P2SC-ROB-WR-695 - 20230717	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Jul 17 to Sun Jul 23, 2023 26 Jul 2023 Laurence Wauters 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 moderate** this week.

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

	Monday 17 Jul	Tuesday 18 Jul	Wednesday 19 Jul	Thursday 20 Jul	Friday 21 Jul	Saturday 22 Jul	Sunday 23 Jul
Activity	moderate	moderate	moderate	low	low	moderate	low
Flares	**M5.7, M5.0, M2.7**	**M2.1, M1.4, M1.3, M1.5**	**M3.8, M3.7, M1.4, M1.3**	-	-	**M1.0, M3.1**	-

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

Solar Activity

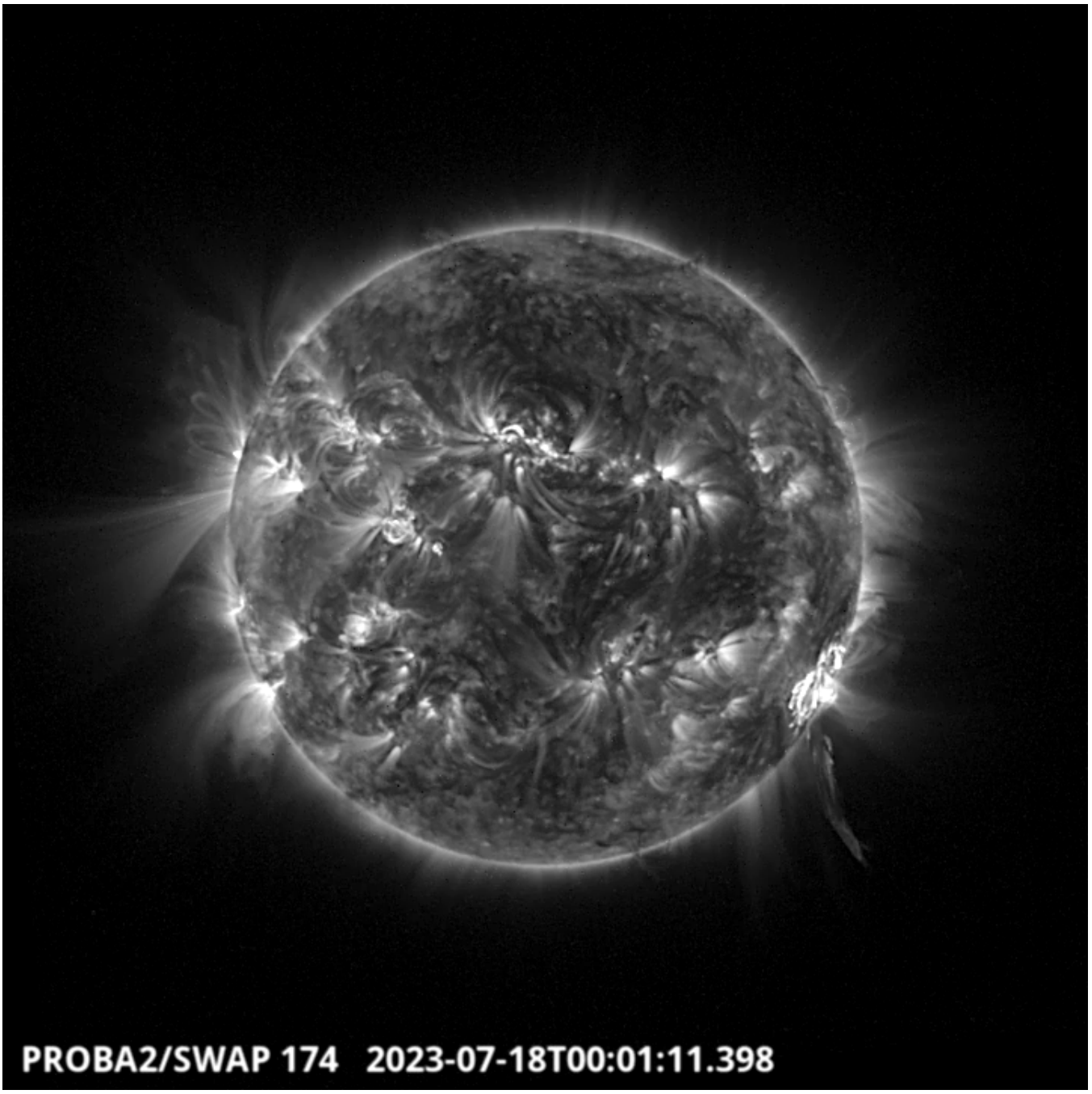
Solar flare activity fluctuated from low to moderate during the week.
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: https://proba2.oma.be/ssa
This page also lists the recorded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

A weekly overview movie can be found here (SWAP week 695).

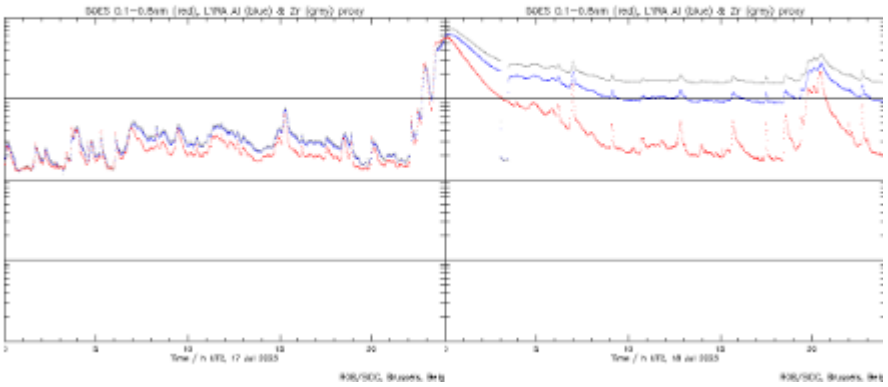
Details about some of this week's events can be found further below.

