


P2SC-ROB-WR-446 -20181008 Weekly report #446	<b>P2SC Weekly report</b>	
Period covered: Date:  Written by: Approved by:	Mon Oct 08 to Sun Oct 14, 2018 15 Oct 2018  Jennifer O'Hara Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
To:	LYRA PI, marie.dominique@sidc.be SWAP PI, elke.dhuys@sidc.be	<a href="http://proba2.sidc.be">http://proba2.sidc.be</a> ++ 32 (0) 2 3730559
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## 1. Science

### Solar & Space weather events

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

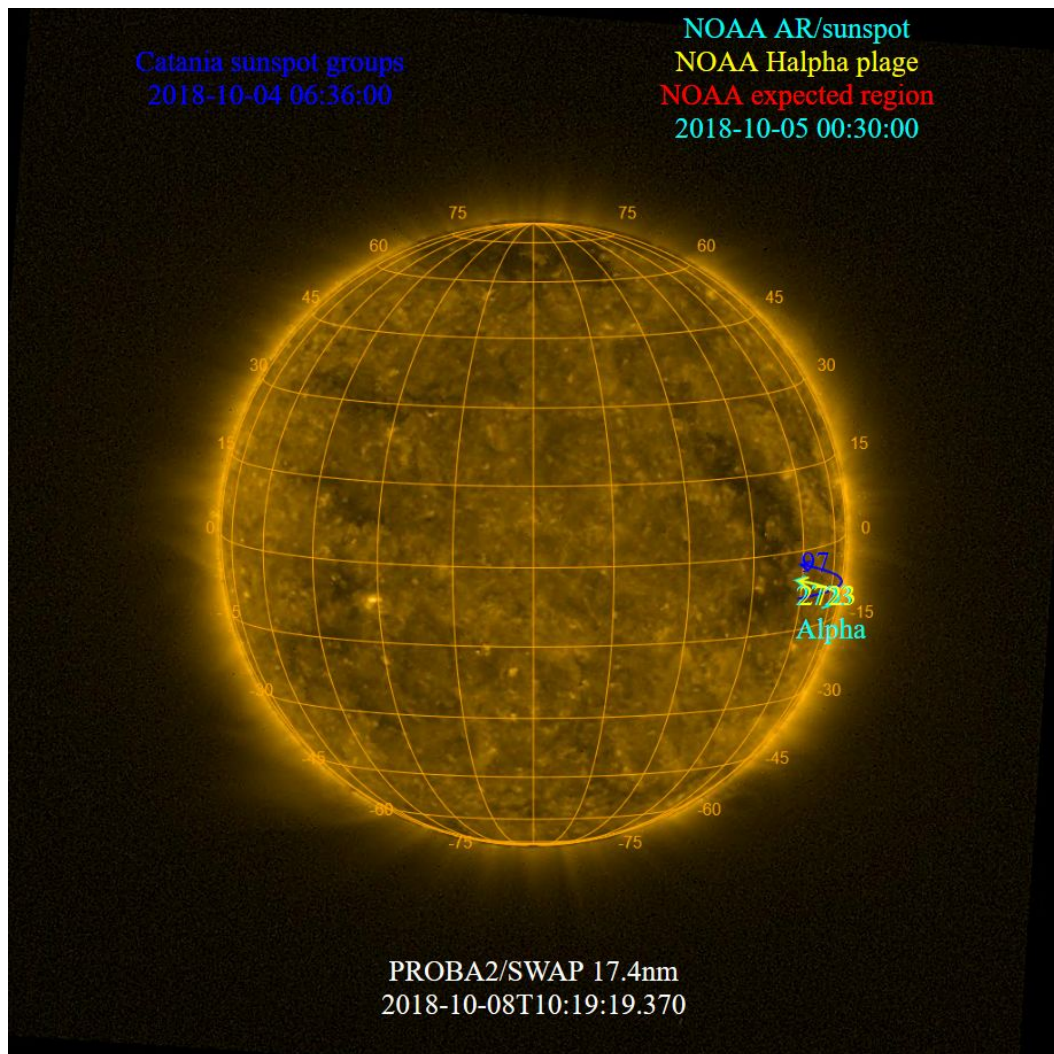
Only M- and X-flares are mentioned, the most energetic one(s) per day are presented in **bold**:

	Monday 08 Oct	Tuesday 09 Oct	Wednesday 10 Oct	Thursday 11 Oct	Friday 12 Oct	Saturday 13 Oct	Sunday 14 Oct
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.

