


P2SC-ROB-WR-394 - 20171009 Weekly report #394	<b>P2SC Weekly report</b>	
Period covered: Date:  Written by: Approved by:	Mon Oct 09 to Sun Oct 15, 2017 19 Oct 2017  Laurence Wauters Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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## 1. Science

### Solar & Space weather events

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

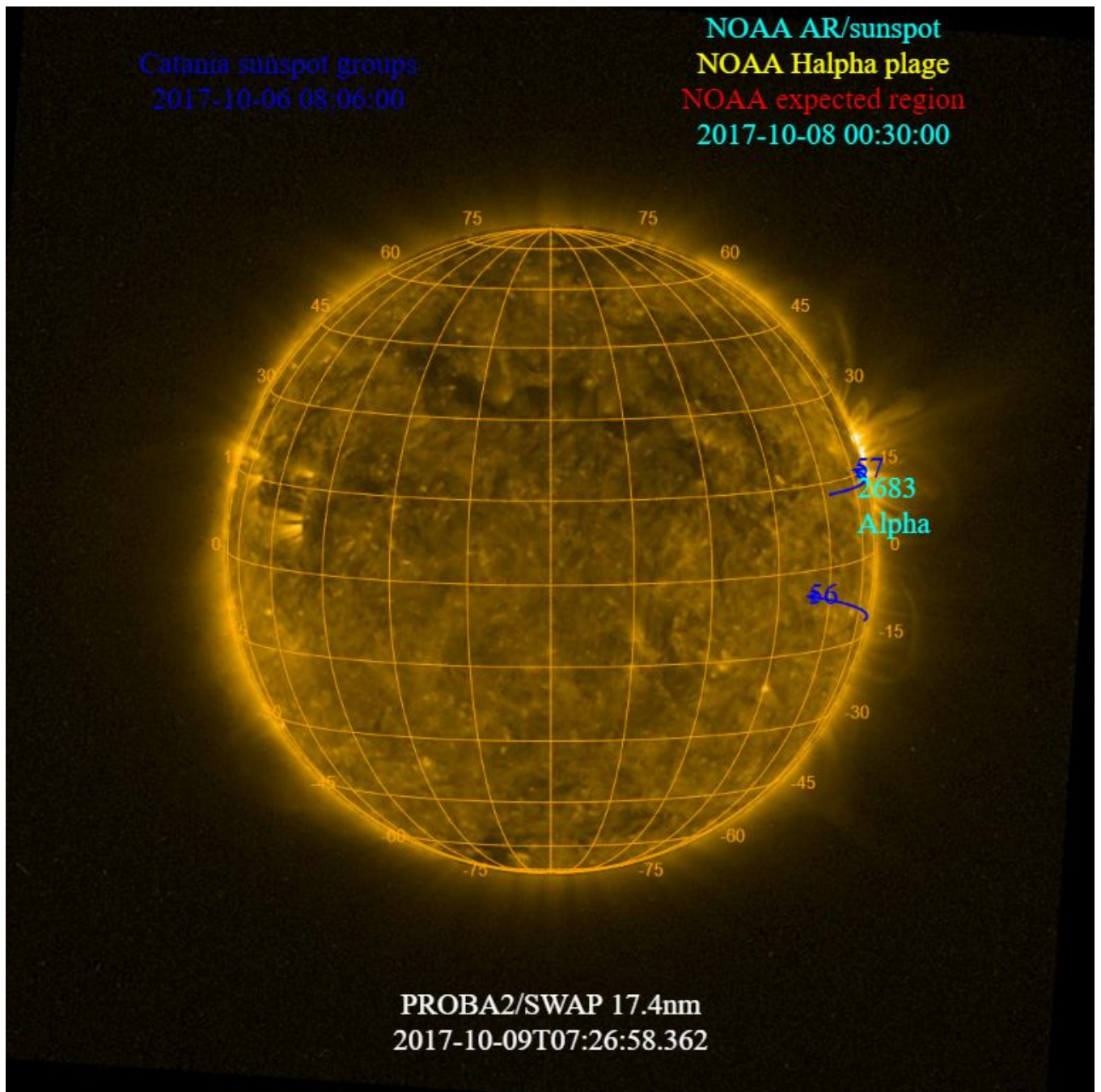
Only M- and X-flares are mentioned, the most energetic one(s) per day are presented in **bold**:

	Monday 09 Oct	Tuesday 10 Oct	Wednesday 11 Oct	Thursday 12 Oct	Friday 13 Oct	Saturday 14 Oct	Sunday 15 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.