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

Tuesday Jul 18



2023-07-17 | 2023-07-18

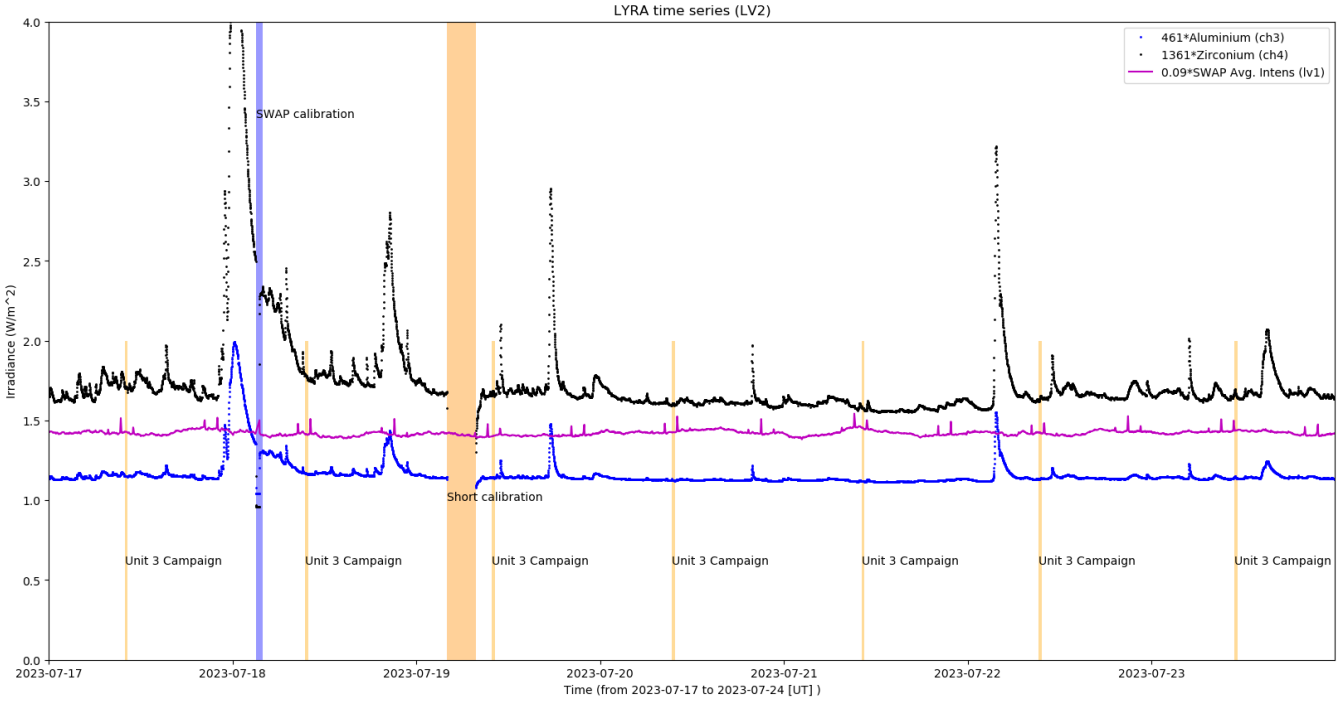


The largest flare of the week, a M5.7 flare, was produced by the active region NOAA 3363, which has been very eruptive for several days. It is visible on the LYRA timeseries and on the SWAP image around 00:01 UT on the South West part of the solar disk. The flare was followed by a CME.

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, 2023-Jul-18

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

- Daily Unit3 campaign, 2023-Jul-17
- Daily Unit3 campaign, 2023-Jul-18
- Daily Unit3 campaign, 2023-Jul-19
- Short calibration, 2023-Jul-19
- Daily Unit3 campaign, 2023-Jul-20
- Daily Unit3 campaign, 2023-Jul-21
- Daily Unit3 campaign, 2023-Jul-22
- Daily Unit3 campaign, 2023-Jul-23

The red shaded periods related to other issues corresponds to:

- None

2. LYRA instrument status

IOS

Start IOS	Mon Jul 17 2023	LYIOS01023
End IOS	Sun Jul 23 2023	LYIOS01024

LYRA detector temperature

LYRA detector 2 temperature globally varied between 47.47 and 49.78 °C.

3. SWAP instrument status

MCPM errors
The number of MCPM recoverable errors increased from 44931 to 45068.
The number of MCPM unrecoverable errors remained at 3135.

IOS

Start IOS	Mon Jul 17 2023	IOS01129
End IOS	Sun Jul 23 2023	IOS01129

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.97 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 44609 to 44668) 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 2023 Jul 17 00:00 UT and 2023 Jul 24 00:00 UT: 4029
Highest cadence in this period: 30 seconds
Average cadence in this period: 150.13 seconds
Number of image gaps larger than 300 seconds: 231
Largest data gap: 11.00 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)