P2SC-ROB-WR-765 - 20241118	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Nov 18 to Sun Nov 24, 2024 27 Nov 2024 Laurence Wauters Marie Dominique	Royal Observatory of Belgium - PROBA2 Science Center
To:	LYRA PI, marie.dominique@sidc.be SWAP PI, elke.dhuys@sidc.be	https://proba2.sidc.be ++ 32 (0) 2 3730559
cc:	ROB DIR, ronald@oma.be ESA Redu, Rene.Wittmann@esa.int and Marcus.De.Deus.Silva@esa.int ESA D/SRE, Joe.Zender@esa.int ESA D/TEC, Juha-Pekka.Luntama@esa.int and Melanie.Heil@esa.int	

1. Science

Solar & Space weather events

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

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

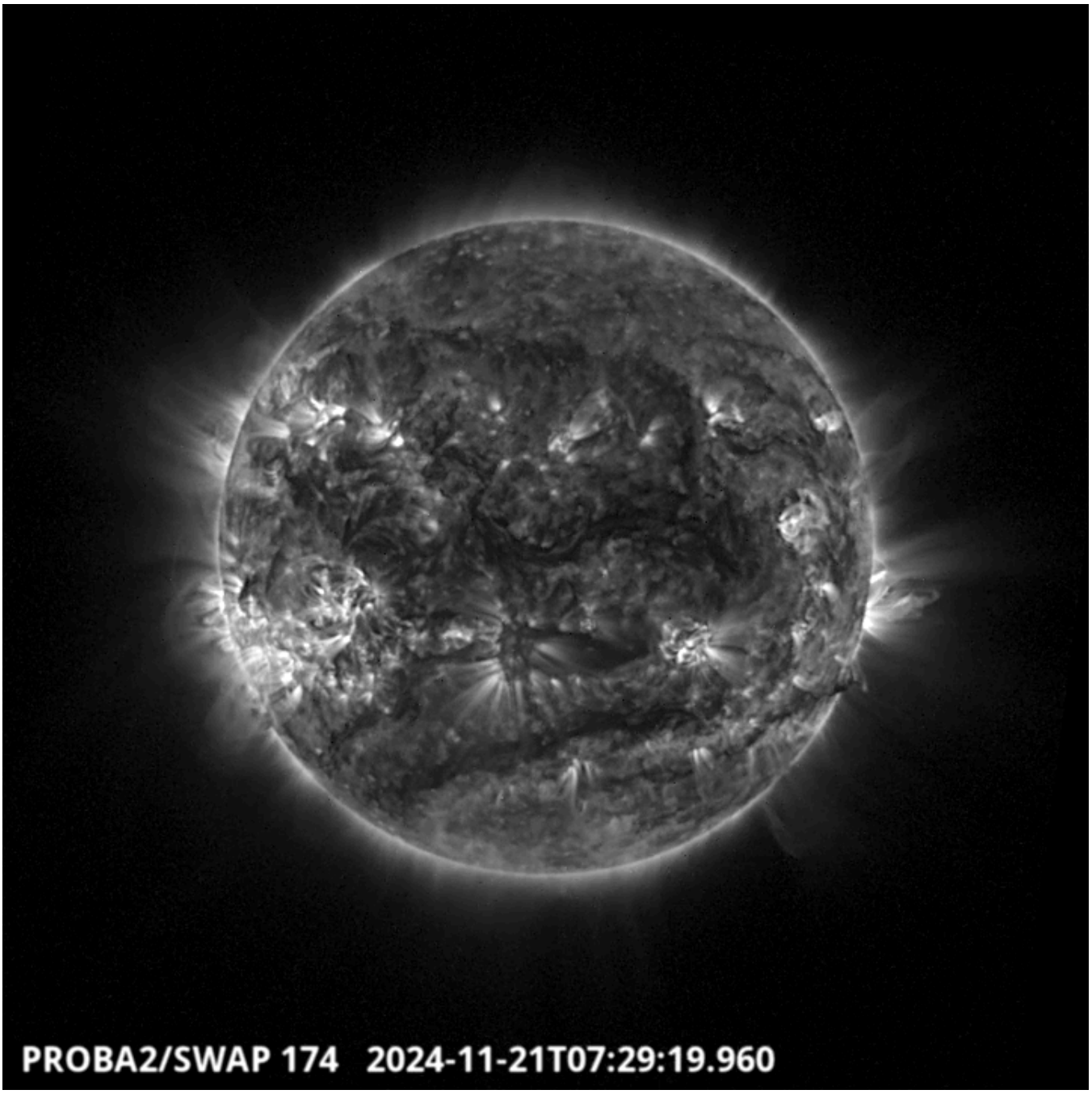
	Monday 18 Nov	Tuesday 19 Nov	Wednesday 20 Nov	Thursday 21 Nov	Friday 22 Nov	Saturday 23 Nov	Sunday 24 Nov
Activity	moderate	low	moderate	low	moderate	moderate	moderate
Flares	**M1.0, M1.7, M1.2,M2.5, M1.6, M1.5, M3.7, M1.8, M2.0**	-	**M1.1**	-	**M1.6, M1.0**	**2*M1.1**	**M1.1**

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

Solar Activity

Solar flare activity fluctuated from low to moderate during the week.
In order to view the activity of this week in more detail, we suggest going to the following website: https://proba2.oma.be/ssa (GOES data available).
This page also lists the recorded flaring events.

