


P2SC-ROB-WR-439 - 20180820 Weekly report #439	<b>P2SC Weekly report</b>	
Period covered: Date:  Written by: Approved by:	Mon Aug 20 to Sun Aug 26, 2018 30 Aug 2018  Laurence Wauters Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
To:	LYRA PI, marie.dominique@sidc.be SWAP PI, david.berghmans@sidc.be	<a href="http://proba2.sidc.be">http://proba2.sidc.be</a> ++ 32 (0) 2 3730559
cc:	ROB DIR, ronald@oma.be ESA Redu, Etienne.Tilmans@esa.int ESA D/SRE, Joe.Zender@esa.int ESA D/TEC, Juha-Pekka.Luntama@esa.int	

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## 1. Science

### Solar & Space weather events

The level of solar activity<sup>1</sup> was **very low** this week.

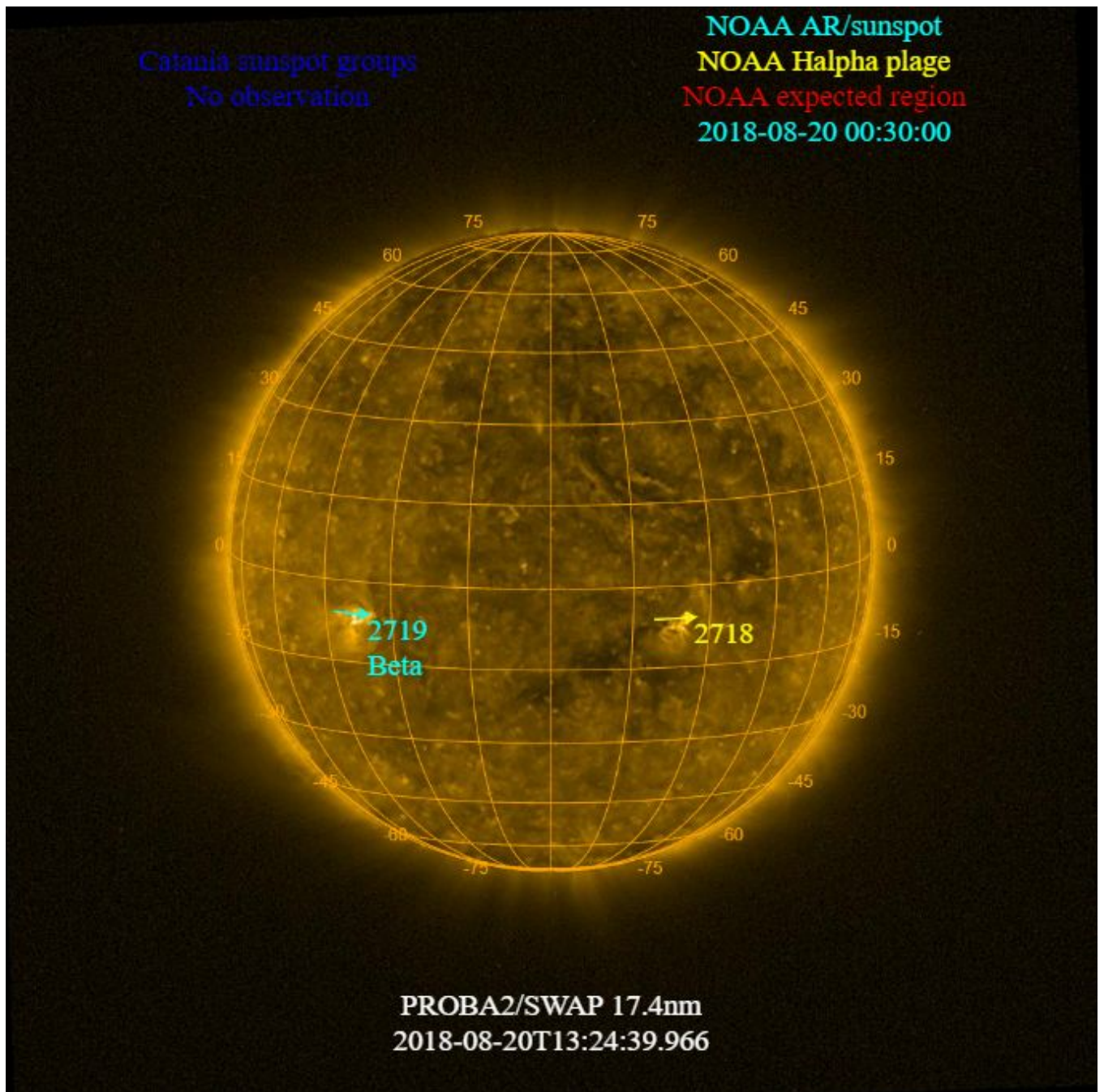
Only M- and X-flares are mentioned, the most energetic one(s) per day are presented in **bold**:

