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|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| P2SC-ROB-WR-827<br>- 20260126                               | <b>P2SC Weekly report</b>                                                                                                                                                                              |  |
| Period covered:<br>Date:<br><br>Written by:<br>Approved by: | Mon Jan 26 to Sun Feb 01, 2026<br>03 Feb 2026<br><br>Laurence Wauters<br>Marie Dominique                                                                                                               | Royal Observatory of<br>Belgium<br>-<br>PROBA2 Science<br>Center                    |
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## 1. Science

### Solar & Space weather events

The level of solar activity<sup>1</sup> 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<br>26 Jan | Tuesday<br>27 Jan | Wednesday<br>28 Jan | Thursday<br>29 Jan | Friday<br>30Jan | Saturday<br>31 Jan | Sunday<br>01 Feb                                                                                                                            |
|----------|------------------|-------------------|---------------------|--------------------|-----------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Activity | low              | low               | low                 | low                | low             | low                | very low                                                                                                                                    |
| Flares   | -                | -                 | -                   | -                  | -               | -                  | <b>X8.1, M1.3, M2.2,<br/>M1.8, M1.9, M2.1,<br/>M2.5, M1.1, M5.1,<br/>2*M1.5, M5.8,<br/>X1.0, M6.7, M2.4,<br/>M6.6, M1.9, M1.0,<br/>M1.7</b> |

<sup>1</sup> 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>

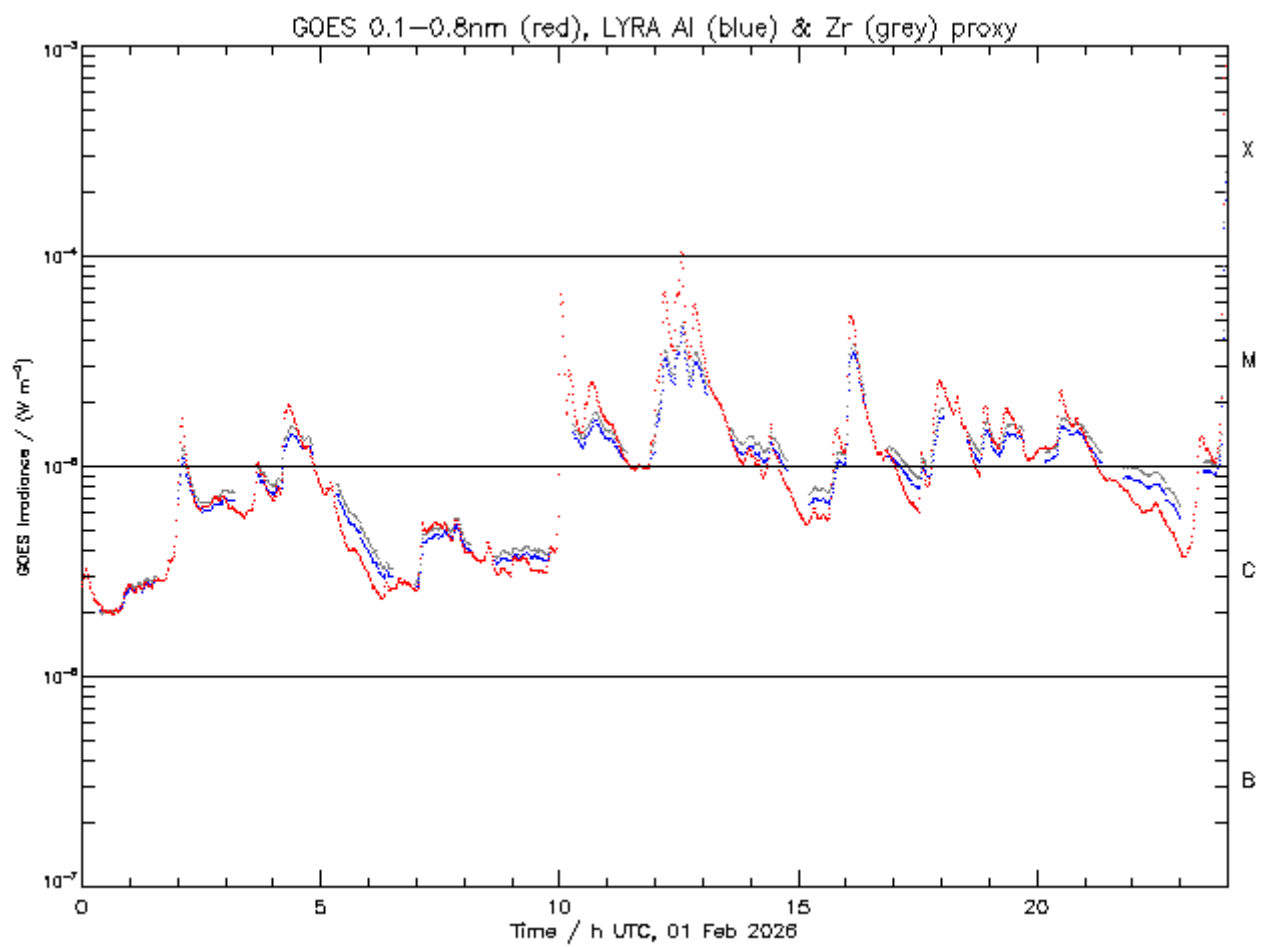
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 827).

