


P2SC-ROB-WR-294 - 20151109 Weekly report #294	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Nov 09 to Sun Nov 15, 2015 18 Nov 2015 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

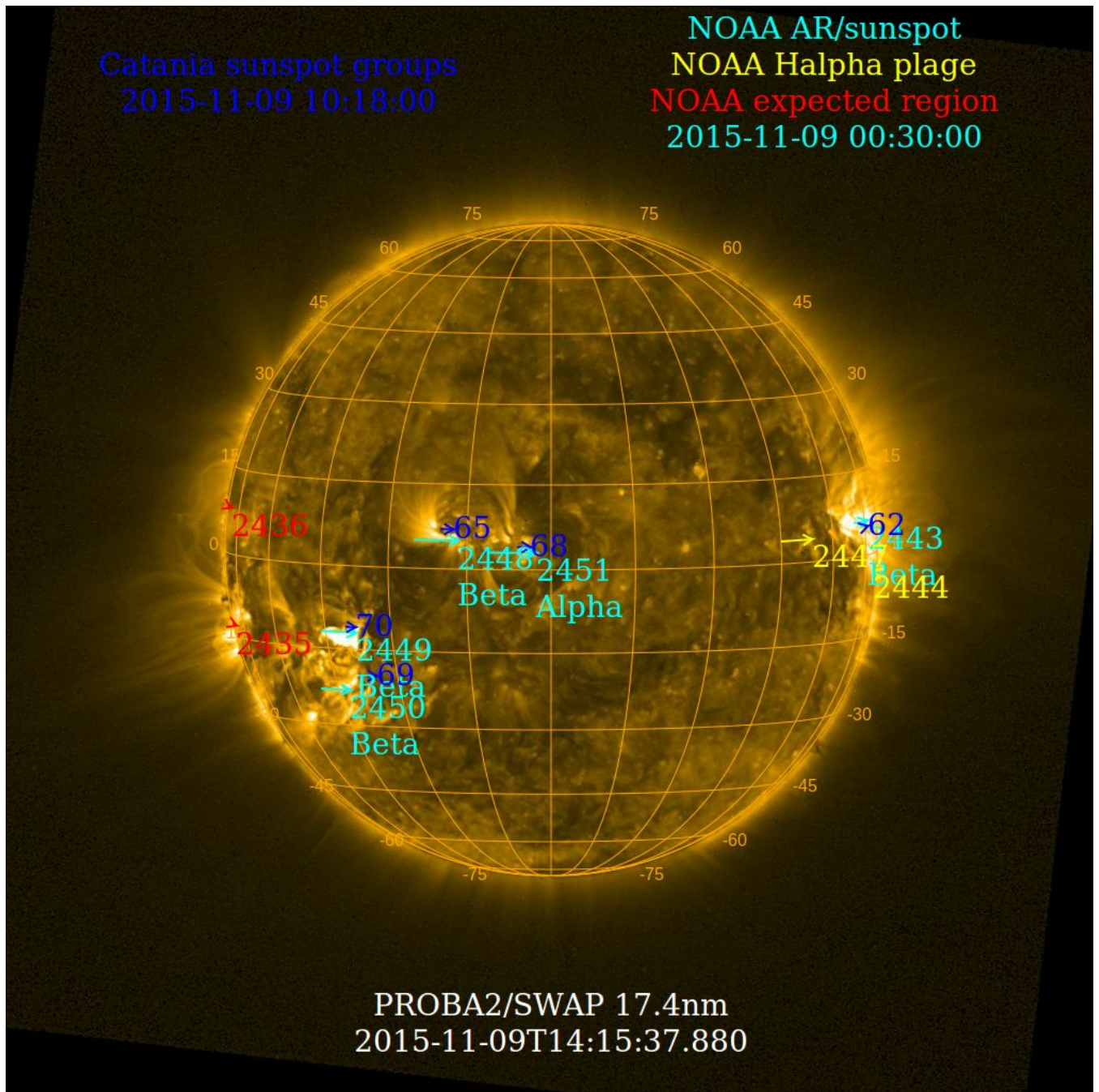
The level of solar activity¹ fluctuated between **very low** and **moderate** this week.

