


P2SC-ROB-WR-354 - 20170102 Weekly report #354	<b>P2SC Weekly report</b>	
Period covered: Date:  Written by: Approved by:	Mon Jan 02 to Sun Jan 08, 2017 16 Jan 2017  Laurence Wauters Matthew West	Royal Observatory of Belgium  - PROBA2 Science Center
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## 1. Science

### Solar & Space weather events

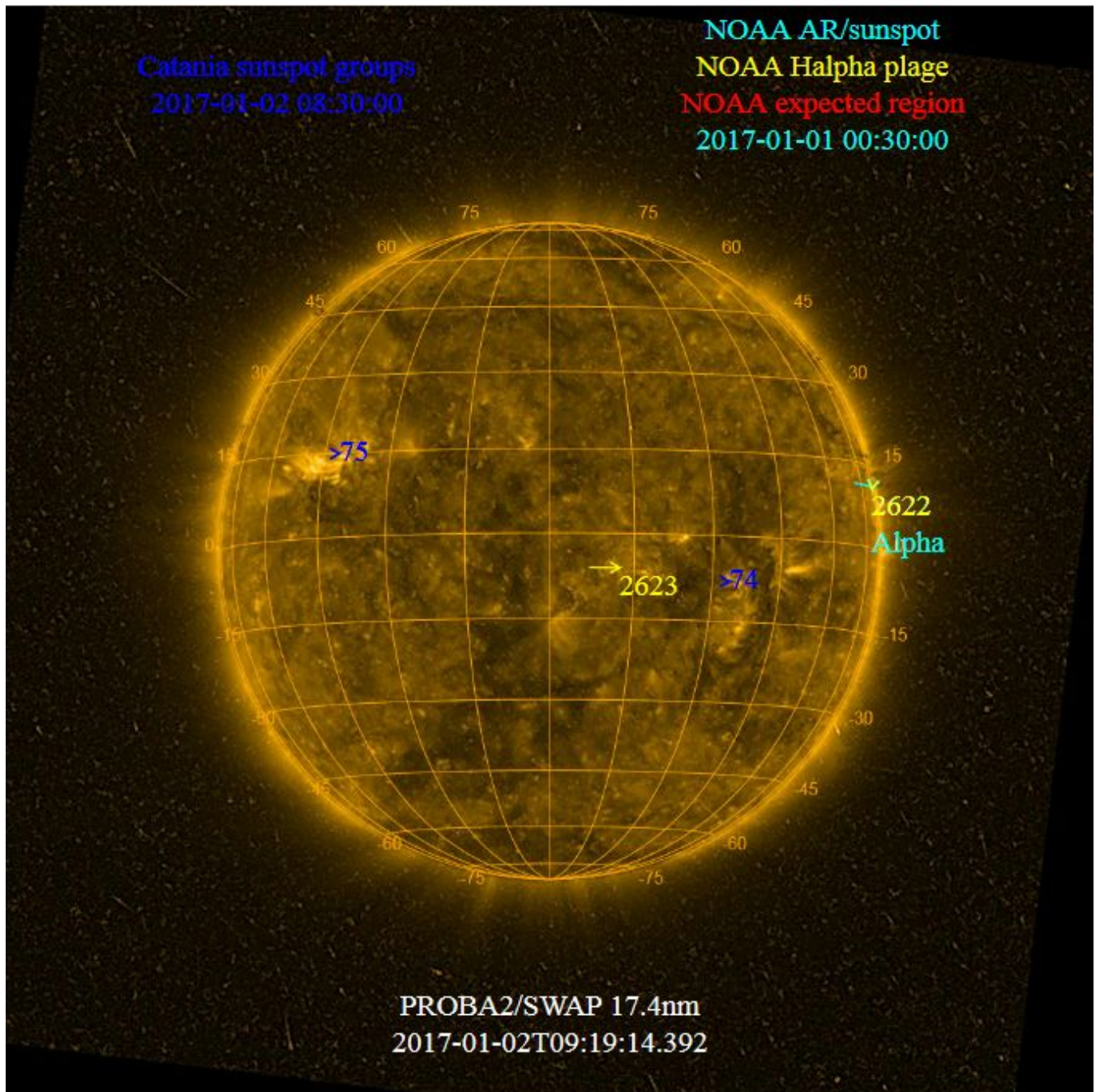
The level of solar activity<sup>1</sup> was very low during this week.