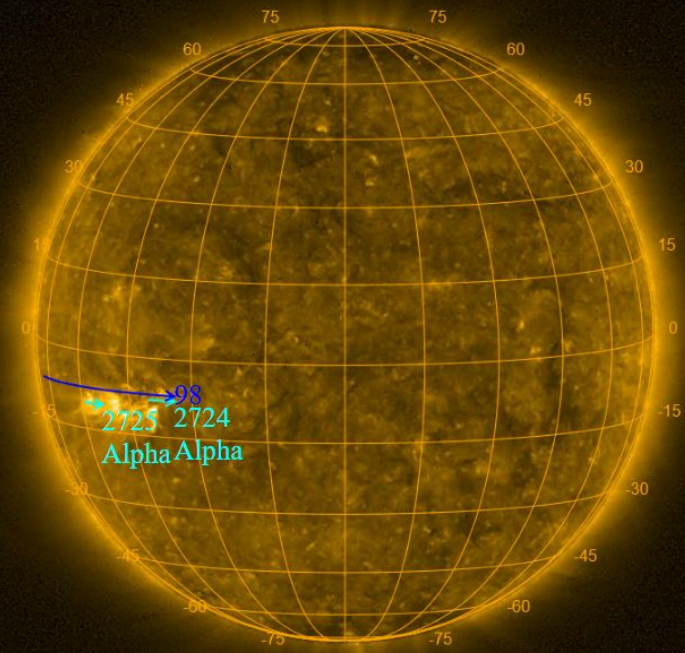
The SWAP images of Oct 08 and Oct 14 are shown below, with annotated active regions.