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

	Monday 09 Nov	Tuesday 10 Nov	Wednesday 11 Nov	Thursday 12 Nov	Friday 13 Nov	Saturday 14 Nov	Sunday 15 Nov
Activity	moderate	low	very low	very low	low	very low	low
Flares	M3.9@13:12	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

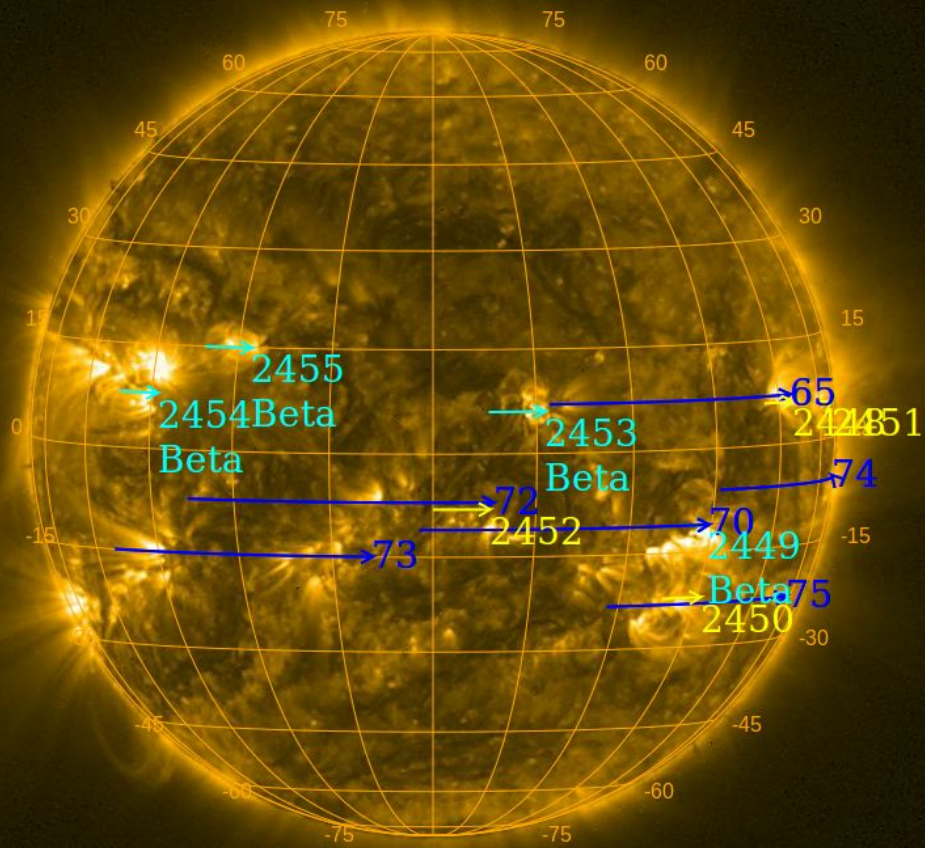
The SWAP images of Nov 09 and Nov 15 are shown below, with annotated active regions.



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

Catania sunspot groups
2015-11-12 09:30:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2015-11-15 00:30:00



PROBA2/SWAP 17.4nm
2015-11-15T14:02:55.548

Solar Activity

Solar flare activity fluctuated between very low and moderate during 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>