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

	Monday 02 Jan	Tuesday 03 Jan	Wednesday 04 Jan	Thursday 05 Jan	Friday 06 Jan	Saturday 07 Jan	Sunday 08 Jan
Activity	very low	very low	very low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

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

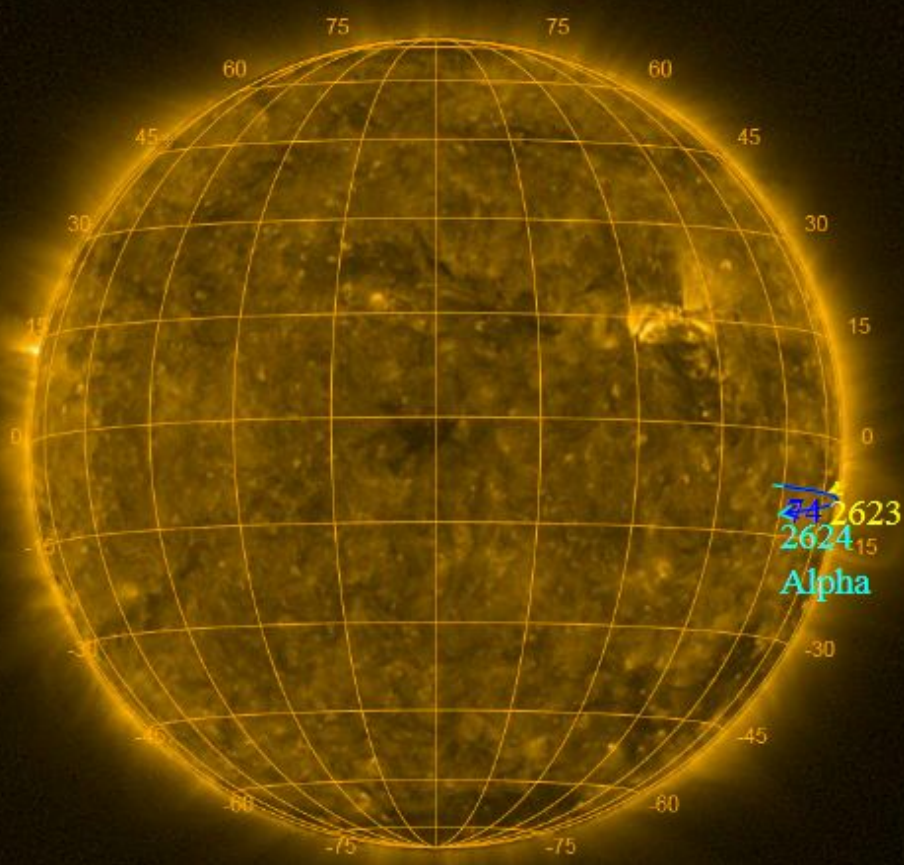
The SWAP images of Jan 02 and Jan 08 are shown below, with annotated active regions.