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

Catania sunspot groups  
2018-10-11 07:00:00

NOAA AR/sunspot  
NOAA Halpha plage  
NOAA expected region  
2018-10-14 00:30:00



PROBA2/SWAP 17.4nm  
2018-10-14T10:23:38.617

## 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>

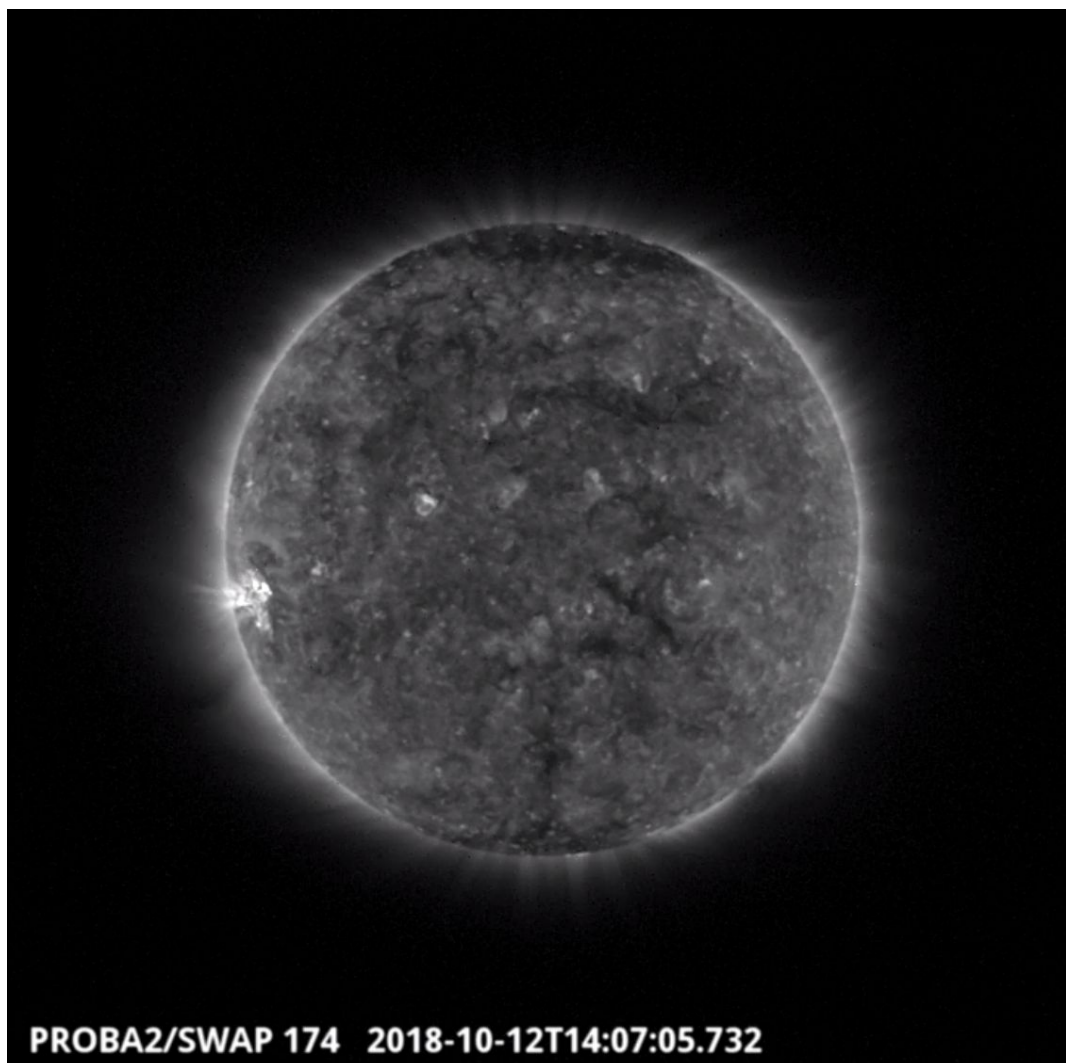
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 446).