Thursday Nov 21

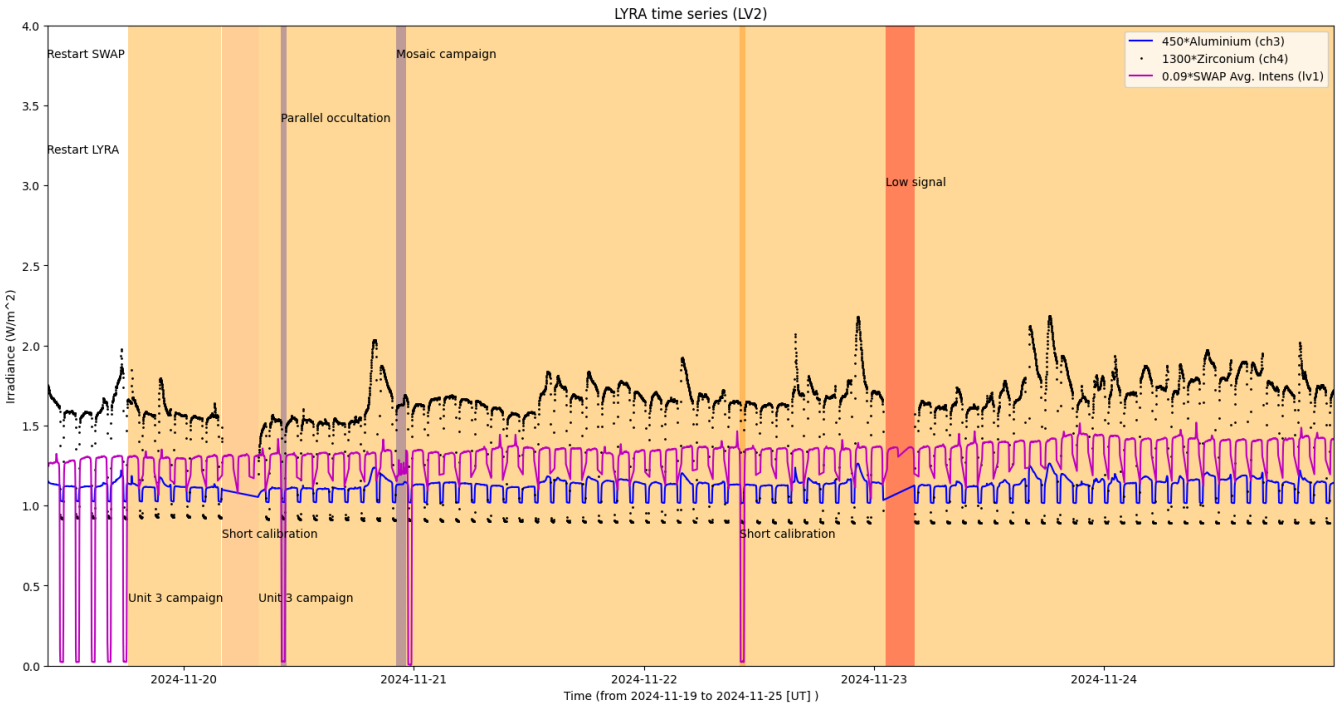


A long filament was present in the South-West part of the solar disk from Nov 19 (no SWAP images before) until Nov 24.

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 parallel occultation, 2024-Nov-20 at 10:04:40 UT
- SWAP mosaïc campaign, 2024-Nov-20 at 22:11 UT

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

- LYRA unit 3 campaign, 2024-Nov-19 at 18:10 UT
- LYRA short calibration, 2024-Nov-20 at 4:00 UT
- LYRA Unit 3 continuous campaign, 2024-Nov-20 at 7:46 UT

The red shaded periods related to other issues corresponds to:

- Monday Nov 18: P2SC came back to its nominal mode at 23:43:30, SWAP started taking observations on 2024-11-19 at 09:51 UT and LYRA started acquiring data on 2024-11-19 at 09:49 UT.
- On Saturday Nov 23: Data gap during pass 48874 due to the bad signal. It results in an HK gap from 2:49 UT until 3:45 UT, a SWAP gap from 2:31 UT until 3:00 UT, and a problem in the processing of all LYRA data downloaded during that pass.

2. LYRA instrument status

IOS

Start IOS	Mon **Nov 19** 2024	LYIOS01132->LYIOS01133
End IOS	Sun Nov 24 2024	LYIOS01133

LYRA detector temperature

LYRA detector 2 temperature globally varied between 40.51 and 48.68 °C.

3. SWAP instrument status

MCPM errors
The number of MCPM recoverable errors increased from 0 to 66.
The number of MCPM unrecoverable errors remained at 0.

IOS

Start IOS	Mon **Nov 19** 2024	IOS01237->IOS01238
End IOS	Sun Nov 24 2024	IOS01239

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -7.13 and -0.73 °C.

4. PROBA2 Science Center Status

On Monday Nov 18, P2SC came back from SAFE mode to his nominal mode at 23:43:30 UT.

The following changes were made to the P2SC:

- Revision 5527: A REDU server IP address has been changed with DNS name, it had impact on PP_proc, PTI_SW and PTI_LY tools.

5. Data reception & discussions with MOC

Passes

The delivery of the passes for from Tuesday Nov 19 ~ 9:50UT (passes 48842 to 48890) was nominal, except for:

No data before pass 48842 due to instrument in OFF mode link to PROBA2 issue.

Data coverage HK

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

- None.
- HK gap 48874

Data coverage SWAP

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

- None.
- SWAP data gap 48874

Total number of images between 2024 Nov 19 00:00 UT and 2024 Nov 25 00:00 UT: 3945
Highest cadence in this period: 18 seconds
Average cadence in this period: 122.43 seconds
Number of image gaps larger than 300 seconds: 81
Largest data gap: 29.42 minutes

Data coverage LYRA

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

- None
- LYRA data gap 48874

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)