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| P2SC-ROB-WR-583 - 20210524 | P2SC Weekly report |  |
| Period covered: Date: Written by: Approved by: | Mon May 24 to Sun May 30, 2021 02 Jun 2021 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 activity¹ fluctuated between **very low and low** this week.

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

| | Monday 24 May | Tuesday 25 May | Wednesday 26 May | Thursday 27 May | Friday 28 May | Saturday 29 May | Sunday 30 May |
|----------|------------------|-------------------|---------------------|--------------------|------------------|--------------------|------------------|
| Activity | very low | very low | low | low | low | low | very low |
| Flares | - | - | - | - | - | - | - |

¹ See appendix. All timings are given in UT.

Solar Activity

Solar flare activity fluctuated from very low to 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: <https://proba2.oma.be/ssa>

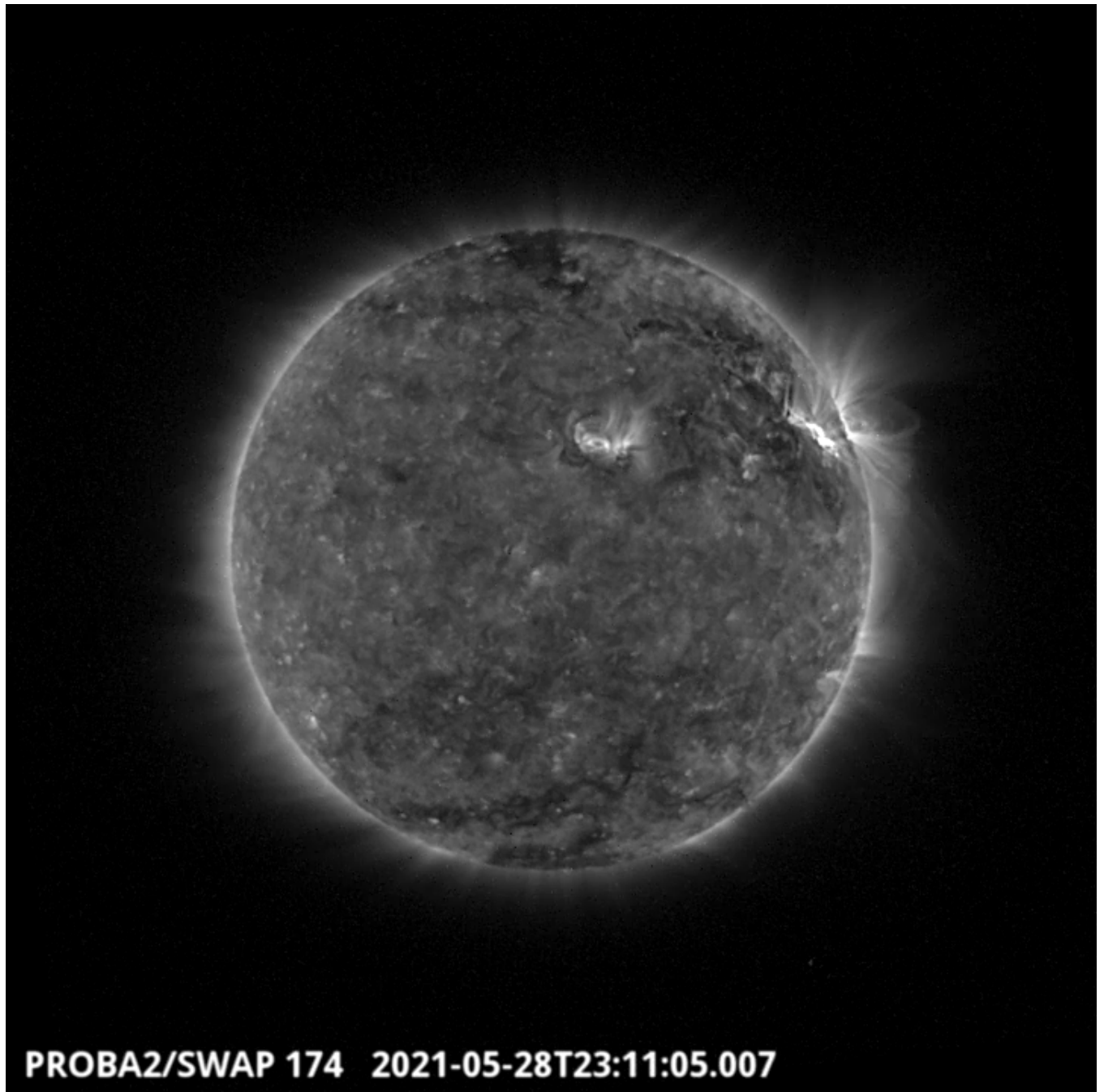
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 583).

