


P2SC-ROB-WR-406 - 20180101 Weekly report #406	<b>P2SC Weekly report</b>	
Period covered: Date:  Written by: Approved by:	Mon Jan 01 to Sun Jan 07, 2018 08 Jan 2018  Jennifer O'Hara 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
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## 1. Science

### Solar & Space weather events

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

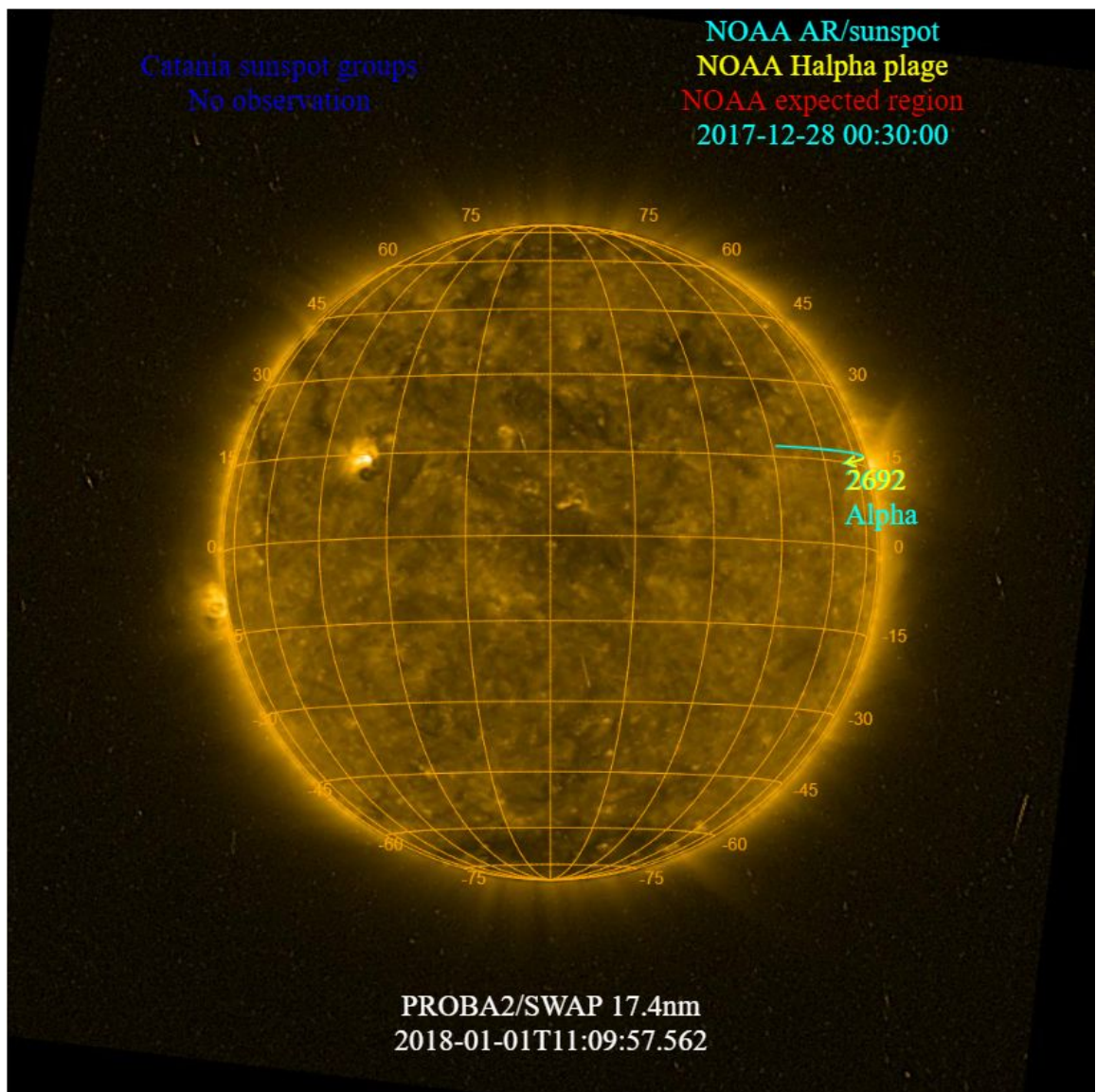
Only M- and X-flares are mentioned, the most energetic one(s) per day are presented in **bold**:

	Monday 01 Jan	Tuesday 02 Jan	Wednesday 03 Jan	Thursday 04 Jan	Friday 05 Jan	Saturday 06 Jan	Sunday 07 Jan
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.