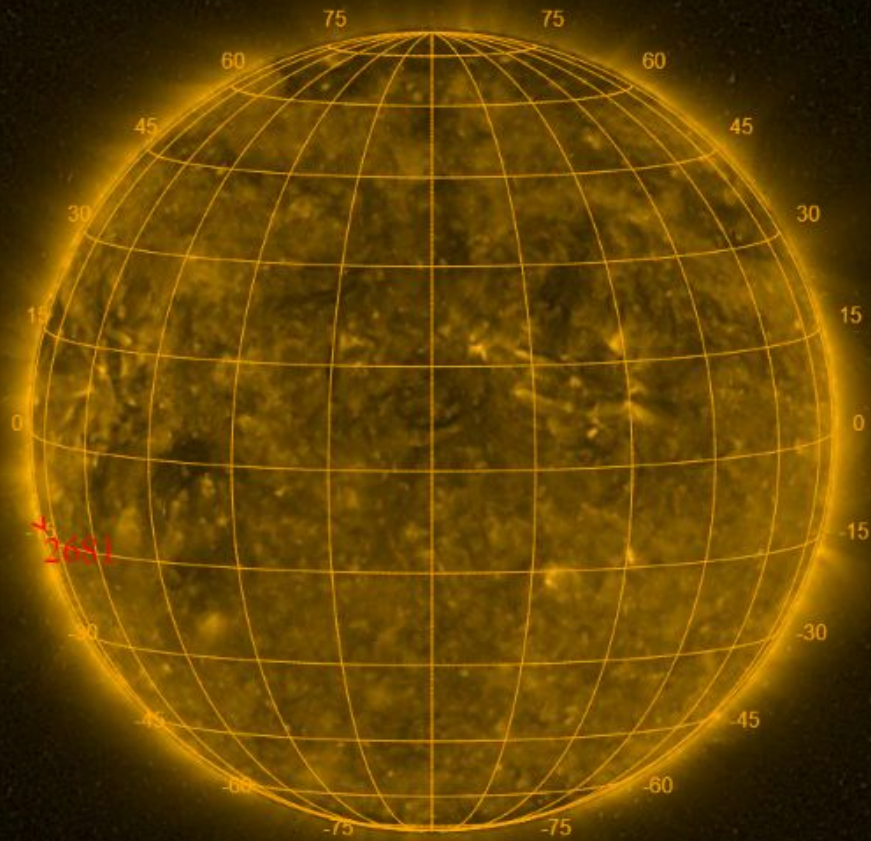
The SWAP images of Oct 09 and Oct 15 are shown below, with annotated active regions.



