P2SC-ROB-WR-399 - 20171113 Weekly report #399	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Nov 13 to Sun Nov 19, 2017 20 Nov 2017 Jennifer O'Hara Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
To:	LYRA PI, marie.dominique@sidc.be SWAP PI, david.berghmans@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, Juha-Pekka.Luntama@esa.int	

1. Science

Solar & Space weather events

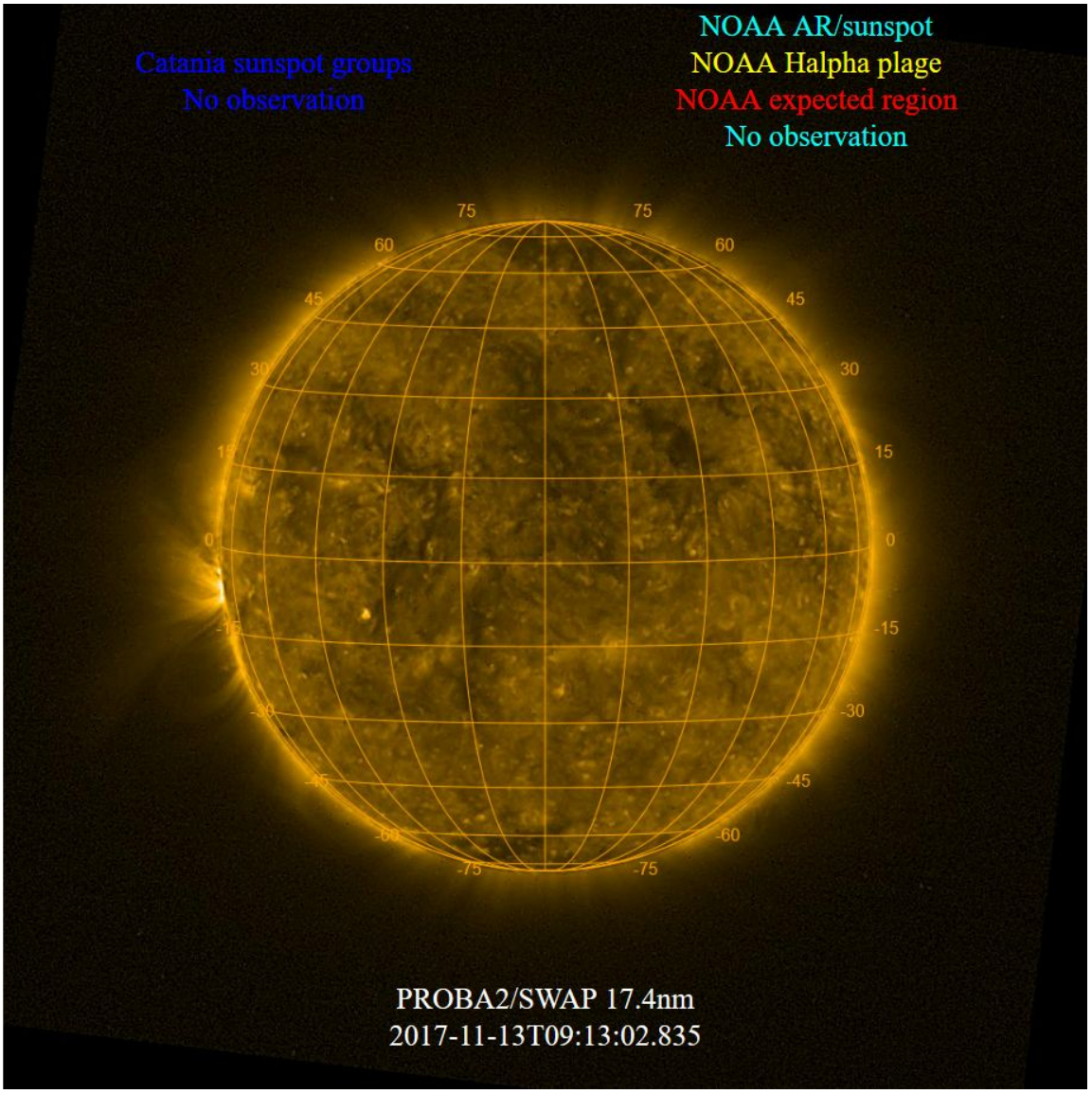
The level of solar activity[1] fluctuated remained **very low** this week.