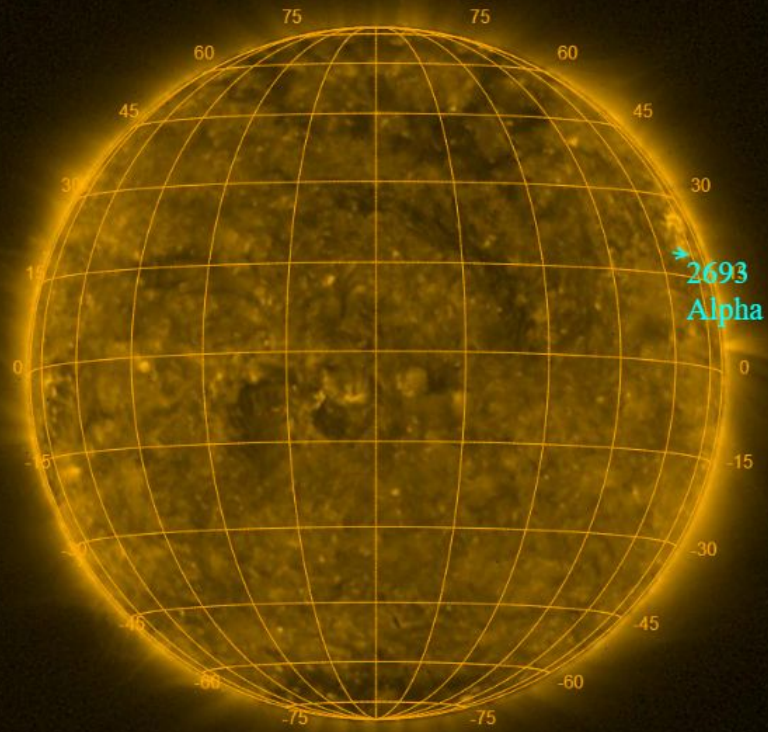
The SWAP images of Jan 01 and Jan 07 are shown below, with annotated active regions.