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 Oct 12

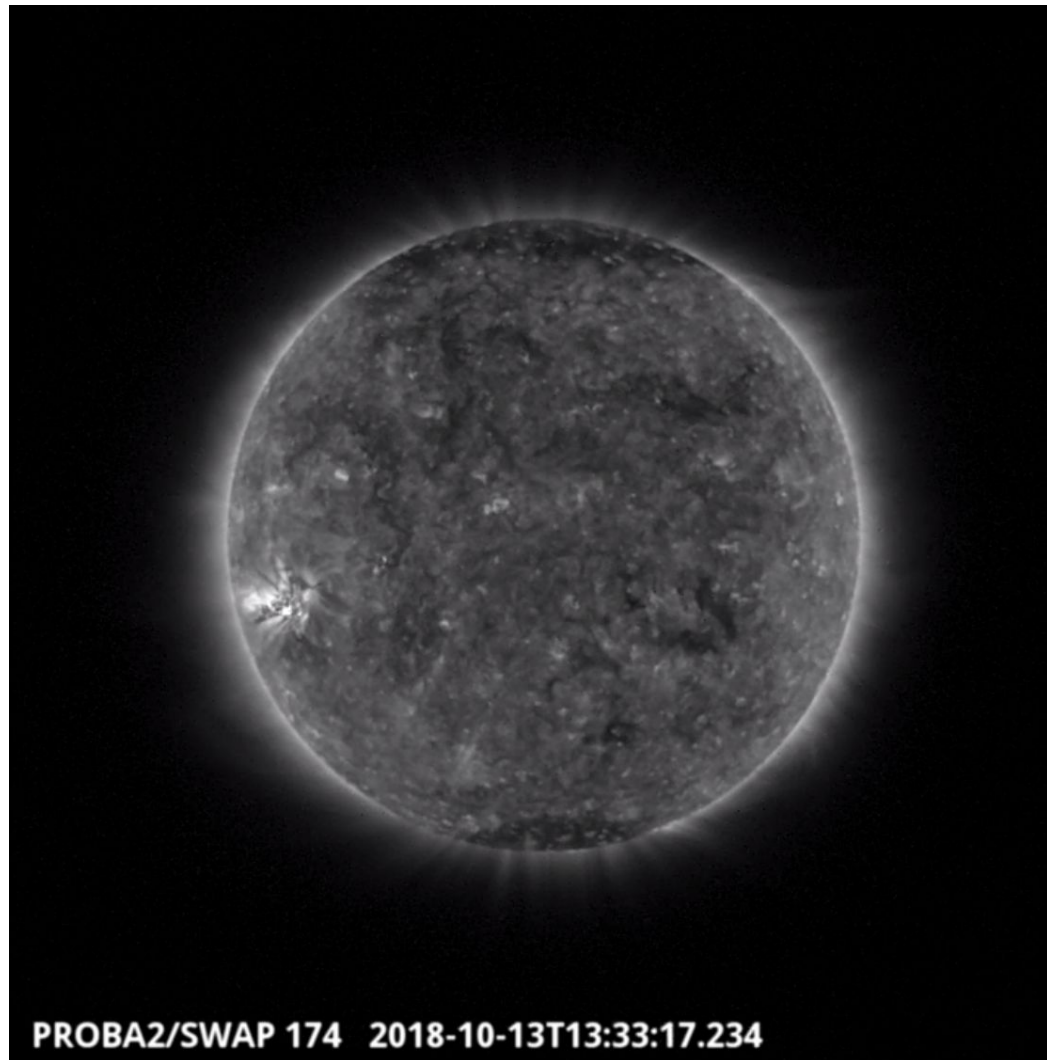


**The largest flare of the week (B7.1), which was associated with NOAA AR 2724, was observed by SWAP on 2018-Oct-12. The flare is visible on the east limb of the Sun in the SWAP image above taken at 14:07 UT.**

Find a movie of the event [here](#) (SWAP movie) and [here](#) (SWAP difference movie)