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

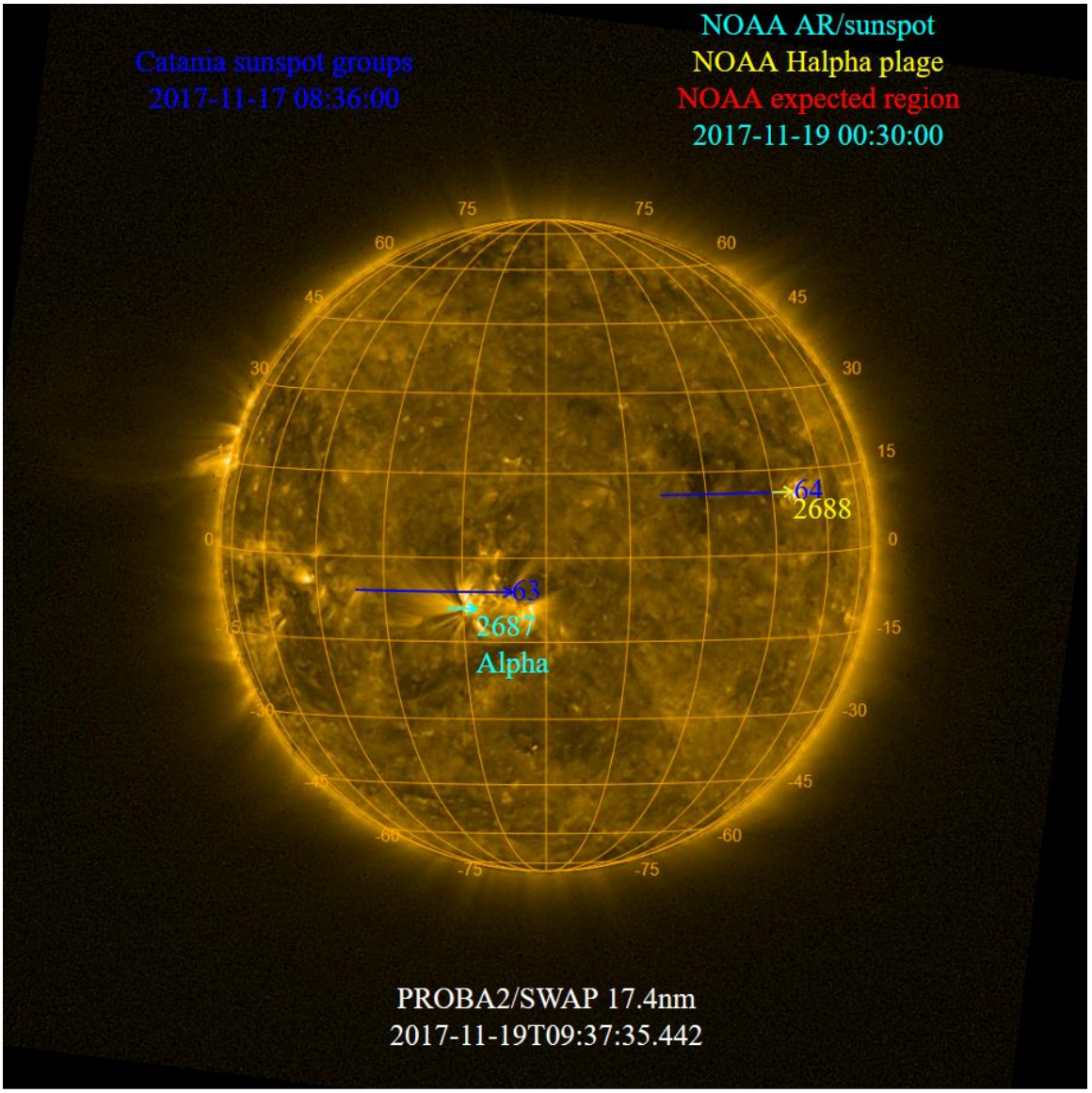
	Monday 13 Nov	Tuesday 14 Nov	Wednesday 15 Nov	Thursday 16 Nov	Friday 17 Nov	Saturday 18 Nov	Sunday 19 Nov
Activity	very low	very low	very low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

