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| P2SC-ROB-WR-490<br>-20190812                                | <b>P2SC Weekly report</b>   |  |
| Period covered:<br>Date:<br><br>Written by:<br>Approved by: | Mon Aug 12 to Sun Aug 18, 2019<br>19 Aug 2019<br><br>Jennifer O'Hara<br>Matthew West  | Royal Observatory<br>of 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> remained **very low** this week.

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

|          | Monday<br>12 Aug | Tuesday<br>13 Aug | Wednesday<br>14 Aug | Thursday<br>15 Aug | Friday<br>16 Aug | Saturday<br>17 Aug | Sunday<br>18 Aug |
|----------|------------------|-------------------|---------------------|--------------------|------------------|--------------------|------------------|
| Activity | very low         | very low          | very low            | very low           | very low         | very low           | very low         |
| Flares   | -                | -                 | -                   | -                  | -                | -                  | -                |

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<sup>1</sup> See appendix. All timings are given in UT.

## Solar Activity

Solar flare activity remained very 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: <http://proba2.oma.be/ssa>

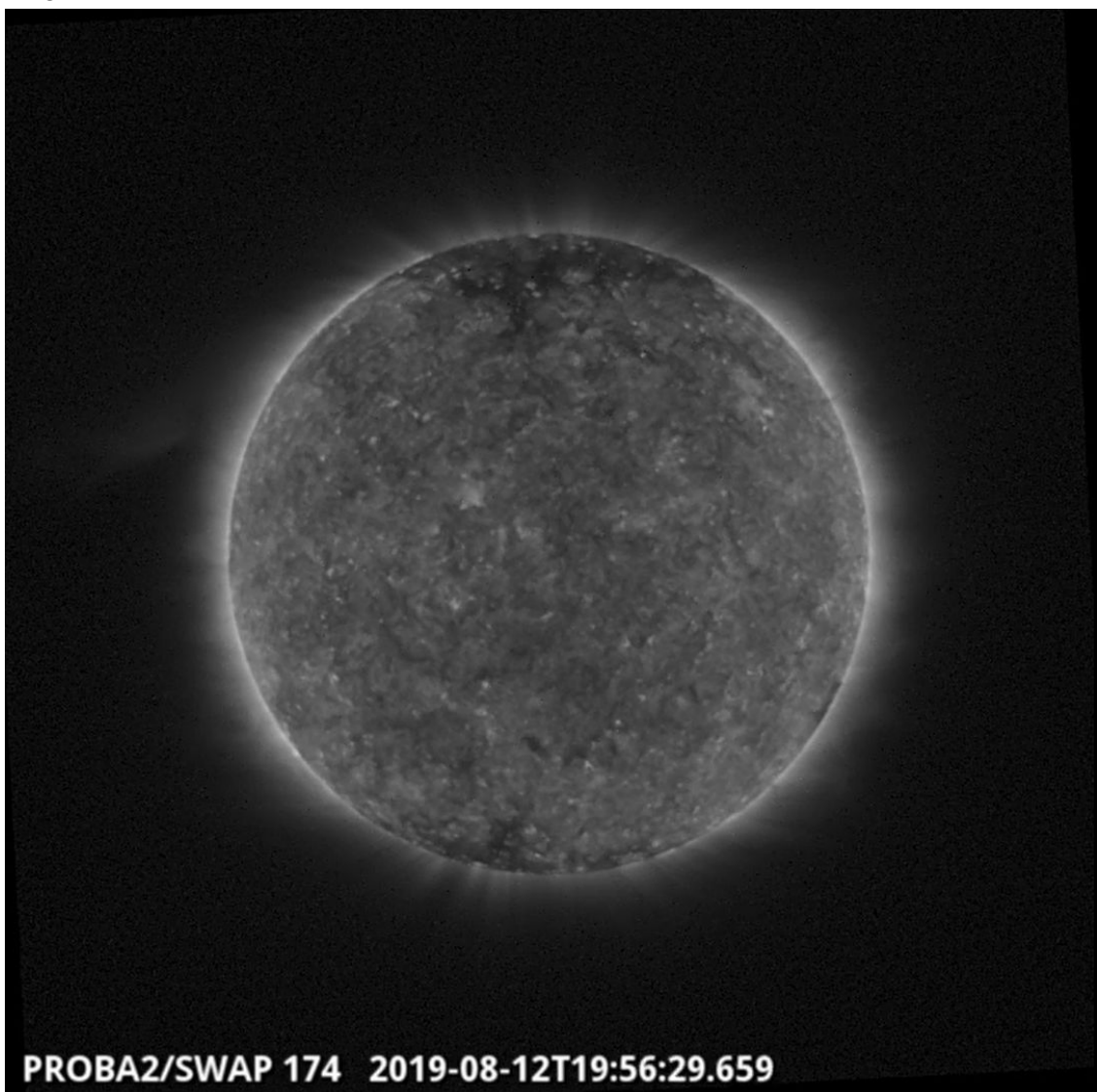
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 490).