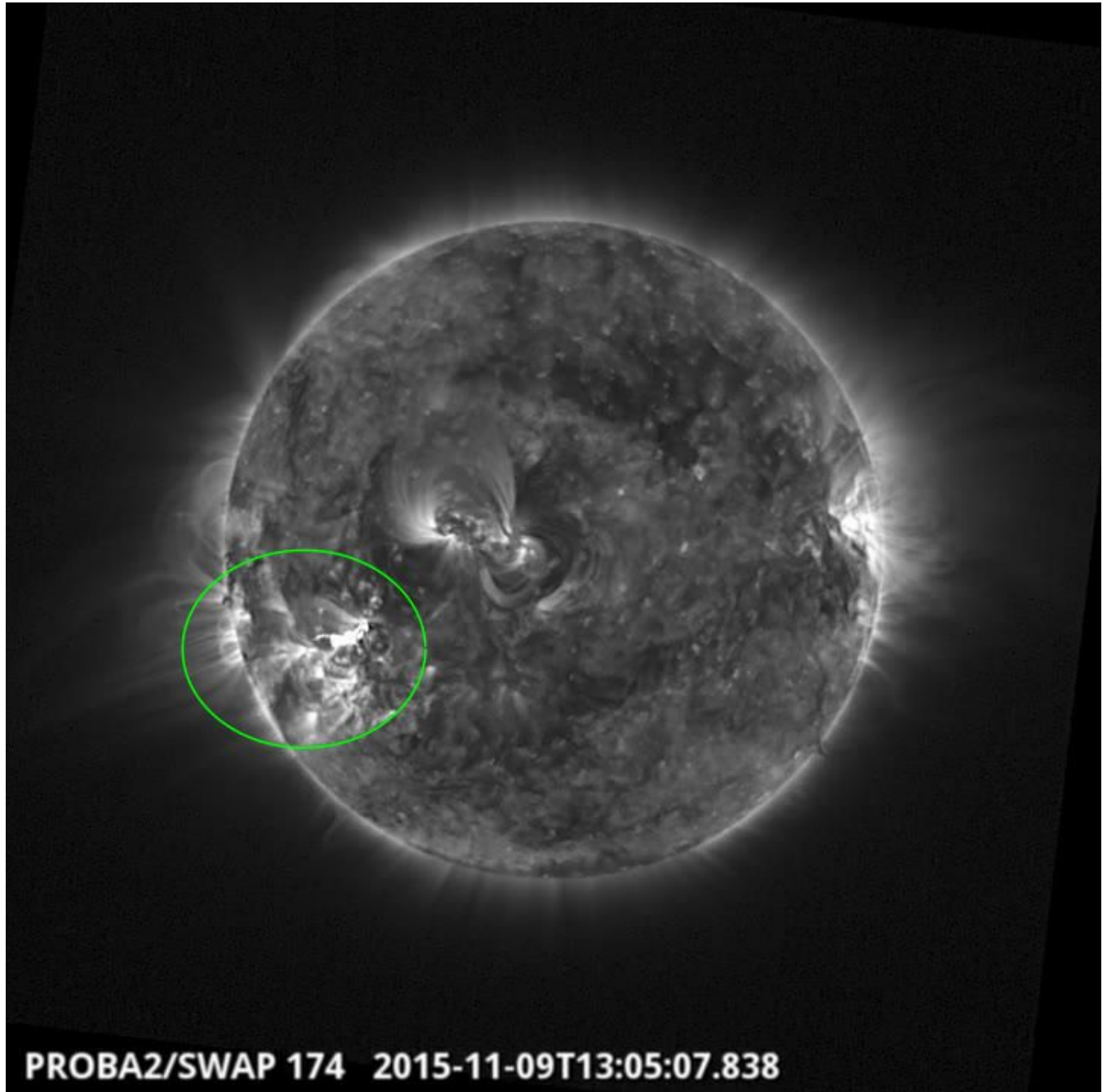
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 294).

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

Monday Nov 09

On Monday 2015-Nov-09 PROBA2 observed a NOAA M3.9 flare at 13:12 UT. This flare was associated with a partial halo CME and a small rise in proton numbers.