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

Catania sunspot groups  
No observation

NOAA AR/sunspot  
NOAA Halpha plage  
NOAA expected region  
No observation



PROBA2/SWAP 17.4nm  
2017-10-15T07:26:09.490

## **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>

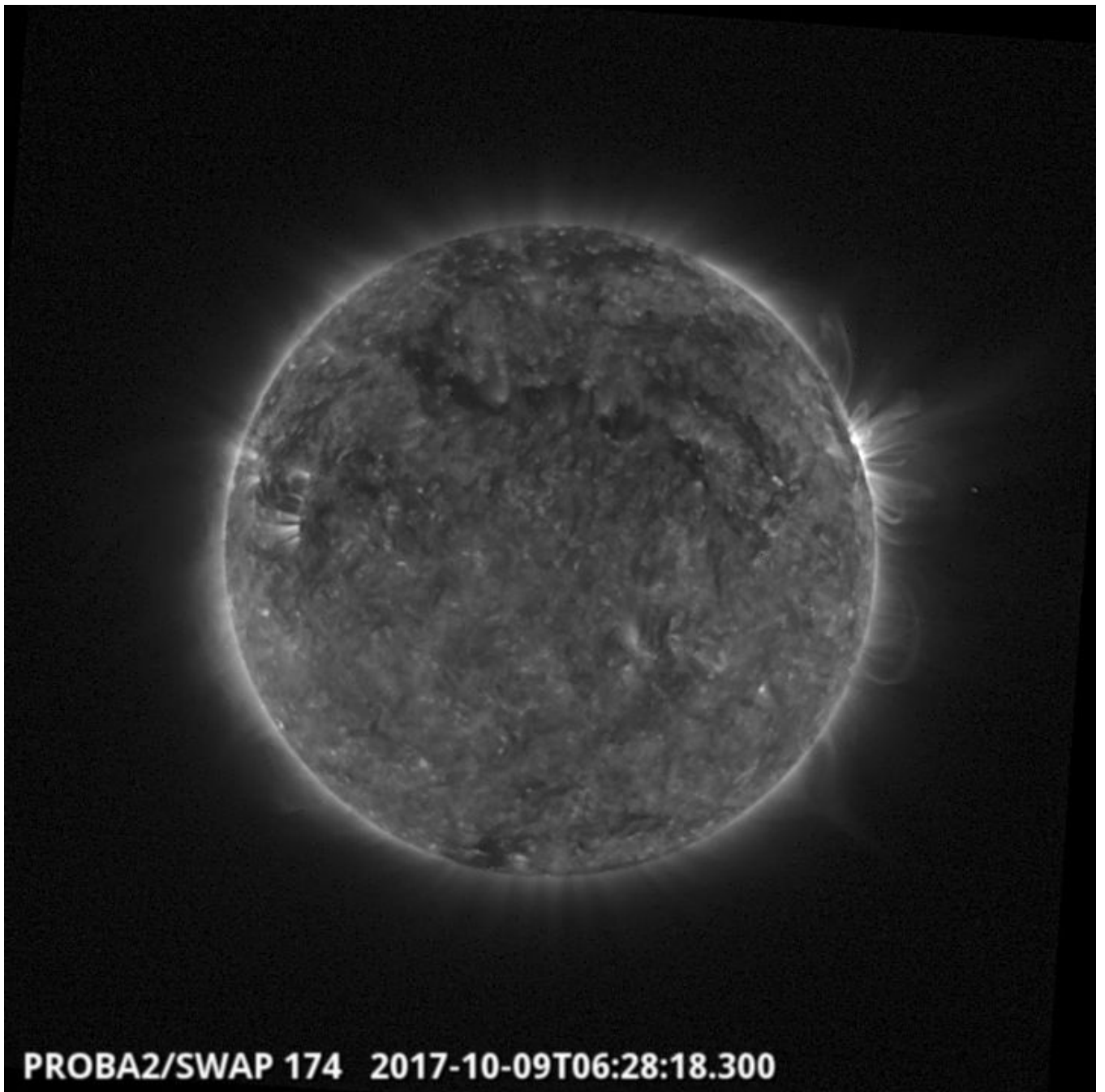
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 394).

