P2SC-ROB-WR-816 - 20251110	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Nov 10 to Sun Nov 16, 2025 18 Nov 2025 Dana Talpeanu Marie Dominique	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

The level of solar activity[1] fluctuated between **low and high** this week.

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

	Monday 10 Nov	Tuesday 11 Nov	Wednesday 12 Nov	Thursday 13 Nov	Friday 14 Nov	Saturday 15 Nov	Sunday 16 Nov
Activity	high	high	low	low	high	low	moderate
Flares	**M1.5** **X1.2**	**X5.1** **M1.4**	-	-	**M1.3** **M1.3** **X4.0**	-	**M3.1**

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

Solar Activity

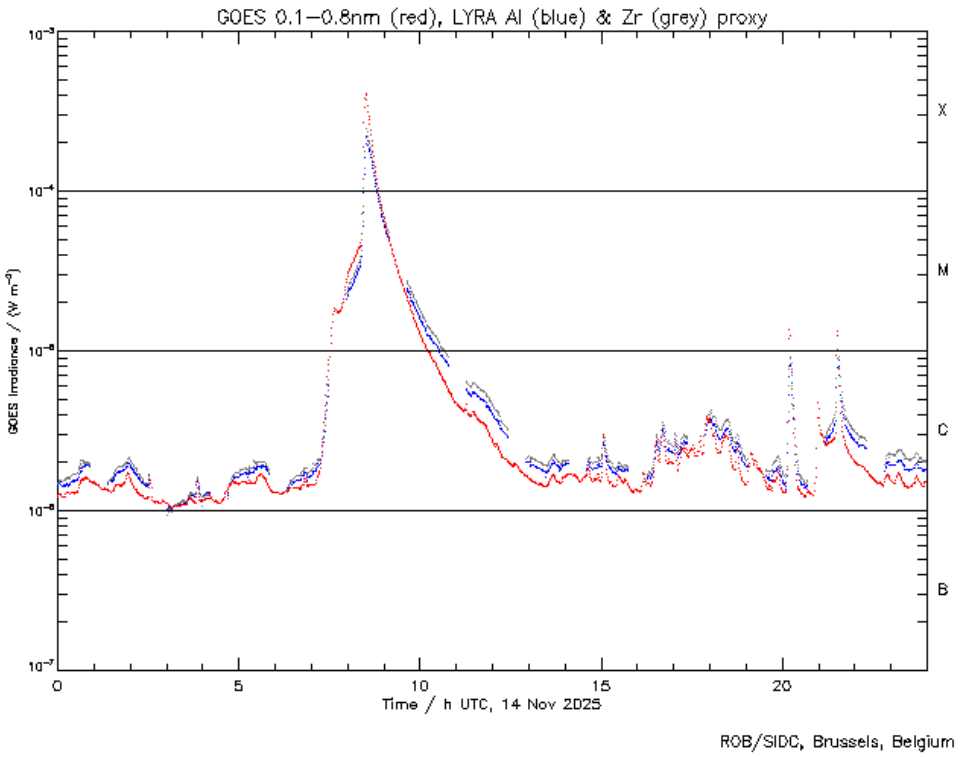
Solar flare activity fluctuated from low to high during the week.
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: https://proba2.oma.be/ssa
This page also lists the recorded flaring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