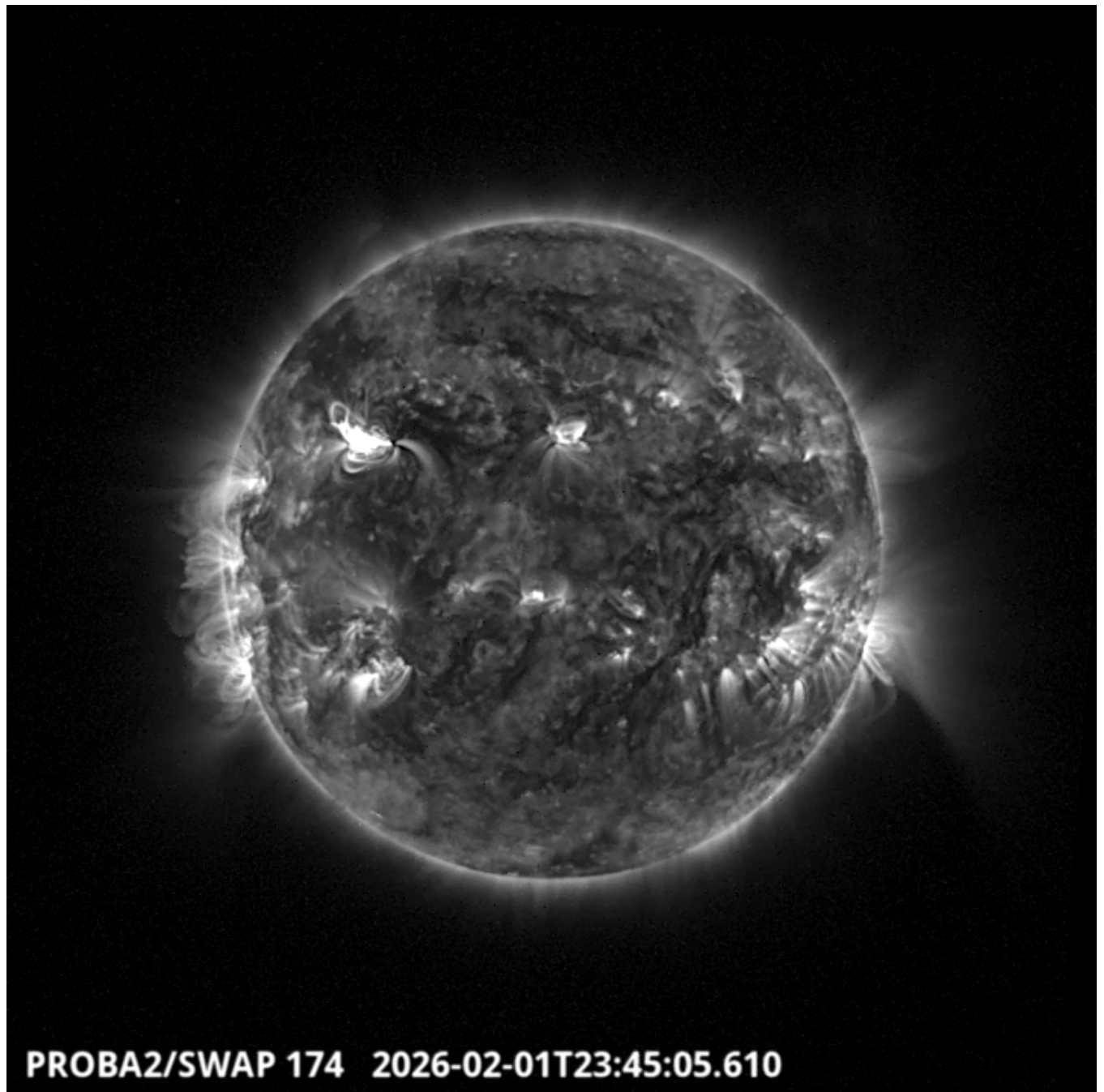
Details about some of this week's events can be found further below.