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

Catania sunspot groups  
2017-01-04 08:18:00

NOAA AR/sunspot  
NOAA Halpha plage  
NOAA expected region  
2017-01-04 00:30:00



PROBA2/SWAP 17.4nm  
2017-01-08T09:18:35.530

## **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>

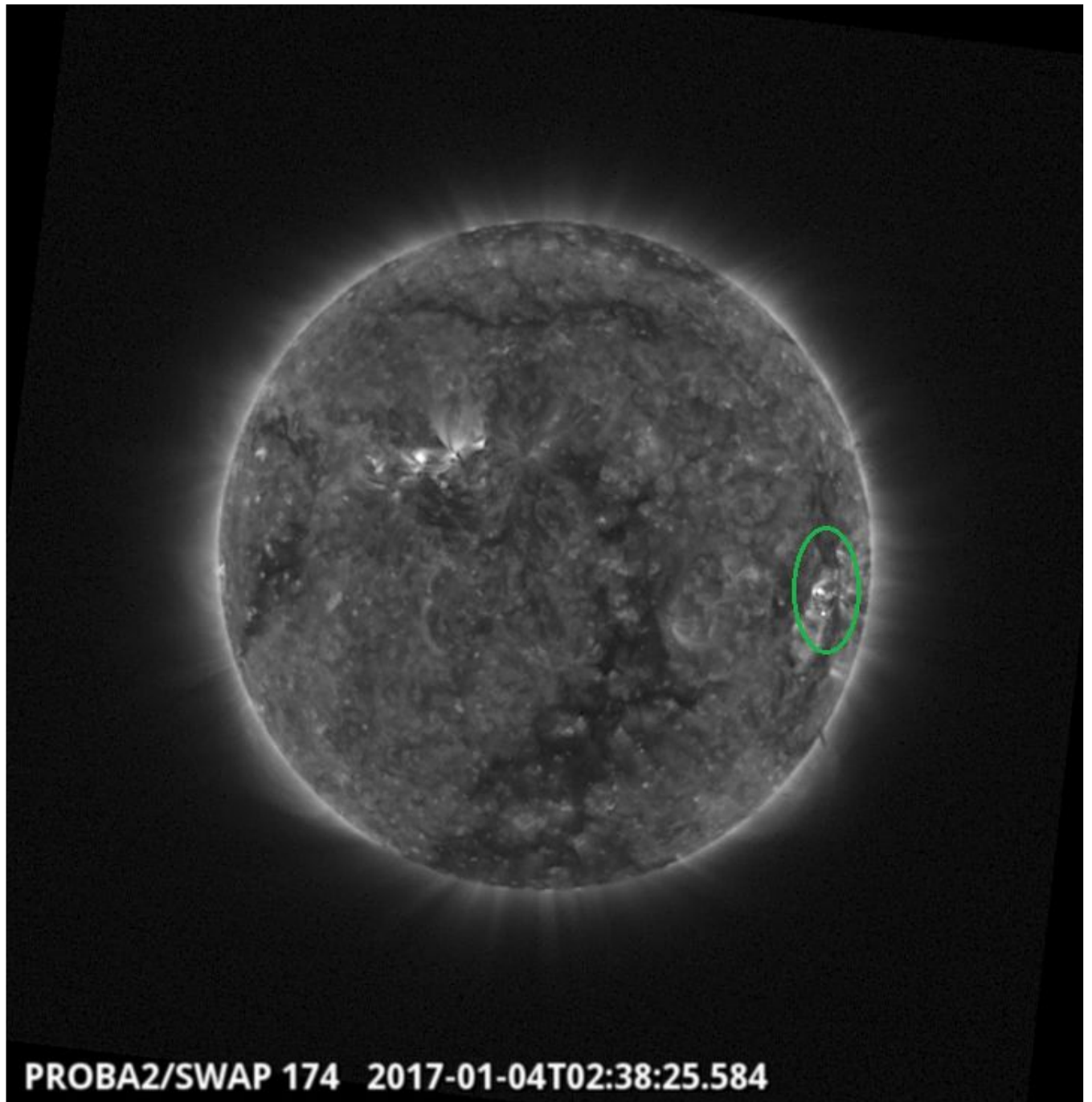
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 354).