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

The SWAP images of Nov 13 and Nov 19 are shown below, with annotated active regions.



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


Catania sunspot groups
2017-11-17 08:36:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2017-11-19 00:30:00
75
60
45
30
15
0
-15
-30
-45
-60
-75
64
2688
63
2687
Alpha
PROBA2/SWAP 17.4nm
2017-11-19T09:37:35.442

Solar Activity

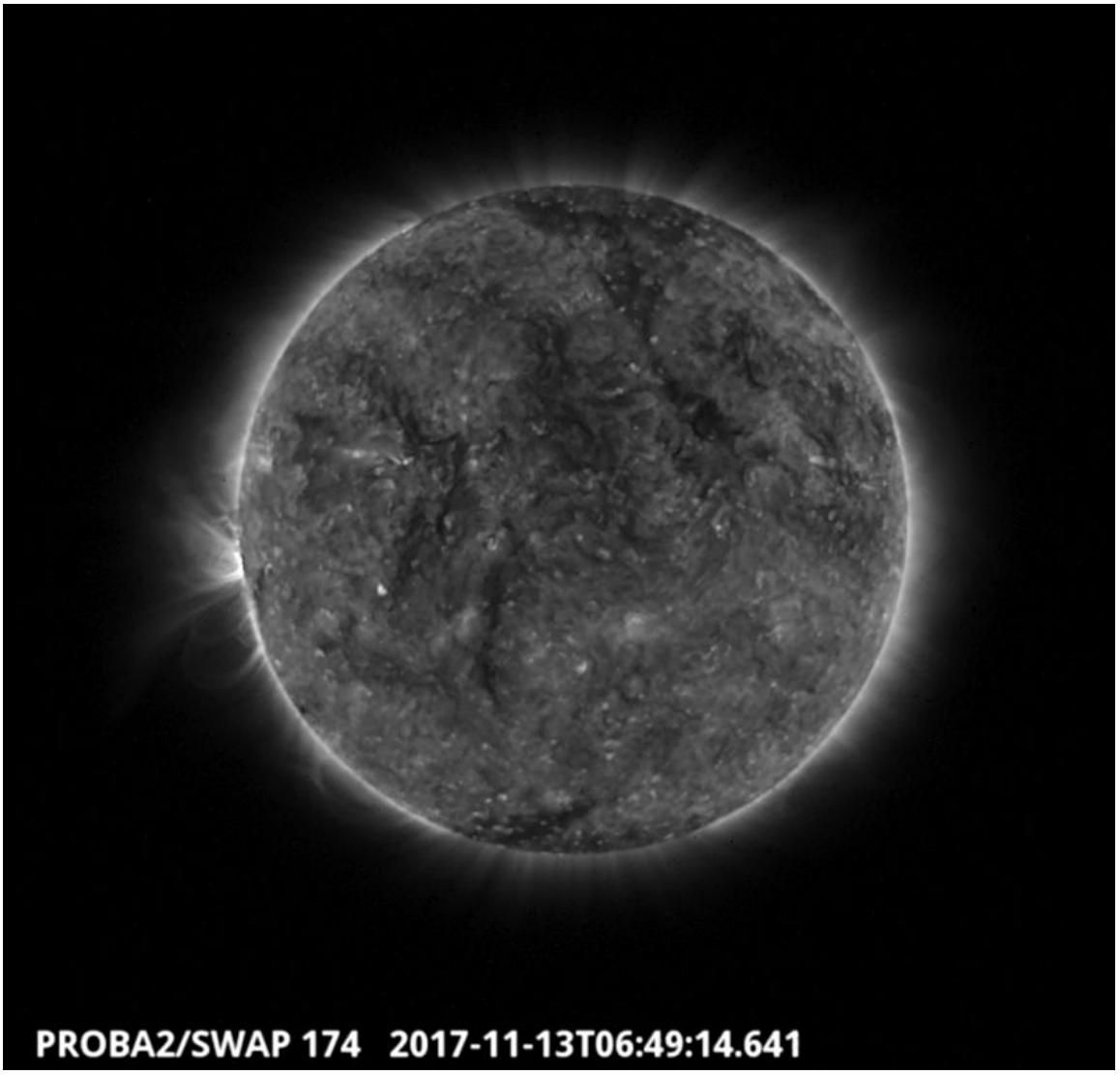
Solar flare activity remained very low during the week.
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: http://proba2.oma.be/ssa
This page also lists the recorded flaring events.