If any of the linked movies are unavailable they can be found in the P2SC movie repository [here](#)

Sunday Feb 01



ROB/SIDC, Brussels, Belgium



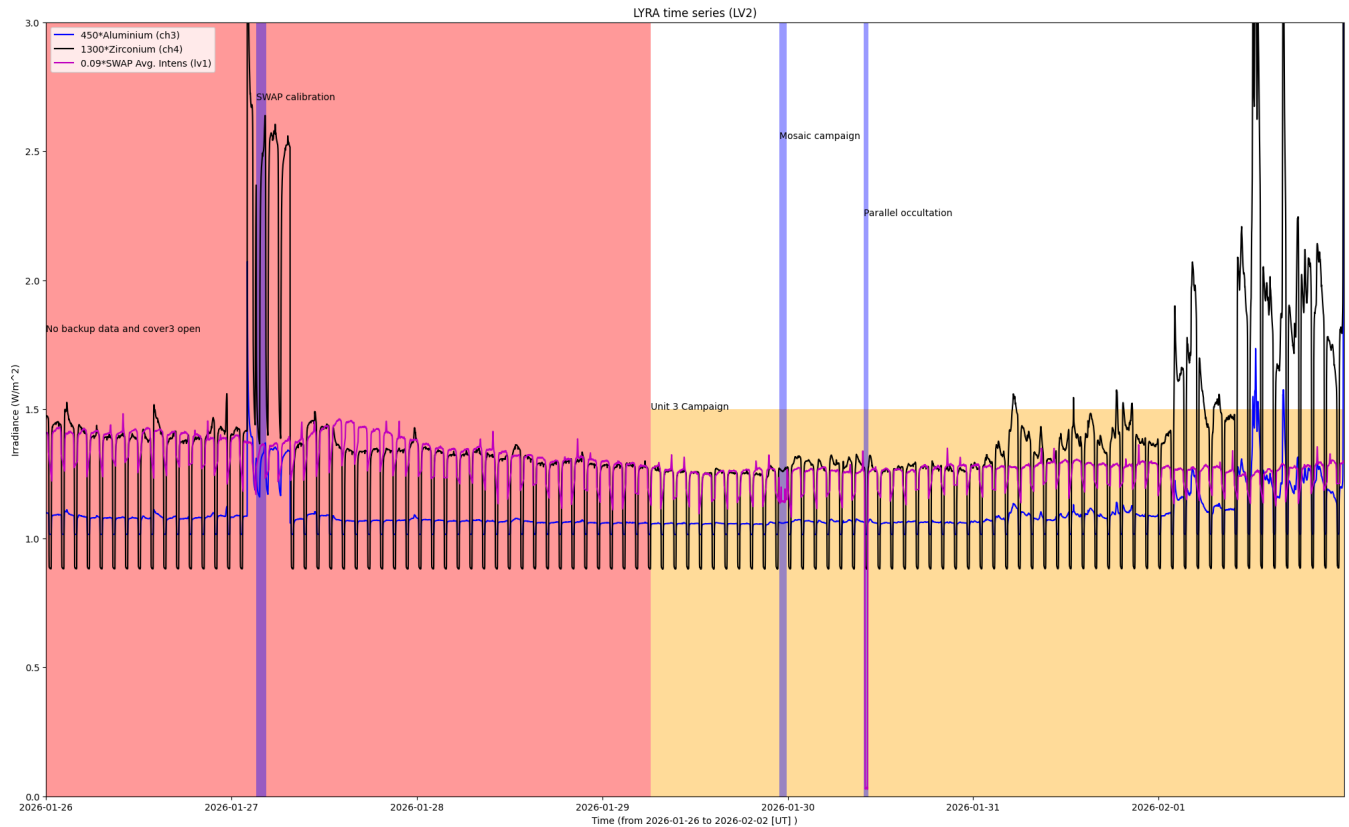
The highest flare of the numerous flares of this day was an X8.1, and it was observed by LYRA (top panel) and SWAP (bottom panel). The flare peaked on 2026-Feb-01 at 23:57 UT and occurred in the North East part of the solar disc, originating from active region NOAA4366 (SIDC 784).

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 calibration, 2026-Jan-27
- Mosaic campaign, 2026-Jan 29
- SWAP parallel occultation, 2026-01-30

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

- Restart Unit 3 continuous campaign, 2026-Jan-29

The red shaded periods related to other issues corresponds to:

- No backup Unit 3 data and cover 3 open, 2026-Jan-26 until 2026-Jan-29.  
This was due to bad commands in LYIOS.

**2. LYRA instrument status**

**IOS**

|           |                 |            |
|-----------|-----------------|------------|
| Start IOS | Mon Jan 26 2026 | LYIOS01223 |
| End IOS   | Sun Feb 01 2026 | LYIOS01225 |

**LYRA detector temperature**

LYRA detector 2 temperature globally varied between 46.38 and 52.71 °C.

### 3. SWAP instrument status

**MCPM errors**

The number of MCPM recoverable errors increased from 14302 to 14588.

The number of MCPM unrecoverable errors remained at 0.

**IOS**

|           |                 |          |
|-----------|-----------------|----------|
| Start IOS | Mon Jan 26 2026 | IOS01356 |
| End IOS   | Sun Feb 01 2026 | IOS01358 |

**SWAP detector temperature**

The SWAP Cold Finger Temperature globally varied between -1.93 and 1.59 °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 52622 to 52681) 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 2026 Jan 26 00:00 UT and 2026 Feb 02 00:00 UT: 4645

Highest cadence in this period: 18 seconds

Average cadence in this period: 130.17 seconds

Number of image gaps larger than 300 seconds: 128

Largest data gap: 27.42 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)