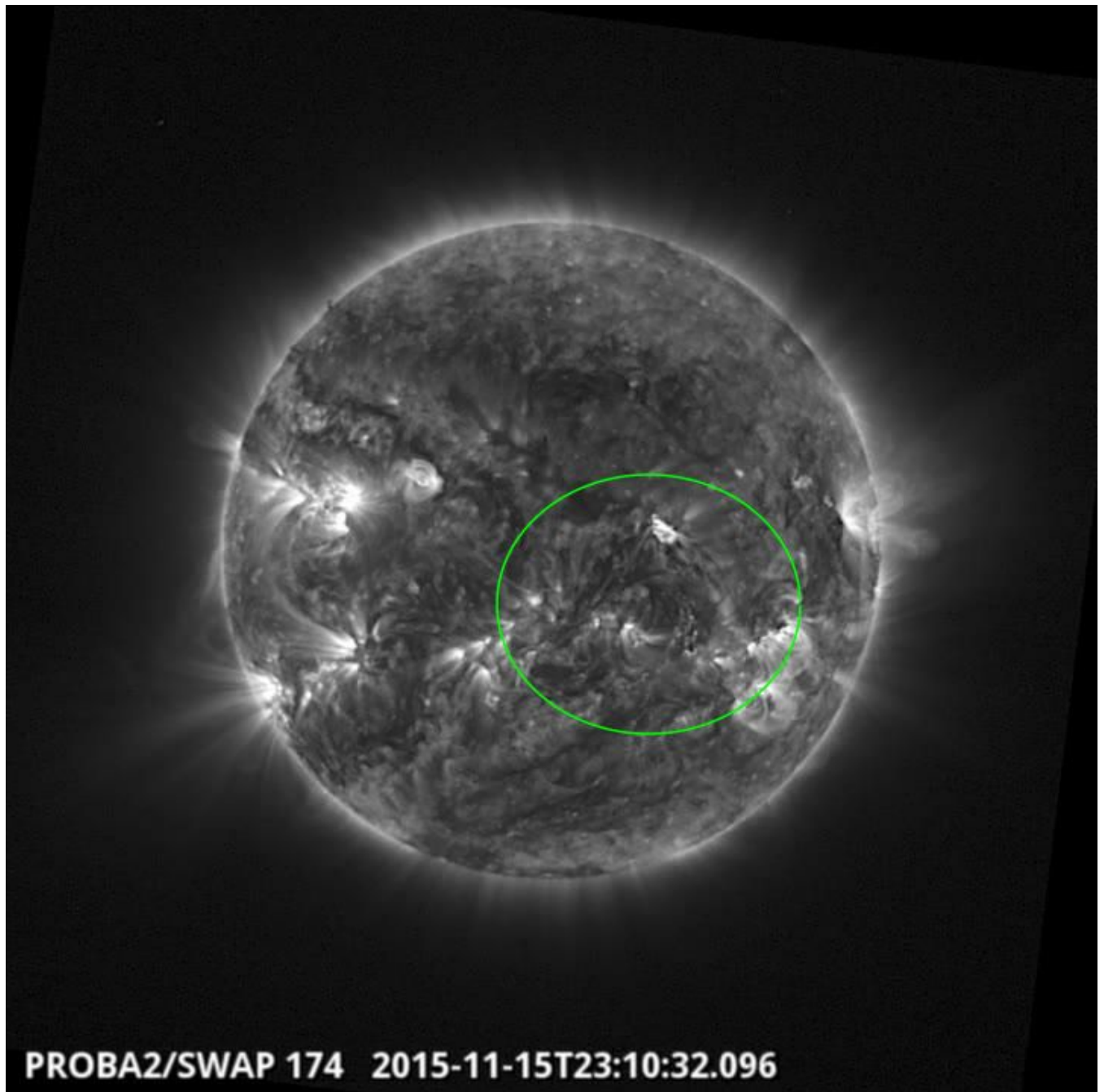


Eruption on the southeast quadrant @ 13:05 - SWAP image

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

Sunday Nov 15

On 2015-Nov-15 PROBA2 SWAP observed the eruption of a small filament channel near disk centre.