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

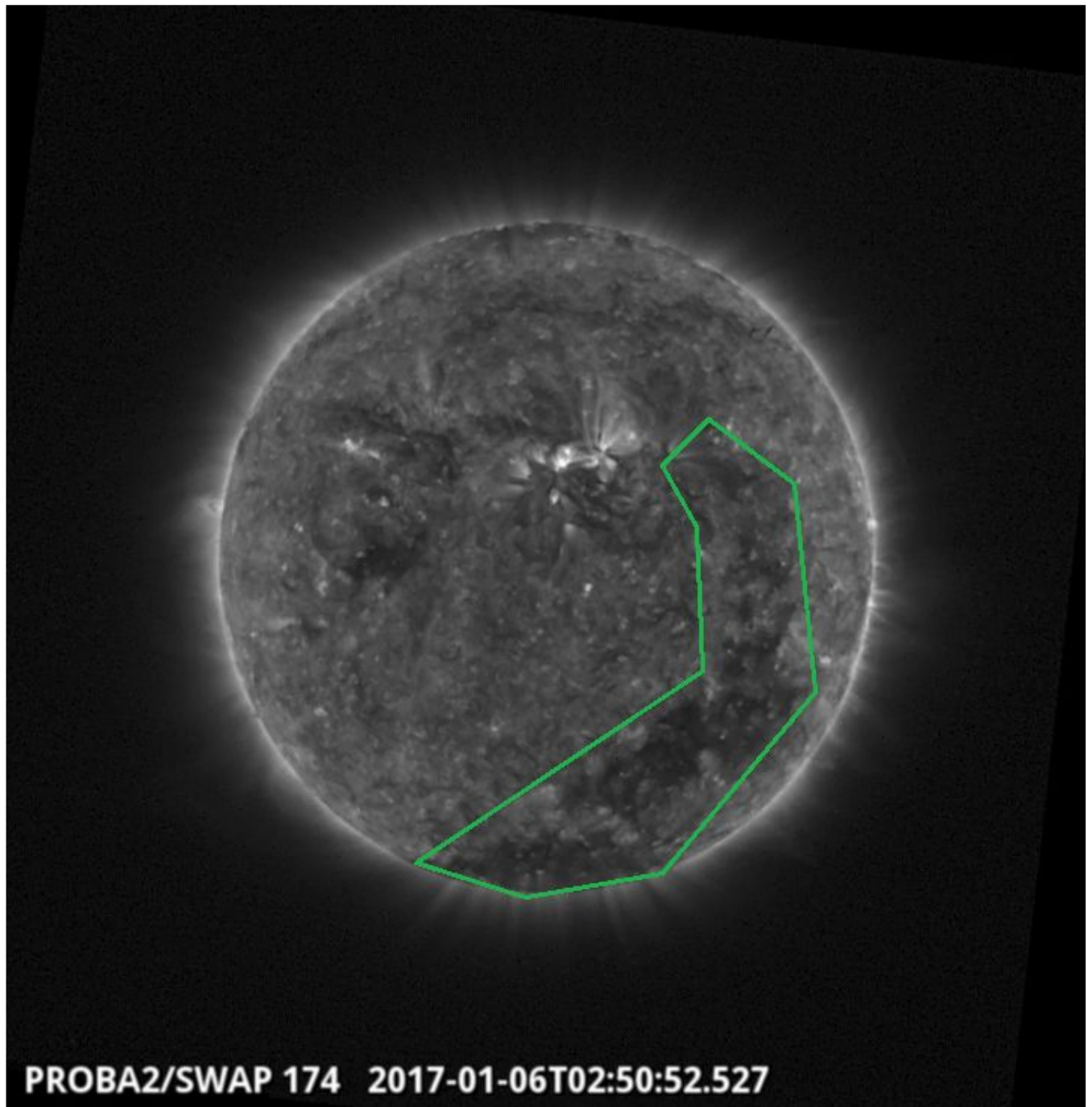
If any of the linked movies are unavailable they can be found in the P2SC movie repository [here](#)

Wednesday Jan 04



An eruption was observed by SWAP near the West limb of the Sun at 02:39 UT on January 4th.  
Find a movie of the event [here](#) (SWAP movie)