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

Catania sunspot groups  
No observation

NOAA AR/sunspot  
NOAA Halpha plage  
NOAA expected region  
2018-01-07 00:30:00



PROBA2/SWAP 17.4nm  
2018-01-07T11:09:56.837

## **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>

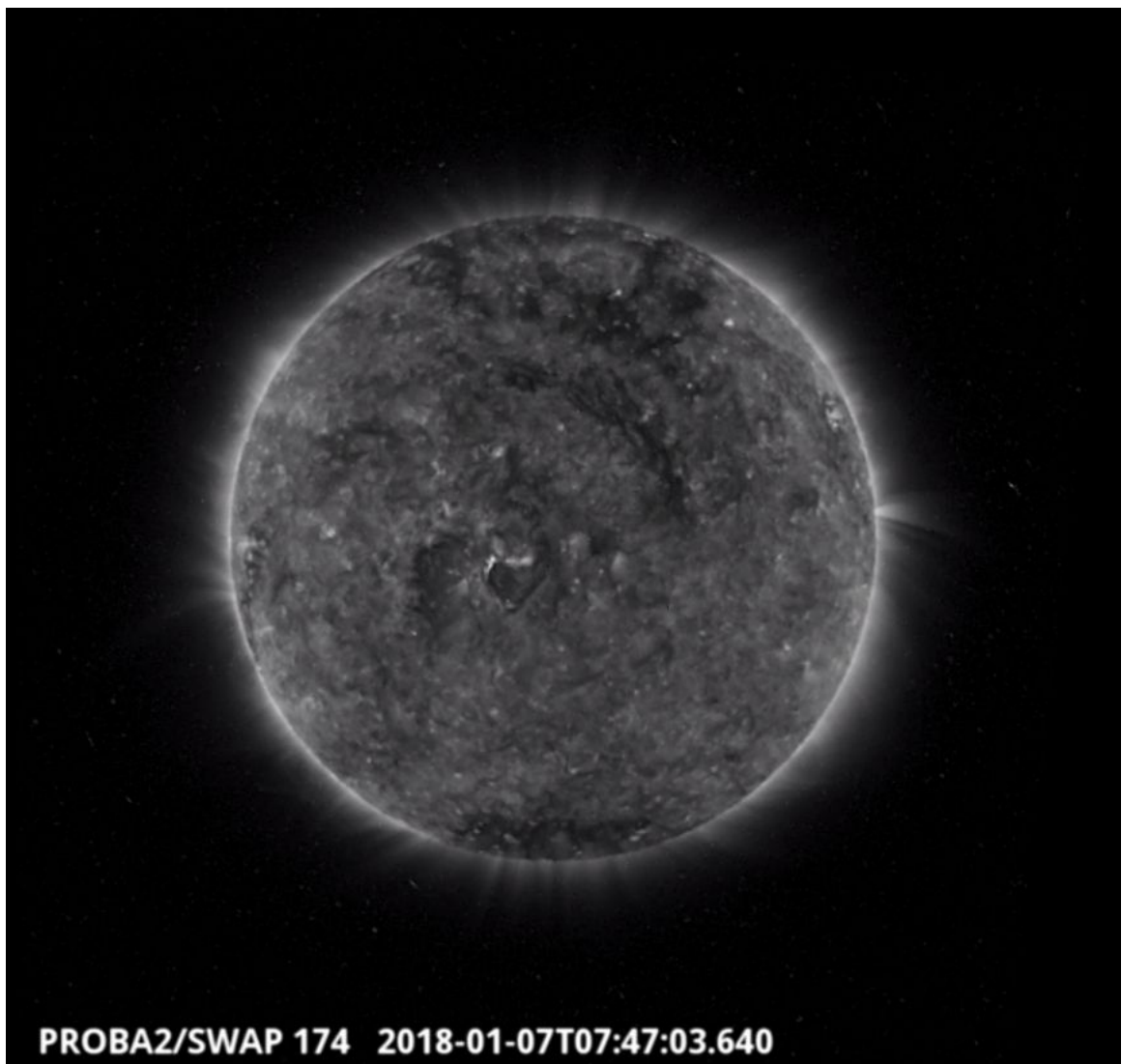
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 406).

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 Jan 07



**Flows along a coronal loop are visible in the centre of the solar disk in the SWAP image above at 07:47 UT on 2018-Jan-07.**

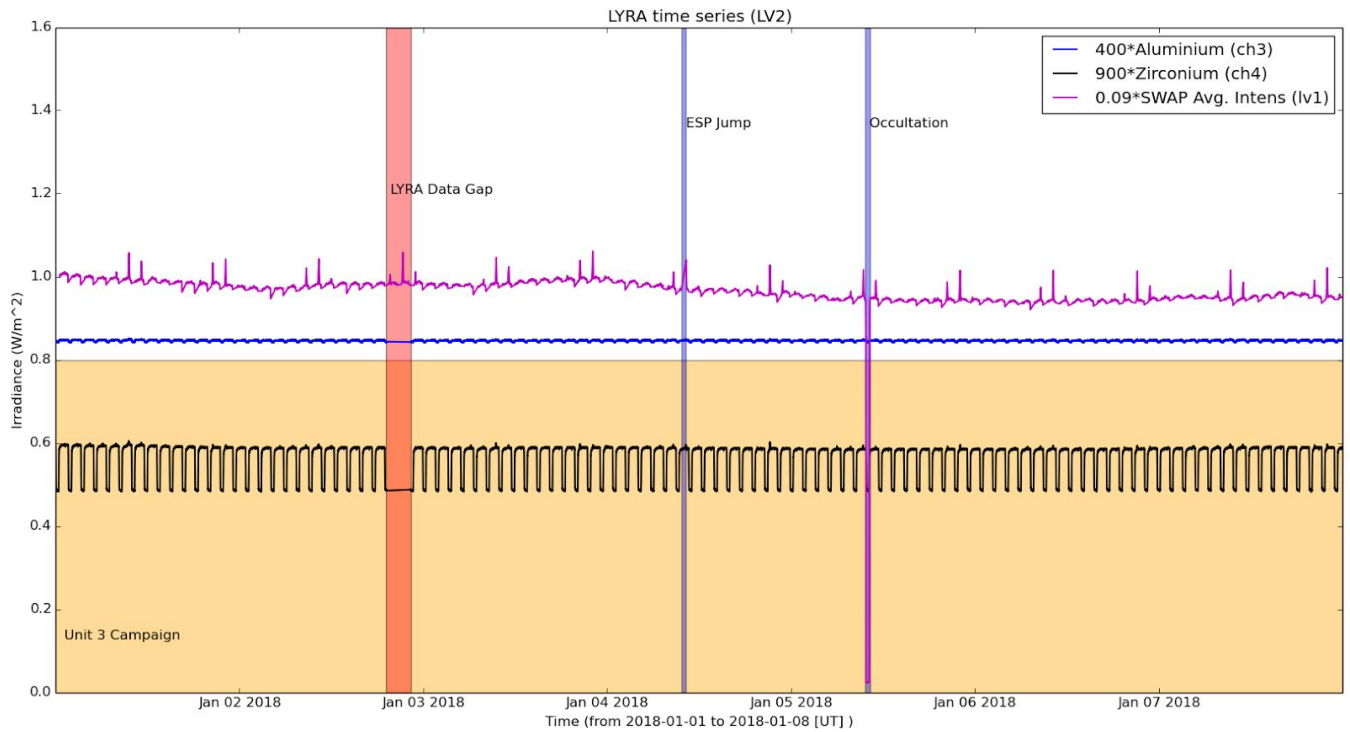
Find a movie of the event [here](#) (SWAP movie) and [here](#) (SWAP difference movie)



