


P2SC-ROB-WR-745 - 20240701	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Jul 01 to Sun Jul 07, 2024 11 Jul 2024 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 activity¹ 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 01 Jul	Tuesday 02 Jul	Wednesday 03 Jul	Thursday 04 Jul	Friday 05 Jul	Saturday 06 Jul	Sunday 07 Jul
Activity	moderate	low	moderate	moderate	low	moderate	moderate
Flares	M2.1	-	M1.5	M1.4 M1.0	-	M1.0	M2.4 M1.4 M1.1 M1.3 M1.0

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 to go to the following website from which all the daily (normal and difference) movies can be accessed: <https://proba2.oma.be/ssa>

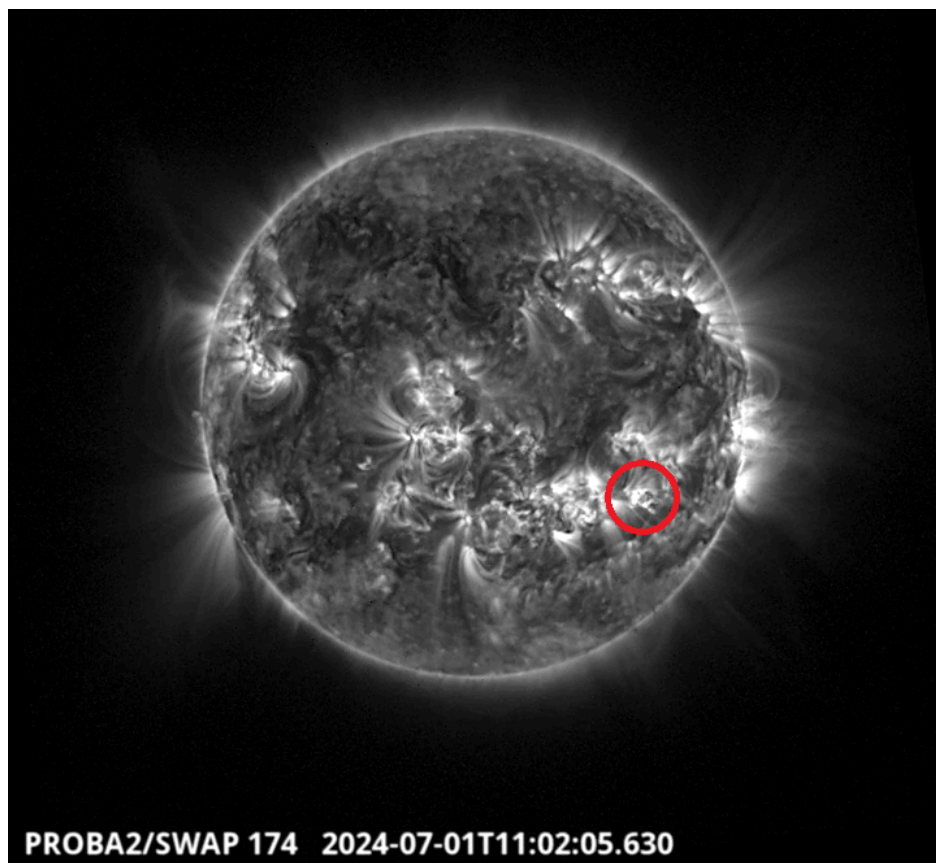
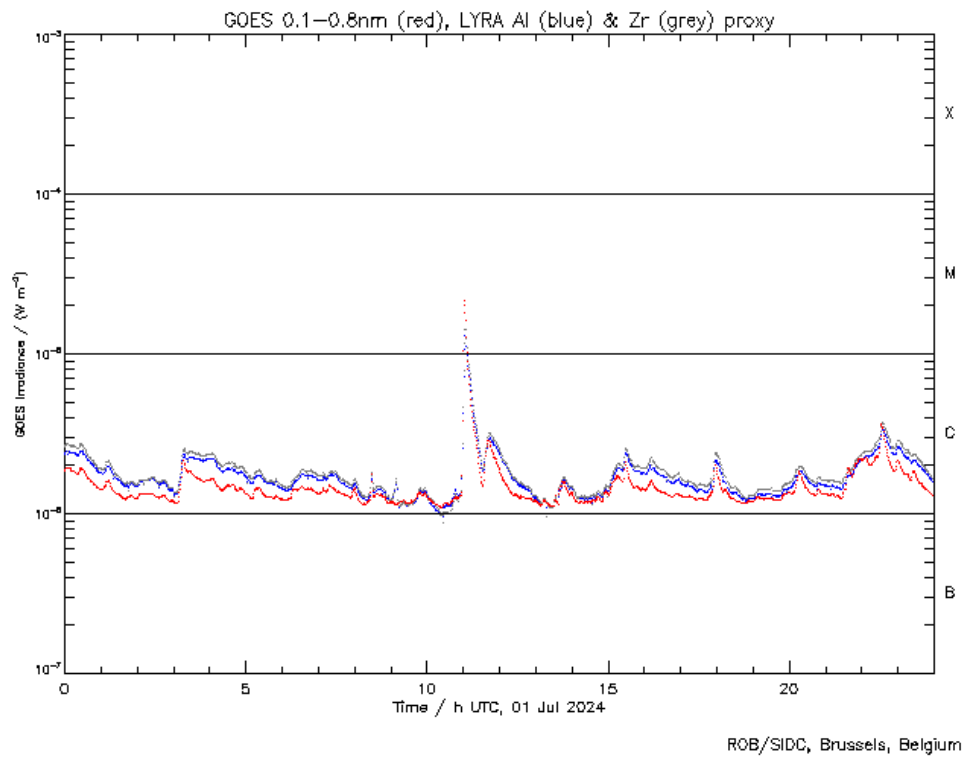
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 745).