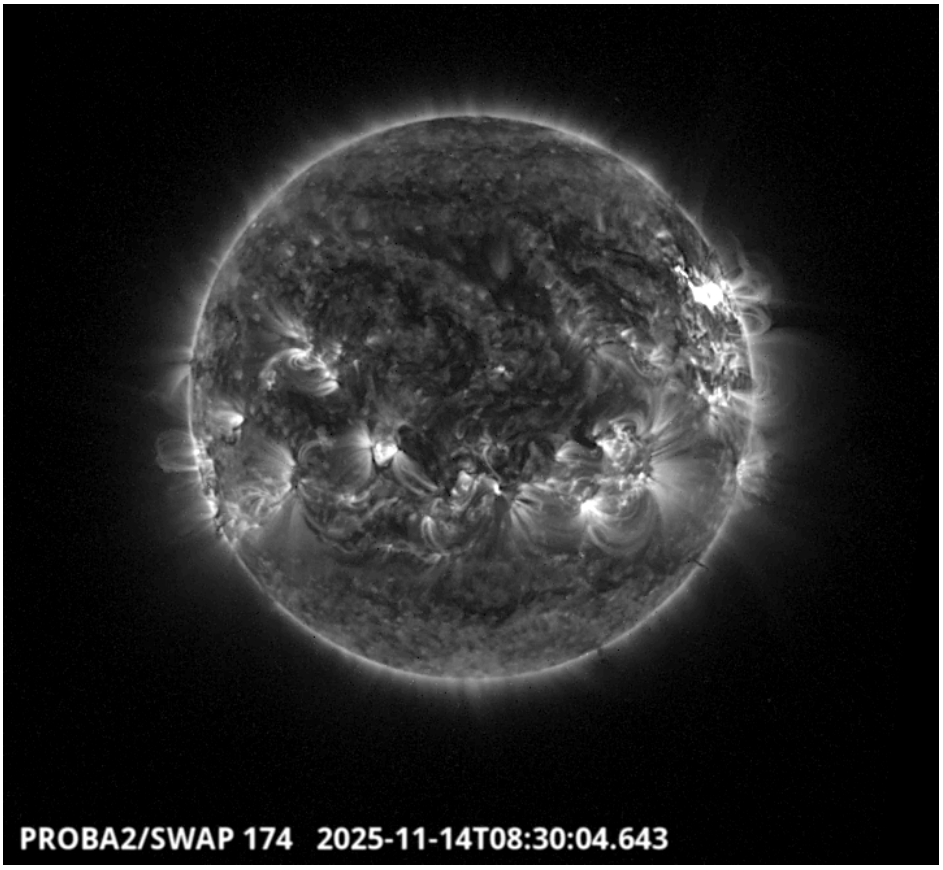
A weekly overview movie can be found here (SWAP week 816).