Saturday Oct 13



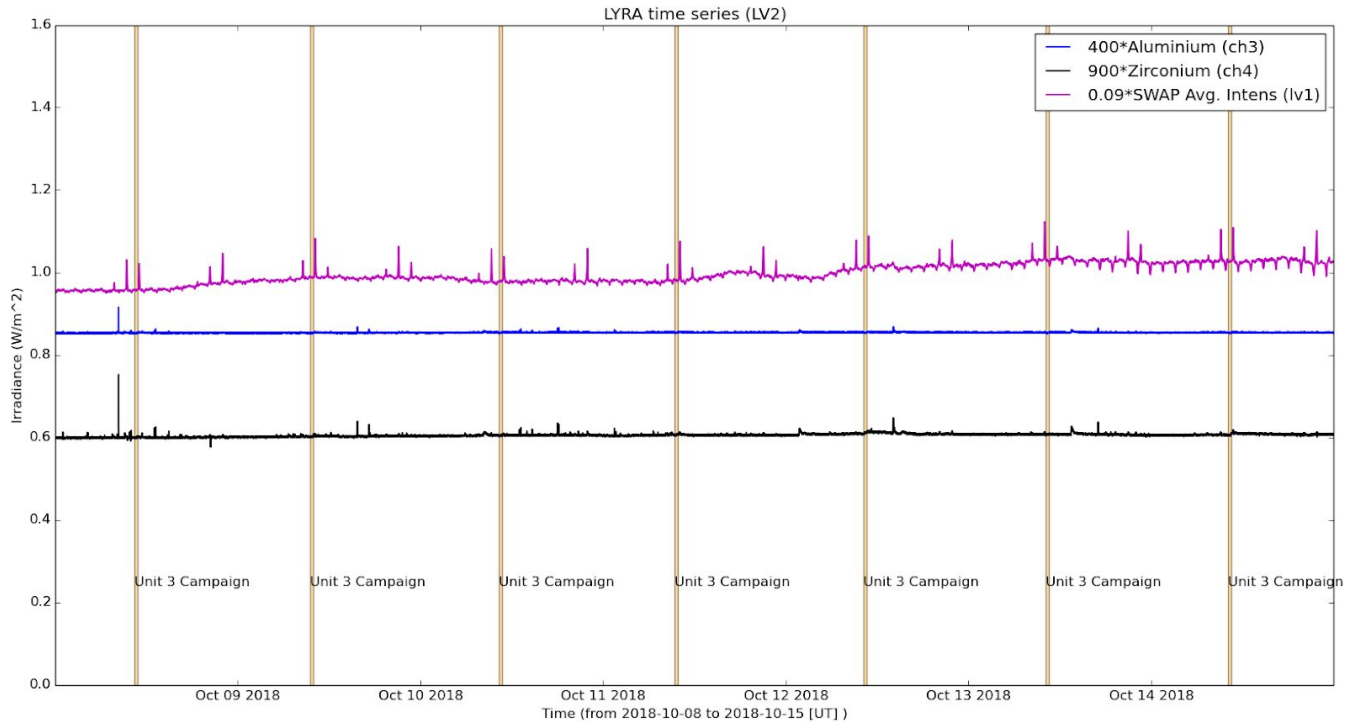
The second largest flare of the week (B2.3) and an associated eruption were observed by SWAP on 2018-Oct-13. The flare is visible near the solar east limb in the SWAP image above taken at 13:33 UT.

Find a movie of the event [here](#) (SWAP movie) and [here](#) (SWAP difference 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:

- None

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

- Daily Unit 3 campaign, 2018-Oct-08
- Daily Unit 3 campaign, 2018-Oct-09
- Daily Unit 3 campaign, 2018-Oct-10
- Daily Unit 3 campaign, 2018-Oct-11
- Daily Unit 3 campaign, 2018-Oct-12
- Daily Unit 3 campaign, 2018-Oct-13
- Daily Unit 3 campaign, 2018-Oct-14

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**

- Peter Wyper, from Durham University, visited the P2SC between 8th and the 12th October to begin his project entitled "Pseudostreamer Filament Eruptions Comparison with MHD Simulations".

## 2. LYRA instrument status

### Calibration

No calibration campaign this week.

### IOS & operations

Monday 08 Oct	Tuesday 09 Oct	Wednesday 10 Oct	Thursday 11 Oct	Friday 12 Oct	Saturday 13 Oct	Sunday 14 Oct
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00729	LYIOS00729	LYIOS00729	LYIOS00729	LYIOS00729	LYIOS00730	LYIOS00730

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

### LYRA detector temperature

LYRA detector 2 temperature globally varied between 50.77 and 51.86 °C.



### 3. SWAP instrument status

#### Calibration

No calibration campaign this week.

#### MCPM errors

The number of MCPM recoverable errors increased from 738 to 976.

The number of MCPM unrecoverable errors remained at 0.

#### IOS & operations

Monday 08 Oct	Tuesday 09 Oct	Wednesday 10 Oct	Thursday 11 Oct	Friday 12 Oct	Saturday 13 Oct	Sunday 14 Oct
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00790 692 images	IOS00790 695 images	IOS00790 696 images	IOS00790 765 images	IOS00790 693 images	IOS00791 690 images	IOS00791 678 images

Special operations for SWAP, this week:

- None

#### SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 0.79 and 2.23 °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 28831 to 28897) 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 2018 Oct 08 00:00 UT and 2018 Oct 15 00:00 UT: 4946

Highest cadence in this period: 110 seconds

Average cadence in this period: 122.23 seconds

Number of image gaps larger than 300 seconds: 97

Largest data gap: 7.33 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)