A weekly overview movie can be found here (SWAP week 399).

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

If any of the linked movies are unavailable they can be found in the P2SC movie repository here

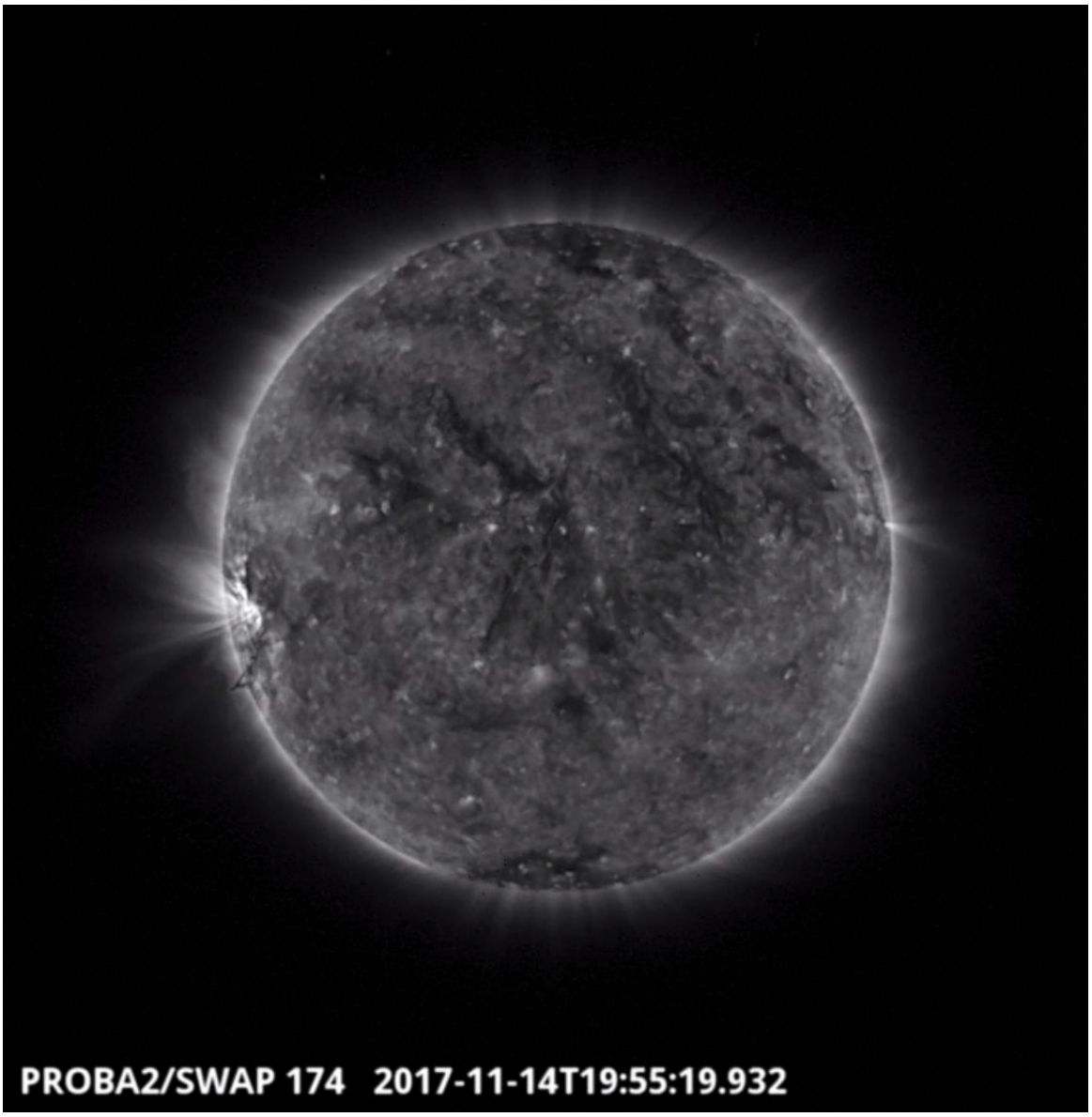
Monday Nov 13



The largest flare of the week was a B-class (B7.5) flare and was observed by SWAP on 2017-Nov-13. The flare is visible on the eastern limb of the Sun in the SWAP image above at 06:49 UT.

Find a movie of the event **here** (SWAP movie)