Friday Jan 06

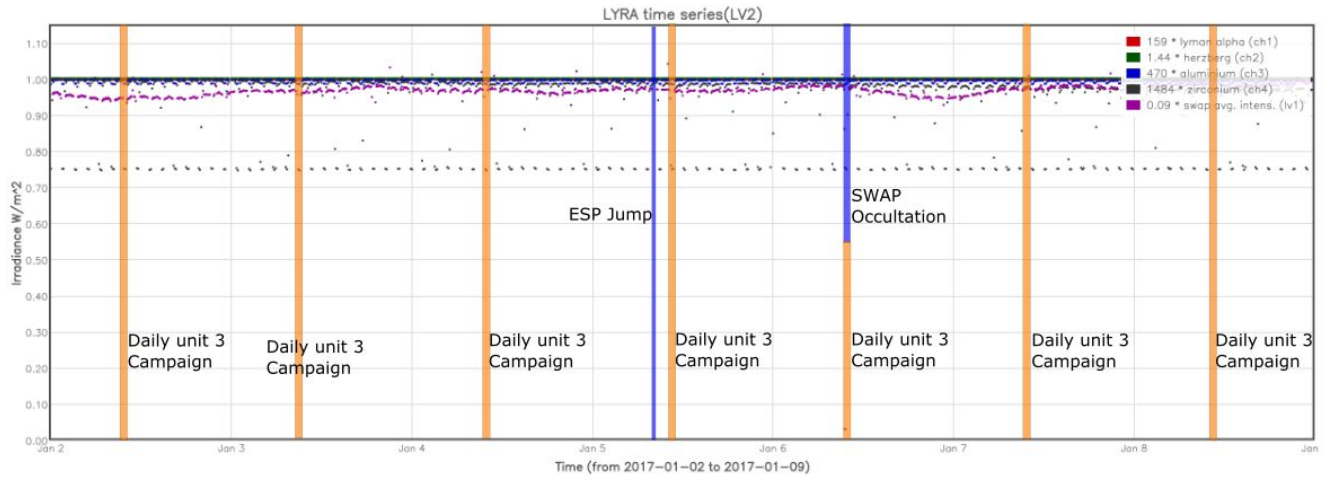


**A coronal hole stretching from the northern hemisphere to south pole has dominated the solar disk since Jan 02. This is clearly seen on 2017-Jan-06.**  
Find a movie of the event [here](#) (SWAP movie)

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 correspond to, from left to right:

- ESP Jump, 2017-Jan-05
- SWAP and LYRA occultation campaign, 2017-Jan-06

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

- Daily unit 3 campaign, 2017-01-02
- Daily unit 3 campaign, 2017-01-03
- Daily unit 3 campaign, 2017-01-04
- Daily unit 3 campaign, 2017-01-05
- Daily unit 3 campaign, 2017-01-06
- Daily unit 3 campaign, 2017-01-07
- Daily unit 3 campaign, 2017-01-08

The red shaded period 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**

- None



## 2. LYRA instrument status

### Calibration

No calibration.

### IOS & operations

Monday 02 Jan	Tuesday 03 Jan	Wednesday 04 Jan	Thursday 05 Jan	Friday 06 Jan	Saturday 07 Jan	Sunday 08 Jan
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
LYIOS00591	LYIOS00591	LYIOS00592	LYIOS00592	LYIOS00592	LYIOS00592	LYIOS00592

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

### LYRA detector temperature

LYRA detector 2 temperature globally varied between 40.60 and 43.76 °C.

### 3. SWAP instrument status

#### Calibration

No calibration

#### MCPM errors

The number of MCPM recoverable errors increased from 5606 to 5610.

The number of MCPM unrecoverable errors remained at 0.

#### IOS & operations

Monday 02 Jan	Tuesday 03 Jan	Wednesday 04 Jan	Thursday 05 Jan	Friday 06 Jan	Saturday 07 Jan	Sunday 08 Jan
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition +ESP jump	Nominal acquisition +Occultation	Nominal acquisition	Nominal acquisition
IOS00677 652 images	IOS00677 743 images	IOS00678 745 images	IOS00678 678 images	IOS00678 778 images	IOS00678 657 images	IOS00678 694 images

Special operations for SWAP, this week:

- ESP jump, 2107-Jan-05
- SWAP occultation campaign, 2017-Jan-06

#### SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -4.32999 and -2.25001 °C.

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

The main operator is Robbe Vansintjan.

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 22791 to 22855) 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 Jan 02 0UT and 2017 Jan 09 0UT: 4961

Highest cadence in this period: 18 seconds

Average cadence in this period: 121.77 seconds

Number of image gaps larger than 300 seconds: 108

Largest data gap: 32.92 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)