	Monday 20 Aug	Tuesday 21 Aug	Wednesday 22 Aug	Thursday 23 Aug	Friday 24 Aug	Saturday 25 Aug	Sunday 26 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.

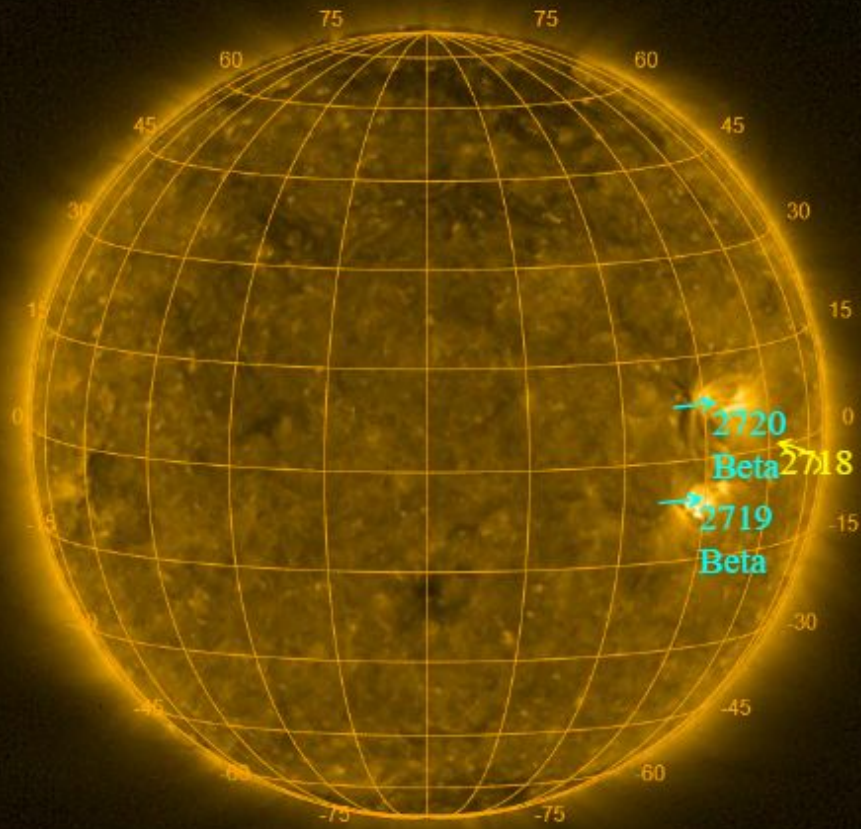
The SWAP images of Aug 20 and Aug 26 are shown below, with annotated active regions.