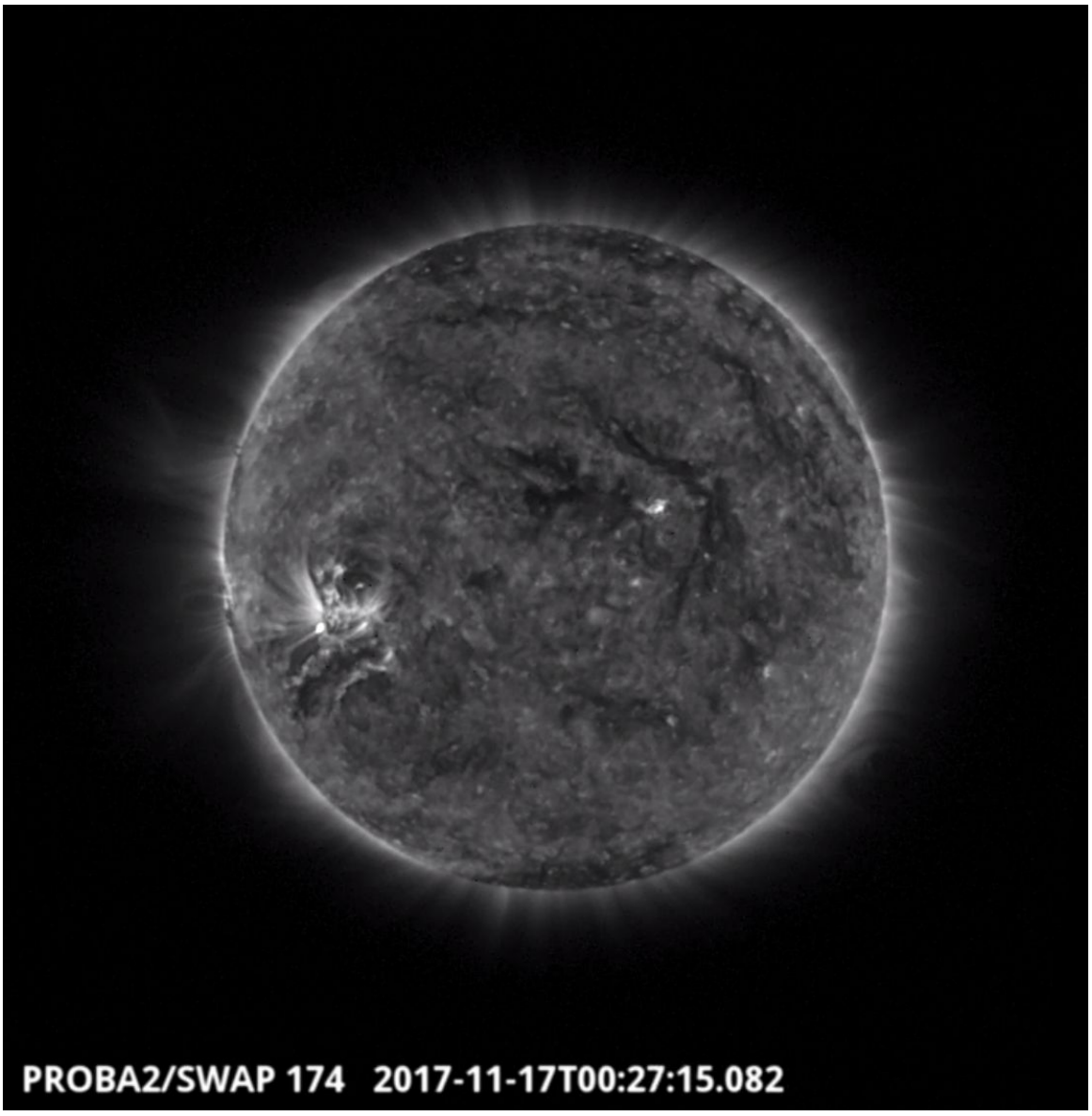
Tuesday Nov 14



A dark filament is also observed by SWAP on the eastern limb of the Sun on 2017-Nov-14 as shown in the image above at 19:55 UT.

Find a movie of the event **here** (SWAP movie)