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

Friday Nov 14

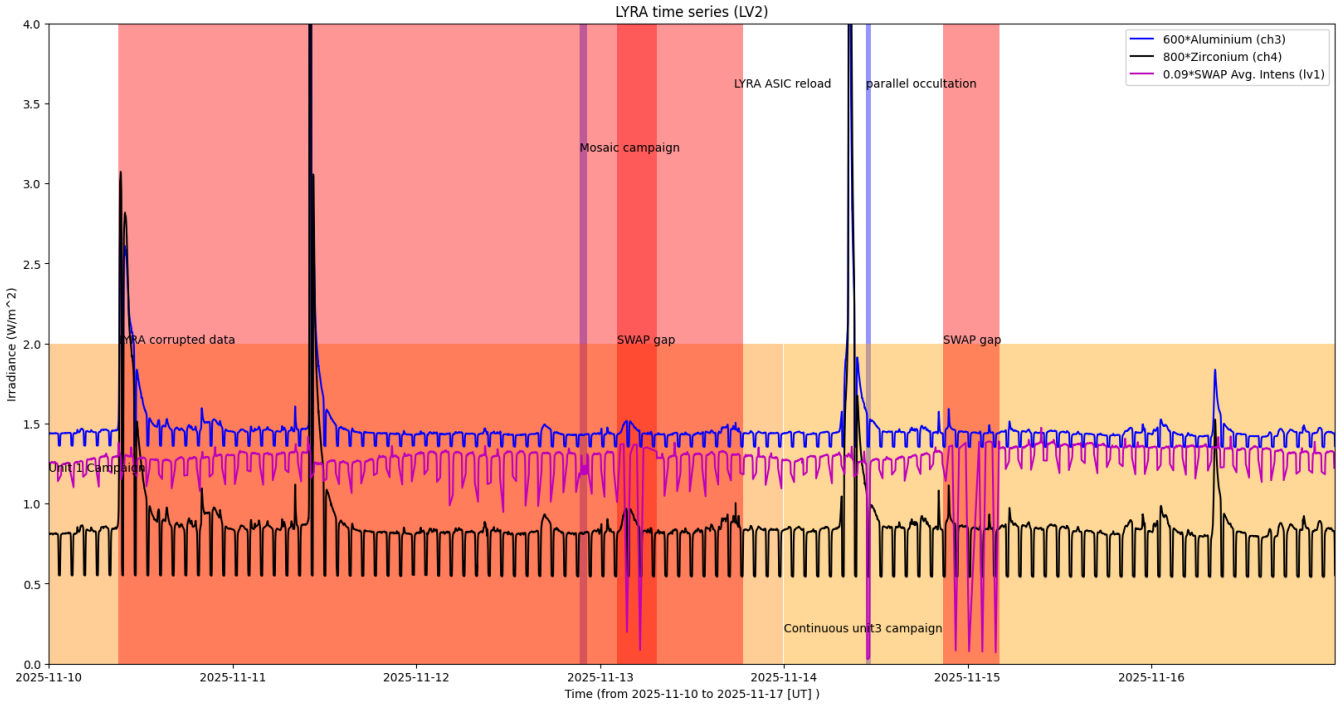




The largest flare of this week was an X5.1 on 2025-Nov-11, but the one that was reliably observed by LYRA (top panel) and by SWAP (bottom panel) was an X4.0. This second flare peaked on 2025-Nov-14 at 08:30 UT and occurred in the north-western quadrant of the Sun, originating from active region NOAA4274 (SIDC 687). Find a SWAP movie of the event here.

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)



Operations and Calibrations:

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

- SWAP mosaic, 2025-Nov-12
- SWAP parallel occultation, 2025-Nov-14

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

- Unit 1 flare campaign that started from the previous reporting period, until 2025-Nov-13 at 23:55 UT.
- Continuous unit 3 campaign, from 2025-Nov-14 at 00:00 UT until the end of the week

The red shaded periods related to other issues corresponds to:

- Corrupted time stamps onboard, therefore corrupted LYRA data between 2025-Nov-10 at 09:05 and 2025-Nov-13 at 17:30 UT; was corrected by the ASIC reload on 2025-Nov-13
- LYRA ASIC reload, on 2025-Nov-13 between 17:30 - 18:40 UT
- SWAP uncommanded very low cadence, and also observing during occultations, on 2025-Nov-13 between 02:13 - 07:23 UT, and on 14-15 Nov, between ~20:45-04:07 UT.

2. LYRA instrument status

IOS

Start IOS	Mon Nov 10 2025	LYIOS01211
End IOS	Sun Nov 16 2025	LYIOS01212

LYRA detector temperature

LYRA detector 2 temperature globally varied between 49.43 and 55.78 °C.

3. SWAP instrument status

MCPM errors
The number of MCPM recoverable errors increased from 11408 to 11919.
The number of MCPM unrecoverable errors remained at 0.

IOS

Start IOS	Mon Nov 10 2025	IOS01318
End IOS	Sun Nov 16 2025	IOS01322

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.73 and 3.67 °C.

4. PROBA2 Science Center Status

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 51966 to 52023) 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.
- SWAP uncommanded very low cadence, and also observing during occultations, on 2025-Nov-13 between 02:13 - 07:23 UT, and on 14-15 Nov, between ~20:45-04:07 UT.

Total number of images between 2025 Nov 10 00:00 UT and 2025 Nov 17 00:00 UT: 4150
Highest cadence in this period: 18 seconds
Average cadence in this period: 145.66 seconds
Number of image gaps larger than 300 seconds: 128
Largest data gap: 78.30 minutes

Data coverage LYRA

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

- None
- Corrupted time stamps onboard, therefore corrupted LYRA data between 2025-Nov-10 at 09:05 and 2025-Nov-13 at 17:30 UT; was corrected by the ASIC reload on 2025-Nov-13
- LYRA ASIC reload, on 2025-Nov-13 between 17:30 - 18:40 UT

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)