<http://sidc.be/soteria/soteria.php>

Catania sunspot groups  
No observation

NOAA AR/sunspot  
NOAA Halpha plage  
NOAA expected region  
2018-08-26 00:30:00



PROBA2/SWAP 17.4nm  
2018-08-26T13:26:27.865

## **Solar Activity**

Solar flare activity was 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>

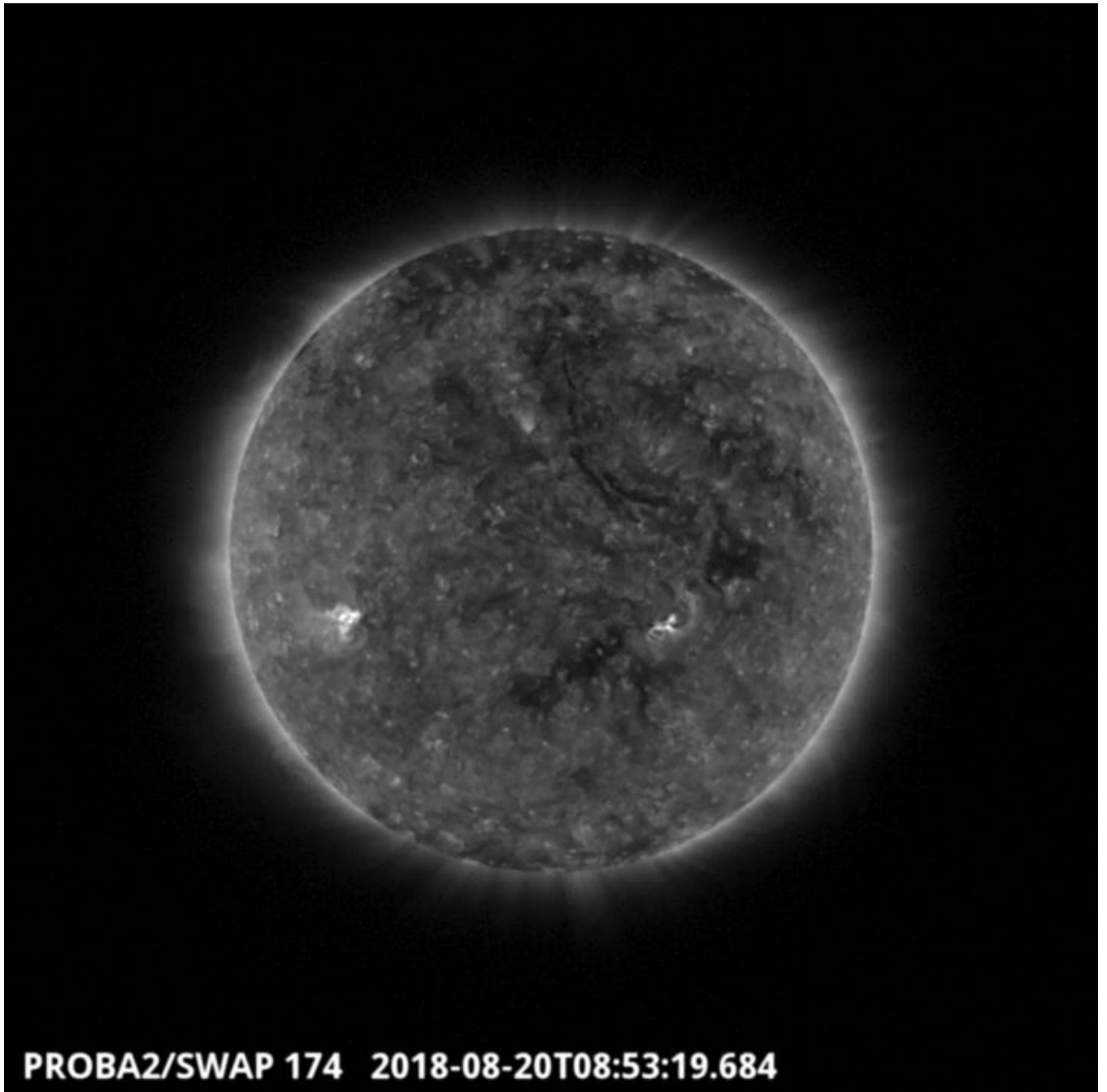
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 439).