Friday Nov 17

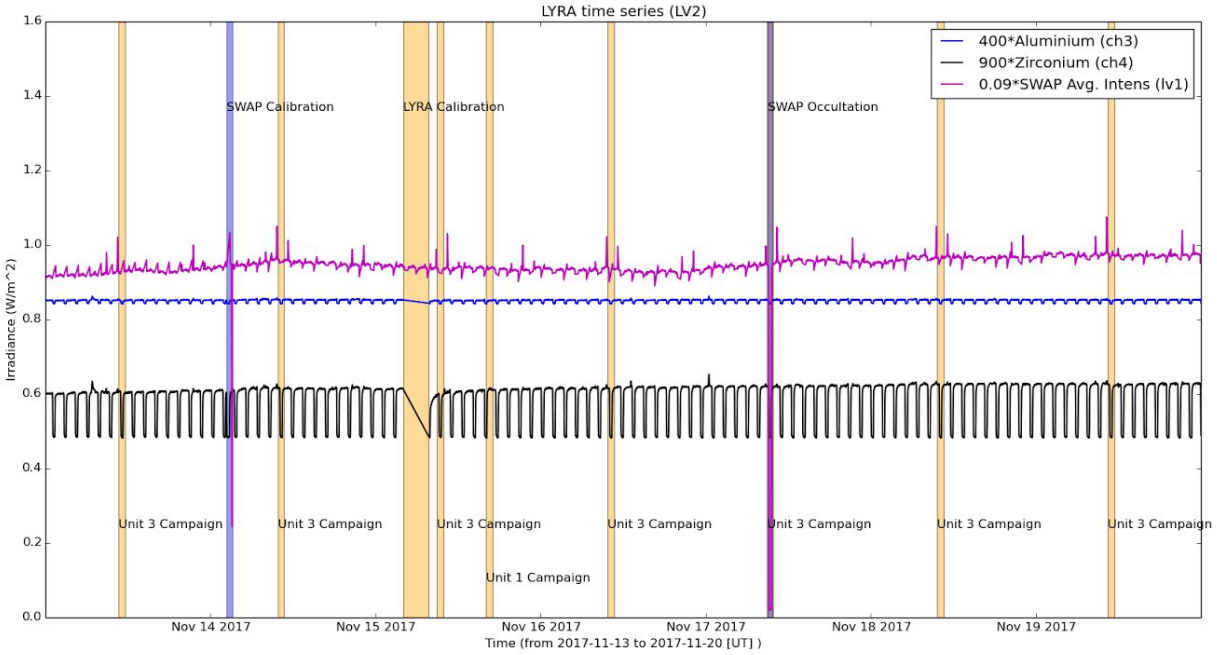


The second largest flare of the week was a B-class (B6.2) flare and was observed by SWAP on 2017-Nov-17. The flare is visible in the south-eastern quadrant of the solar disk in the SWAP image above at 00:27 UT.

Find a movie of the event **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 related to SWAP, correspond to, from left to right:

- Bi-weekly calibration, 2017-Nov-14
- Parallel occultation campaign with LYRA, 2017-Nov-17

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

- Daily unit 3 campaign, 2017-Nov-13
- Daily unit 3 campaign, 2017-Nov-14
- Bi-weekly short calibration, 2017-Nov-15
- Daily unit 3 campaign, 2017-Nov-15
- Daily unit 3 campaign, 2017-Nov-16
- Daily unit 3 campaign, 2017-Nov-17
- Daily unit 3 campaign, 2017-Nov-18
- Daily unit 3 campaign, 2017-Nov-19

The red shaded periods related to other issues 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).

Guest Investigator Program

- Willow M Reed from the University of Colorado continued her visit as part of Marty Snow's GI team.

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 13 Nov	Tuesday 14 Nov	Wednesday 15 Nov	Thursday 16 Nov	Friday 17 Nov	Saturday 18 Nov	Sunday 19 Nov
Nominal acquisition + daily U3 LYIOS00656	Nominal acquisition + daily U3 LYIOS00656	Nominal acquisition + daily U3 + Calibration + Monthly U1 LYIOS00656	Nominal acquisition + daily U3 LYIOS00656	Nominal acquisition + daily U3 LYIOS00656	Nominal acquisition + daily U3 LYIOS00658	Nominal acquisition + daily U3 LYIOS00658

The following science campaigns were performed by LYRA:

