to 48 °C.

To be explored

- None

3. SWAP instrument status

Calibration

SWAP calibration on Tuesday.

MCPM errors

The number of MCPM recoverable errors increased from 12821 to 13034.
The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 07 Oct	Tuesday 08 Oct	Wednesday 09 Oct	Thursday 10 Oct	Friday 11 Oct	Saturday 12 Oct	Sunday 13 Oct
Nominal acquisition IOS00477 559 images	Nominal acquisition + calibration IOS00477 632 images	Nominal acquisition IOS00477 604 images	Nominal acquisition IOS00477 587 images	Nominal acquisition IOS00477 574 images	Nominal acquisition IOS00477 521 images	Nominal acquisition IOS00477 608 images

Special operations for SWAP, this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 0.72 and 1.83 °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 12085 to 12144) 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 Oct 07 0UT and 2013 Oct 14 0UT: 4085
Highest cadence in this period: 30 seconds
Average cadence in this period: 148.07 seconds
Number of image gaps larger than 300 seconds: 1
Largest data gap: 5:18 minutes

The data gap is probably the result of the SWAP image download unblocking procedure which was executed during pass 12269 on 2013 Oct 07.

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)