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

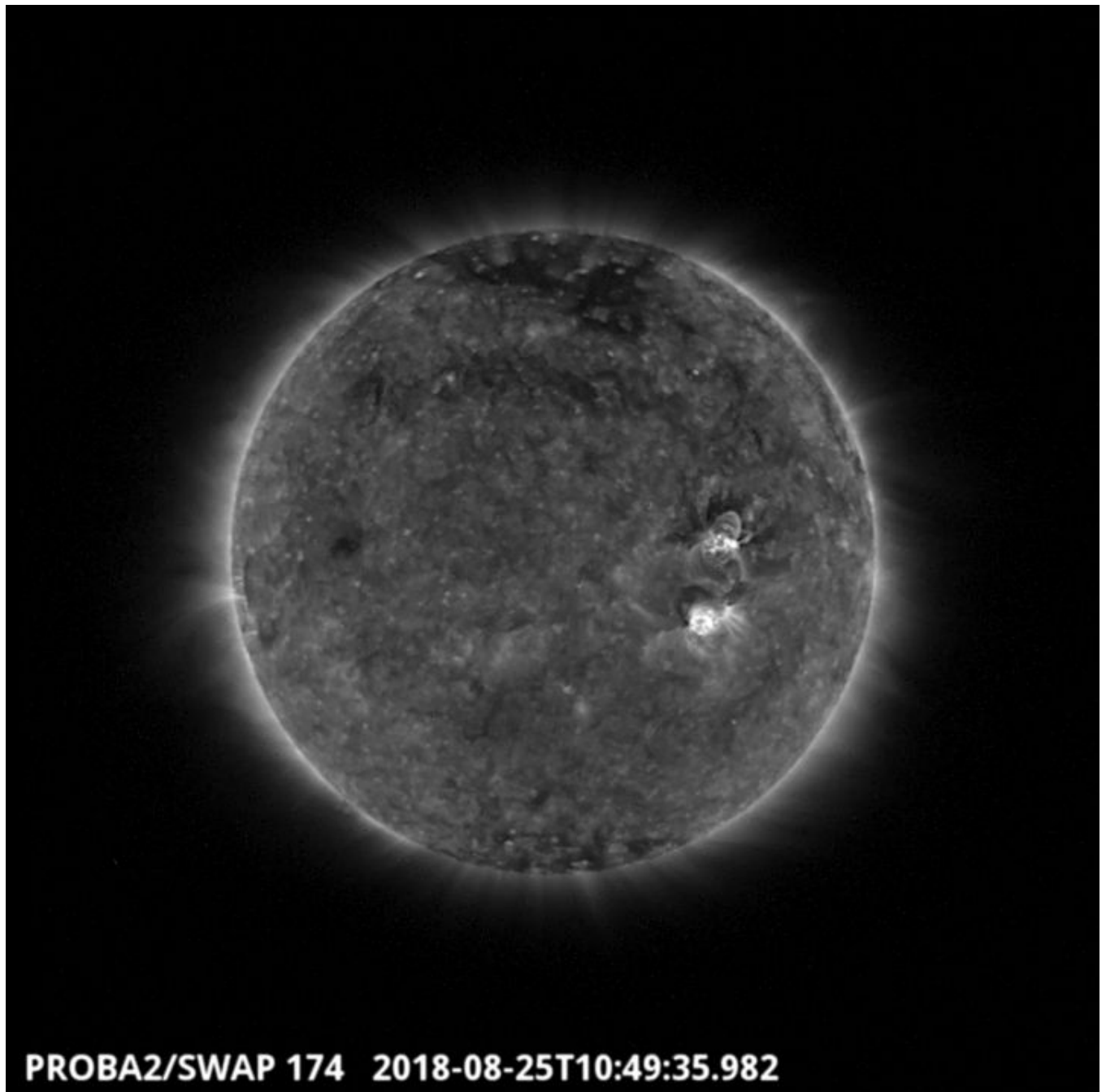
If any of the linked movies are unavailable they can be found in the P2SC movie repository [here](#)

Monday Aug 20



**A filament located around the central meridian between 35 and 50 degrees North is shown in the SWAP image above. This filament erupted around 19:00 UT and produced a partial halo CME detected in SoHO/LASCO around 21:12 UT.  
Find a movie of the event [here](#) (SWAP movie)**