- Daily Unit 3 observations campaign

On 2017-Nov-15

- Bi-weekly calibration campaign
- Monthly Unit 1 observation campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 43.17 and 46.77 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 13040 to 13067.
The number of MCPM unrecoverable errors remained at 45.

IOS & operations

Monday 13 Nov	Tuesday 14 Nov	Wednesday 15 Nov	Thursday 16 Nov	Friday 17 Nov	Saturday 18 Nov	Sunday 19 Nov
Nominal acquisition IOS00726 756 images	Nominal acquisition + calibration IOS00727 718 images	Nominal acquisition IOS00727 783 images	Nominal acquisition IOS00727 776 images	Nominal acquisition + occultation IOS00727 756 images	Nominal acquisition IOS00729 698 images	Nominal acquisition IOS00729 710 images

Special operations for SWAP, this week:
On 2017-Nov-14

- Bi-weekly calibration campaign

On 2017-11-17

- SWAP and LYRA parallel occultation campaign

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -2.89 and -0.49 °C.

4. PROBA2 Science Center Status

The main operator is Laurence Wauters.

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 25740 to 25804) 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 2017 Nov 13 00:00 UT and 2017 Nov 20 00:00 UT: 5204
Highest cadence in this period: 29 seconds
Average cadence in this period: 116.17 seconds
Number of image gaps larger than 300 seconds: 103
Largest data gap: 29.27 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
DAC	Data Acquisition Controller
DBR	Deployment, backup & recovery
DDA	Decommutated data archive
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)