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 May 28



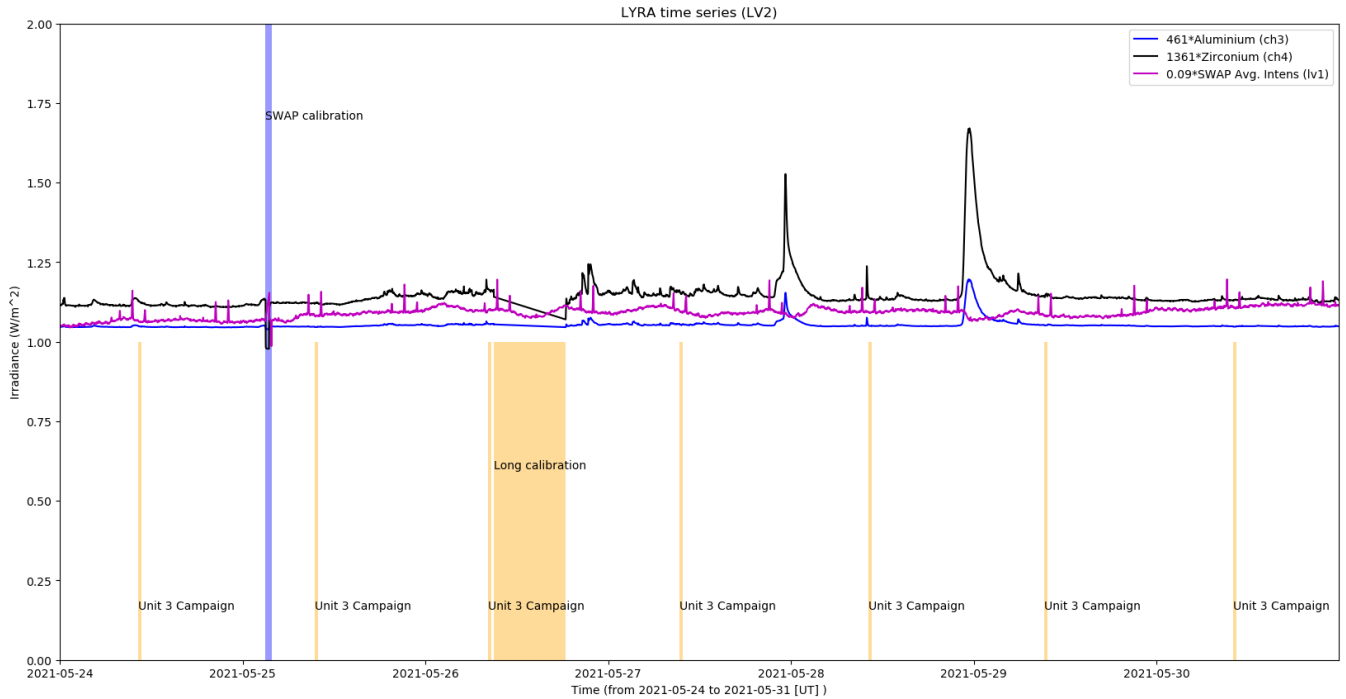
Flows are visible on the North-West part of the solar disk around 23:11 UT on the SWAP image above. They correspond to the biggest event of the week, a C9.4 flare produced by the NOAA active region 2824.

Find a movie of the events [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)



Operations and Calibrations:

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

- Bi-weekly calibration, 2021-May-25

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

- Daily Unit 3 campaign, 2021-May-24
- Daily Unit 3 campaign, 2021-May-25
- Daily Unit 3 campaign, 2021-May-26
- Long calibration, 2021-May-26
- Daily Unit 3 campaign, 2021-May-27
- Daily Unit 3 campaign, 2021-May-28
- Daily Unit 3 campaign, 2021-May-29
- Daily Unit 3 campaign, 2021-May-30

The red shaded periods related to other issues corresponds to:

- None

2. LYRA instrument status

IOS

| | | |
|-----------|-----------------|------------|
| Start IOS | Mon May 24 2021 | LYIOS00888 |
| End IOS | Sun May 30 2021 | LYIOS00890 |

LYRA detector temperature

LYRA detector 2 temperature globally varied between 47.78 and 49.86 °C.

3. SWAP instrument status

MCPM errors

The number of MCPM recoverable errors increased from 18806 to 19025.

The number of MCPM unrecoverable errors remained at 3135.

IOS

| | | |
|-----------|-----------------|----------|
| Start IOS | Mon May 24 2021 | IOS00978 |
| End IOS | Sun May 30 2021 | IOS00979 |

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.97 and 0.31 °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 37687 to 37748) 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 2021 May 24 00:00 UT and 2021 May 31 00:00 UT: 4529

Highest cadence in this period: 30 seconds

Average cadence in this period: 133.54 seconds

Number of image gaps larger than 300 seconds: 155

Largest data gap: 14.67 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)