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 Oct 09

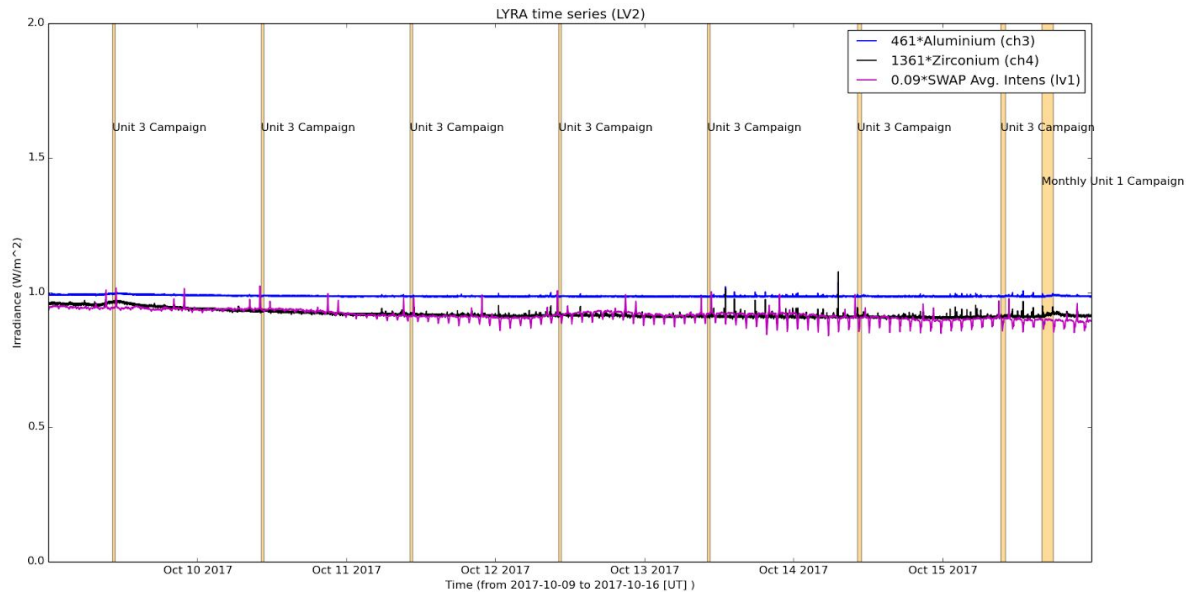


**An extended northern polar Coronal Hole**  
**Was visible throughout the week and is visible in the SWAP image above. Find a movie of the**  
event [here](#) (SWAP movie)

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:

- None

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

- Daily unit 3 campaign, 2017-Oct-09
- Daily unit 3 campaign, 2017-Oct-10
- Daily unit 3 campaign, 2017-Oct-11
- Daily unit 3 campaign, 2017-Oct-12
- Daily unit 3 campaign, 2017-Oct-13
- Daily unit 3 (occultation) campaign, 2017-Oct-14
- Daily unit 3 (occultation) campaign, 2017-Oct-15
- Monthly Unit 1 Campaign, 2017-Oct-15

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**

- Willow M Reed from the University of Colorado in Boulder as part of Marty Snow's GI team.

## 2. LYRA instrument status

### Calibration

None

### IOS & operations

Monday 09 Oct	Tuesday 10 Oct	Wednesday 11 Oct	Thursday 12 Oct	Friday 13 Oct	Saturday 14 Oct	Sunday 15 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+ Monthly Unit 1
LYIOS00651	LYIOS00651	LYIOS00651	LYIOS00651	LYIOS00652	LYIOS00652	LYIOS00652

The following science campaigns were performed by LYRA:

- daily U3 (occultation) observations campaign

On 2017-Oct-15

- Monthly Unit 1 campaign

### LYRA detector temperature

LYRA detector 2 temperature globally varied between 50.47 and 53.10 °C



### 3. SWAP instrument status

#### Calibration

None

#### MCPM errors

The number of MCPM recoverable errors increased from 11935 and 12171.

The number of MCPM unrecoverable errors increased from 0 to 45.

#### IOS & operations

Monday 09 Oct	Tuesday 10 Oct	Wednesday 11 Oct	Thursday 12 Oct	Friday 13 Oct	Saturday 14 Oct	Sunday 15 Oct
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00716 701 images	IOS00716 648 images	IOS00716 708 images	IOS00716 689 images	IOS00716 713 images	IOS00717 698 images	IOS00717 655 images

Special operations for SWAP, this week:

- SWAP Occultation jump campaigns since 2017-Oct-14

#### SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 0.79 and 2.39 °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 25406 to 25470) 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 2017 Oct 09 0UT and 2017 Oct 16 0UT: 4913

Highest cadence in this period: 100 seconds

Average cadence in this period: 123.10 seconds

Number of image gaps larger than 300 seconds: 88

Largest data gap: 9.38 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)