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 Jul 01



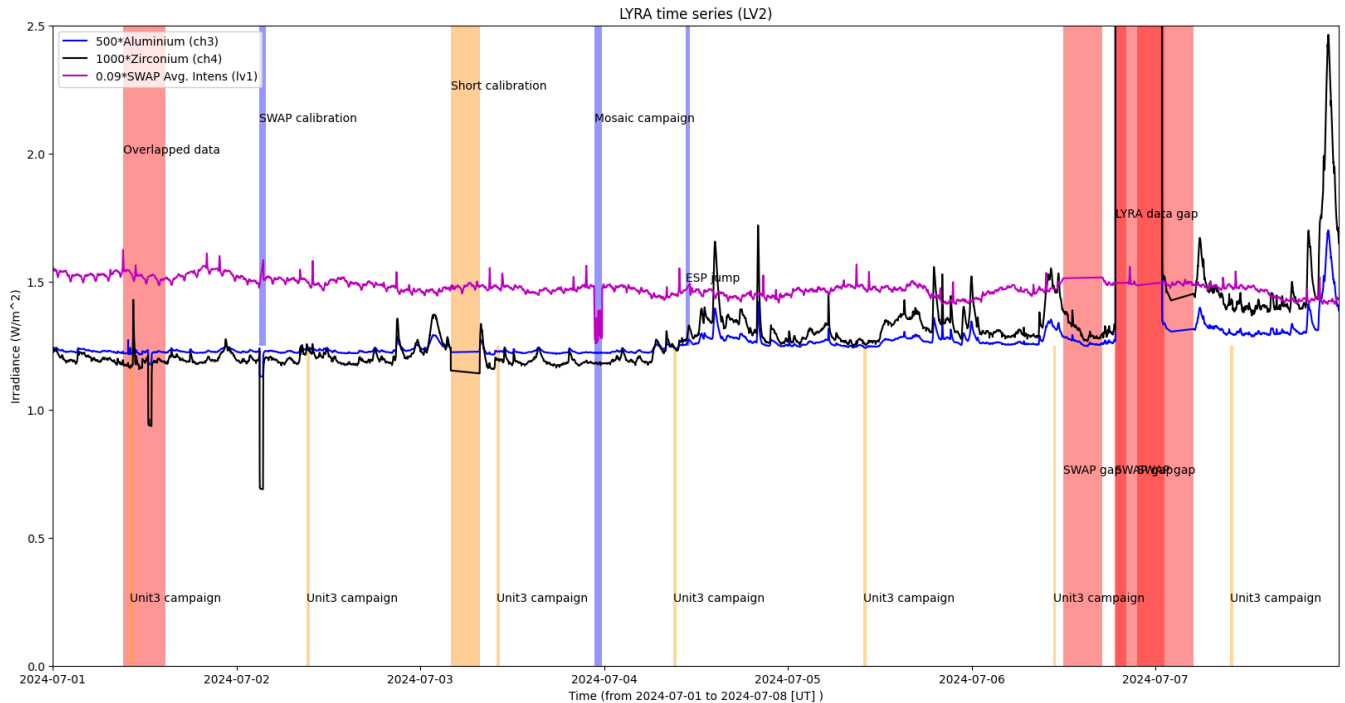
The largest flare of this week with a clear source region was an M2.1, and it was observed by LYRA (top panel) and SWAP (bottom panel). The flare peaked on 2024-Jul-01 at 11:02 UT. It originated from NOAA AR3730 encircled in red and was associated with a narrow CME.