Saturday Aug 25



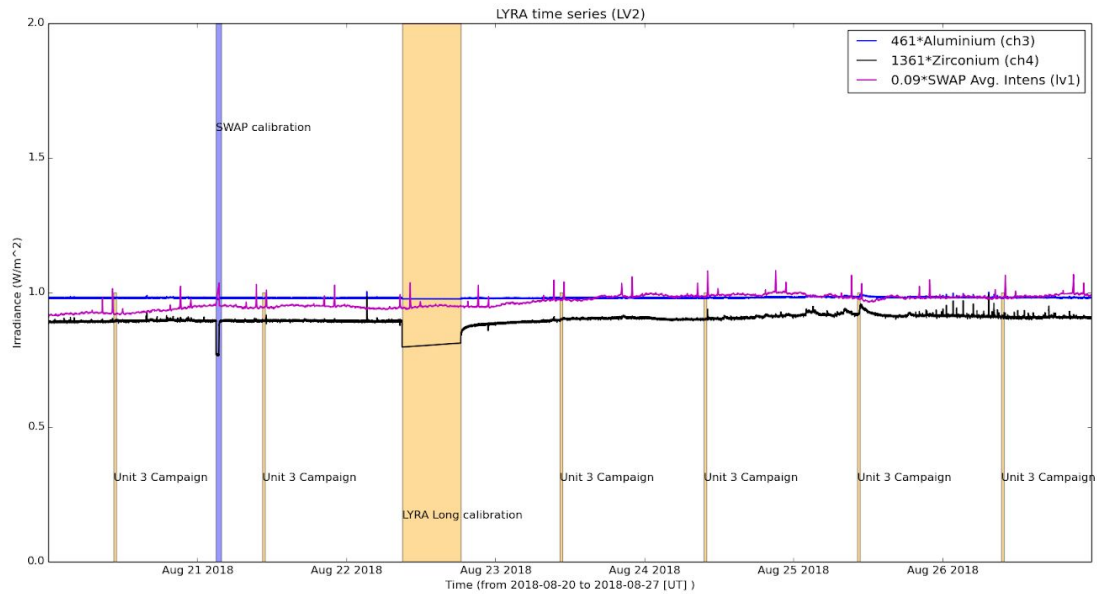
The largest flare of the week was a B4.1 class flare associated with the NOAA region 2720. The flare is visible in the West part of the SWAP image above at 10:49 UT on 2018-Aug-25. On that day, nine other B class flares were produced from the same region.

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 )



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

- Bi-weekly calibration, 2018-Aug-21

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

- Unit 3 Campaign, 2018-Aug-20
- Unit 3 Campaign, 2018-Aug-21
- Long calibration, 2018-Aug-22
- Unit 3 Campaign, 2018-Aug-23
- Unit 3 Campaign, 2018-Aug-24
- Unit 3 Campaign, 2018-Aug-25
- Unit 3 Campaign, 2018-Aug-26

The red shaded periods related to other issues corresponds to:

- None

## **Outreach, papers, presentations, etc.**

Please consult <http://proba2.oma.be/science/publications> for a list of interesting articles using SWAP & LYRA data, as well as a link to the complete article list.

The science section of this weekly report is also published in the weekly STCE newsletter (<http://www.stce.be/newsletter/newsletter.php>).

## **Guest Investigator Program**

- Karen Meyer began her visit at P2SC on 2018-Aug-26 working on “Investigation of the middle corona with SWAP and a data-driven non-potential coronal field model.”



## 2. LYRA instrument status

### Calibration

Calibration campaign on Wednesday this week.

### IOS & operations

Monday 20 Aug	Tuesday 21 Aug	Wednesday 22 Aug	Thursday 23 Aug	Friday 24 Aug	Saturday 25 Aug	Sunday 26 Aug
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + Long calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00719	LYIOS00719	LYIOS00720	LYIOS00720	LYIOS00720	LYIOS00721	LYIOS00721

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- Long Calibration, 2018-Aug-22

### LYRA detector temperature

LYRA detector 2 temperature globally varied between 46.78 to 49.15 °C.

### 3. SWAP instrument status

#### Calibration

Calibration campaign on Tuesday this week.

#### MCPM errors

The number of MCPM recoverable errors increased from 1542 to 1707.

The number of MCPM unrecoverable errors remained at 0.

#### IOS & operations

Monday 20 Aug	Tuesday 21 Aug	Wednesday 22 Aug	Thursday 23 Aug	Friday 24 Aug	Saturday 25 Aug	Sunday 26 Aug
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00785 567 images	IOS00786 663 images	IOS00786 594 images	IOS00786 616 images	IOS00786 642 images	IOS00786 566 images	IOS00786 694 images

Special operations for SWAP, this week:

- Bi-weekly calibration, 2018-Aug-21

#### SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.29 and -0.17 °C.

#### **4. PROBA2 Science Center Status**

The main operator is Laurence Wauters.

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 28370 to 284312) was nominal, except for:

- None.

### Data coverage HK

All HK data files (LYRA\_AD) have been received, except:

- None.
- Small HK gap on 2018-Aug-26, from 19:24 until 20:40 (High cadence recorded)

### Data coverage SWAP

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

- None.

Total number of images between 2018 Aug 20 00:00 UT and 2018 Aug 27 00:00 UT: 4456

Highest cadence in this period: 30 seconds

Average cadence in this period: 135.74 seconds

Number of image gaps larger than 300 seconds: 187

Largest data gap: 16.50 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)