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:

- ESP jump, 2018-Jan-04
- Occultation campaign, 2018-Jan-05

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

- Unit 3 campaign, from 2018-Jan-01 to 2018-Jan-07

The red shaded periods related to other issues corresponds to:

- LYRA data gap due to the pass not being able to be processed because of one bad packet, 2018-Jan-02

## **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>).

A poster was created featuring a series of SWAP images showing the changing activity of the Sun, where one image was selected to represent each day of the mission during 2017.

[http://proba2.sidc.be/Presentations/20180103\\_YearlyPoster/](http://proba2.sidc.be/Presentations/20180103_YearlyPoster/)

## **Guest Investigator Program**

- None

## 2. LYRA instrument status

### Calibration

No calibration campaign this week.

### IOS & operations

Monday 01 Jan	Tuesday 02 Jan	Wednesday 03 Jan	Thursday 04 Jan	Friday 05 Jan	Saturday 06 Jan	Sunday 07 Jan
Nominal acquisition + U3  LYIOS00667	Nominal acquisition + U3  LYIOS00667	Nominal acquisition + U3  LYIOS00667	Nominal acquisition + U3  LYIOS00667	Nominal acquisition + U3  LYIOS00667 LYIOS00668	Nominal acquisition + U3  LYIOS00668	Nominal acquisition + U3  LYIOS00668

The following science campaigns were performed by LYRA:

- U3 observations campaign

### LYRA detector temperature

LYRA detector 2 temperature globally varied between 42.98 and 45.58 °C.



### 3. SWAP instrument status

#### Calibration

No calibration campaign this week.

#### MCPM errors

The number of MCPM recoverable errors increased from 484 to 639.

The number of MCPM unrecoverable errors remained at 0.

#### IOS & operations

Monday 01 Jan	Tuesday 02 Jan	Wednesday 03 Jan	Thursday 04 Jan	Friday 05 Jan	Saturday 06 Jan	Sunday 07 Jan
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition + ESP jump	Nominal acquisition + occultation	Nominal acquisition	Nominal acquisition
IOS00748 757 images	IOS00748 792 images	IOS00748 773 images	IOS00749 599 images	IOS00749 785 images	IOS00749 594 images	IOS00750 709 images

Special operations for SWAP, this week:

2018-Jan-04:

- ESP jump campaign

2018-Jan-05:

- Occultation campaign with LYRA

#### SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -4.09 and -2.01°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 26206 to 26270) 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 Jan 01 00:00 UT and 2018 Jan 08 00:00 UT: 5009

Highest cadence in this period: 0 seconds

Average cadence in this period: 120.39 seconds

Number of image gaps larger than 300 seconds: 117

Largest data gap: 34.67 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)