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:

- Bi-weekly calibration, 2024-Jul-02
- Mosaic campaign, 2024-Jul-03
- ESP jump, 2024-Jul-04

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

- Daily Unit 3 campaign, 2024-Jul-01
- Daily Unit 3 campaign, 2024-Jul-02
- Short calibration, 2024-Jul-03
- Daily Unit 3 campaign, 2024-Jul-03
- Daily Unit 3 campaign, 2024-Jul-04
- Daily Unit 3 campaign, 2024-Jul-05
- Daily Unit 3 campaign, 2024-Jul-06
- Daily Unit 3 campaign, 2024-Jul-07

The red shaded periods related to other issues corresponds to:

- overlapped LYRA data on 2024-Jul-01 between 09:12 - 14:40 UT due to re-extraction of LYRA_AD from pass 47598 of July 2 (data was re-calibrated and added in the past)
- LYRA data gap on 2024-Jul-06 and 2024-Jul-07, between 18:46 - 04:57 UT
- SWAP data gaps on 2024-Jul-06 and 2024-Jul-07, between: 11:57:36 - 17:01:56, 18:42:46 - 20:12:36, 21:35:06 - 01:11:27 UT

2. LYRA instrument status

IOS

Start IOS	Mon Jul 01 2024	LYIOS01094
End IOS	Sun Jul 07 2024	LYIOS01094

LYRA detector temperature

LYRA detector 2 temperature globally varied between 47.51 and 49.9 °C.

3. SWAP instrument status

MCPM errors

The number of MCPM recoverable errors increased from 59908 to 59988.

The number of MCPM unrecoverable errors remained at 3135.

IOS

Start IOS	Mon Jul 01 2024	IOS01207
End IOS	Sun Jul 07 2024	IOS01208

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.05 and -0.01 °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 47588 to 47645) was nominal, except for:

- 47598
- 47634, 47635, 47637, 47638, 47639, due to failure of the primary Svalbard antenna, and problems with the redundant one

Data coverage HK

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

- None.
- all the above affected passes were re-extracted or re-dumped, but not all were successful, resulting in HK data gap between 21:56 (2024-Jul-06) - 01:00 (2024-Jul-07)

Data coverage SWAP

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

- passes 47634, 47635, 47637, 47638, resulting in data gaps on 2024-Jul-06 between 11:57:36 - 17:01:56, 18:42:46 - 20:12:36, 21:35:06 - 01:11:27 (2024-Jul-07).

Total number of images between 2024 Jul 01 00:00 UT and 2024 Jul 08 00:00 UT: 3967

Highest cadence in this period: 18 seconds

Average cadence in this period: 152.48 seconds

Number of image gaps larger than 300 seconds: 239

Largest data gap: 304.33 minutes

Data coverage LYRA

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

- overlapped LYRA data on 2024-Jul-01 between 09:12 - 14:40 UT due to re-extraction of pass 47598 of July 2 (data was re-calibrated and added in the past)
- passes 47634, 47635, 47637, 47638, resulting in LYRA data gap on 2024-Jul-06 between 18:46 - 04:57 (2024-Jul-07)

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)