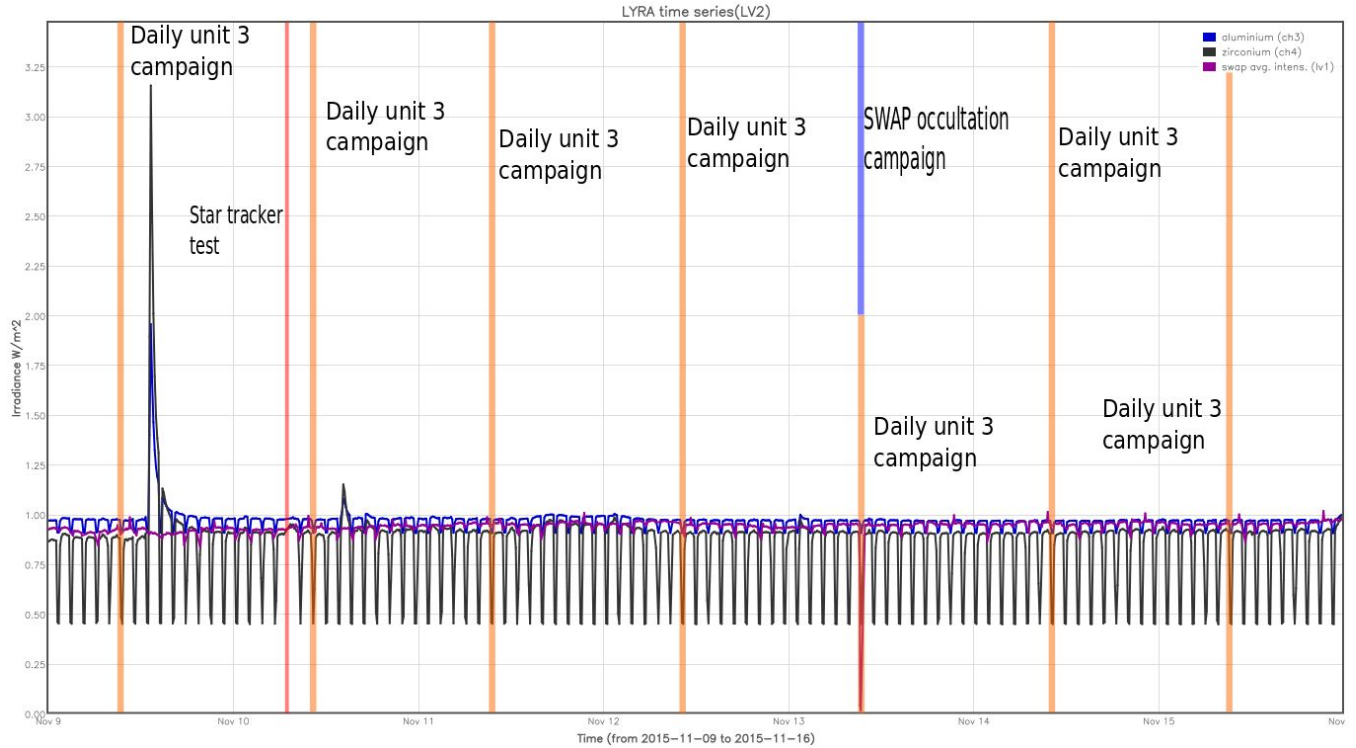


Filament eruption on the centre @ 23:10 - SWAP image
Find a movie of the events [here](#) (SWAP movie)

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 (SWAP Average Intensity; integrated solar intensity per SWAP image pixel)



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

- SWAP occultation campaign, 2015-Nov-13

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

- Daily unit 3 campaign, 2015-Nov-09
- Daily unit 3 campaign, 2015-Nov-10
- Daily unit 3 campaign, 2015-Nov-11
- Daily unit 3 campaign, 2015-Nov-12
- Daily unit 3 campaign, 2015-Nov-13
- Daily unit 3 campaign, 2015-Nov-14
- Daily unit 3 campaign, 2015-Nov-15

The red shaded period corresponds to:

- Star tracker 2 test, 2015-Nov-10

For the STAR tracker 2 test LYRA and SWAP were turned off causing a data gap.

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>).

- Imtiaz et al. published a paper titled: "Particle-in-cell modeling of Dual Segmented Langmuir Probe on PROBA2".
- Schmidtke et al. published a paper titled "Where does the Thermospheric Ionospheric GEospheric Research (TIGER).

Guest Investigator Program

- J. Carlyle worked with SWAP looking at "Column Density Determination of Erupting Filament Material in Proba-2 Images".

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 09 Nov	Tuesday 10 Nov	Wednesday 11 Nov	Thursday 12 Nov	Friday 13 Nov	Saturday 14 Nov	Sunday 15 Nov
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
LYIOS00507	LYIOS00508	LYIOS00508	LYIOS00508	LYIOS00509	LYIOS00509	LYIOS00509

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 43.2 and 47.6 °C.

3. SWAP instrument status

Calibration

No calibration this week.

MCPM errors

The number of MCPM recoverable errors increased from 790 to 975.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 09 Nov	Tuesday 10 Nov	Wednesday 11 Nov	Thursday 12 Nov	Friday 13 Nov	Saturday 14 Nov	Sunday 15 Nov
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition + occultation	Nominal acquisition	Nominal acquisition
IOS00606 672 images	IOS00607 693 images	IOS00607 714 images	IOS00607 632 images	IOS00608 734 images	IOS00608 711 images	IOS00608 719 images

Special operations for SWAP, this week:

- occultation campaign, 2015-11-13

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -2.3 and 0.1 °C.

4. PROBA2 Science Center Status

The main operator is Robbe Vansintjan.

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 18950 to 19012) was nominal, except for:

- 18980.

For pass 18980 the support was scheduled initially on the antenna SG6 at Svalbard and was moved to SG 22 antenna. The support was not scheduled properly at SG22 and the antenna was not moving at all.

HK store, Lyra cyclic store and Events stores have been dumped during the pass 18981.

There is no data available for the pass 18980.

Data coverage HK

All HK data files (LYRA_AD) have been received, except:

- 18980.

Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received, except:

- 18980.

Total number of images between 2015 Nov 09 0UT and 2015 Nov 16 0UT: 4875

Highest cadence in this period: 0 seconds

Average cadence in this period: 124.07 seconds

Number of image gaps larger than 300 seconds: 104

Largest data gap: 36.13 minutes

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received, except:

- 18980

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
SoFAST	Solar Feature Automated Search Tool
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)