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 Aug 12



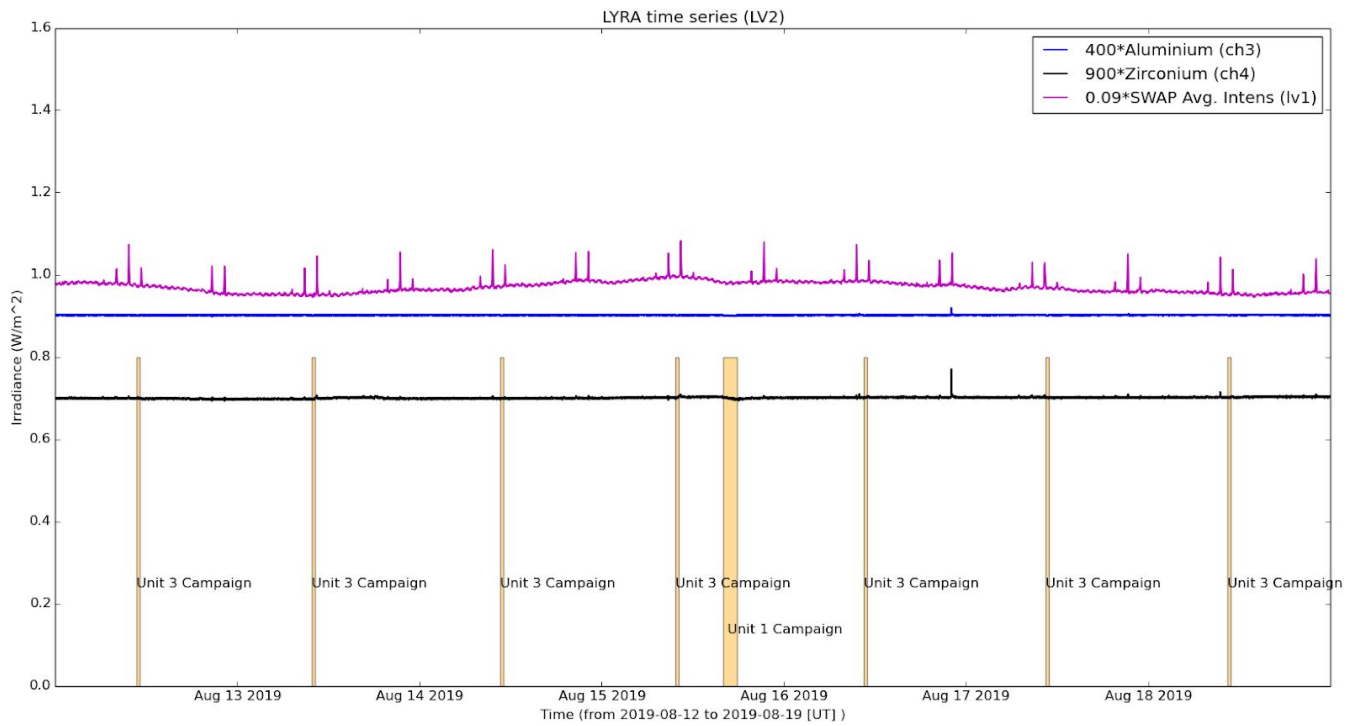
**An eruption, originating from the backside of the Sun, was observed by SWAP on 2019-Aug-12 and is shown emerging over the east solar limb in the SWAP image above taken at 19:56 UT.**

Find a movie of the event [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:

- None

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

- Daily Unit 3 campaign, 2019-Aug-12
- Daily Unit 3 campaign, 2019-Aug-13
- Daily Unit 3 campaign, 2019-Aug-14
- Daily Unit 3 campaign, 2019-Aug-15
- Monthly Unit 1 campaign, 2019-Aug-15
- Daily Unit 3 campaign, 2019-Aug-16
- Daily Unit 3 campaign, 2019-Aug-17
- Daily Unit 3 campaign, 2019-Aug-18

The red shaded periods related to other issues corresponds to:

- None

## 2. LYRA instrument status

### IOS

|           |                 |            |
|-----------|-----------------|------------|
| Start IOS | Mon Aug 12 2019 | LYIOS00795 |
| End IOS   | Sun Aug 18 2019 | LYIOS00796 |

### LYRA detector temperature

LYRA detector 2 temperature globally varied between 48.39 and 50.22°C.

### 3. SWAP instrument status

#### MCPM errors

The number of MCPM recoverable errors increased from 3549 to 3565.

The number of MCPM unrecoverable errors remained at 0.

#### IOS

|           |                 |          |
|-----------|-----------------|----------|
| Start IOS | Mon Aug 12 2019 | IOS00859 |
| End IOS   | Sun Aug 18 2019 | IOS00860 |

#### SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.37 and -0.41 °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 31697 to 31760) 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 2019 Aug 12 00:00 UT and 2019 Aug 19 00:00 UT: 4803

Highest cadence in this period: 110 seconds

Average cadence in this period: 125.87 seconds

Number of image gaps larger than 300 seconds: 118

Largest data gap: 25.67 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)