


P2SC-ROB-WR-305 - 20160125 Weekly report #305	<b>P2SC Weekly report</b>	
Period covered: Date:  Written by: Approved by:	Mon Jan 25 to Sun Jan 31, 2016 03 Feb 2016  Robbe Vansintjan 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	

## 1. Science

### Solar & Space weather events

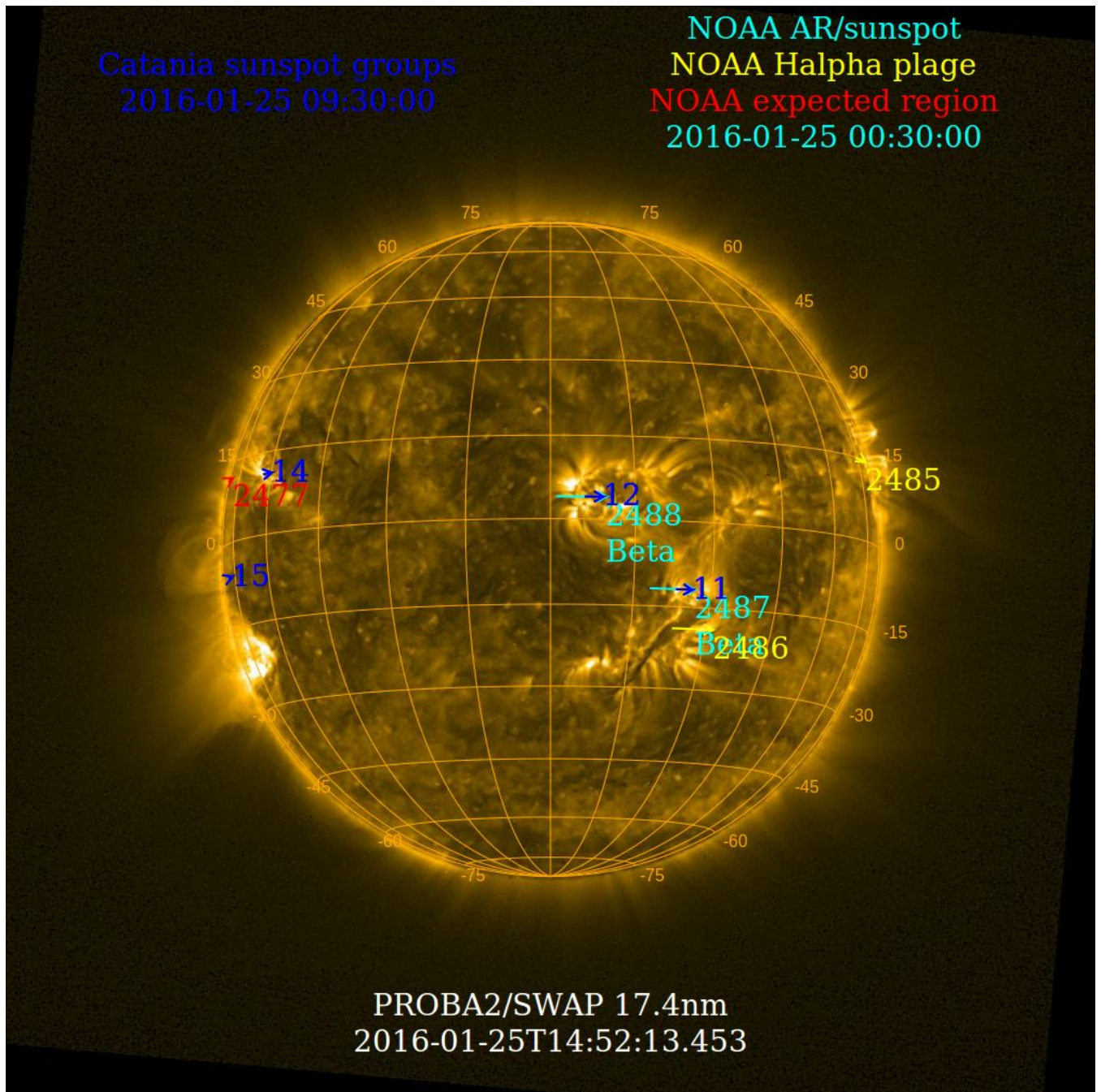
The level of solar activity<sup>1</sup> fluctuated between **very low** and **low** this week.

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

	Monday 25 Jan	Tuesday 26 Jan	Wednesday 27 Jan	Thursday 28 Jan	Friday 29 Jan	Saturday 30 Jan	Sunday 31 Jan
Activity	low	low	low	low	low	very low	very low
Flares	-	-	-	-	-	-	-

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

The SWAP images of Jan 25 and Jan 31 are shown below, with annotated active regions.

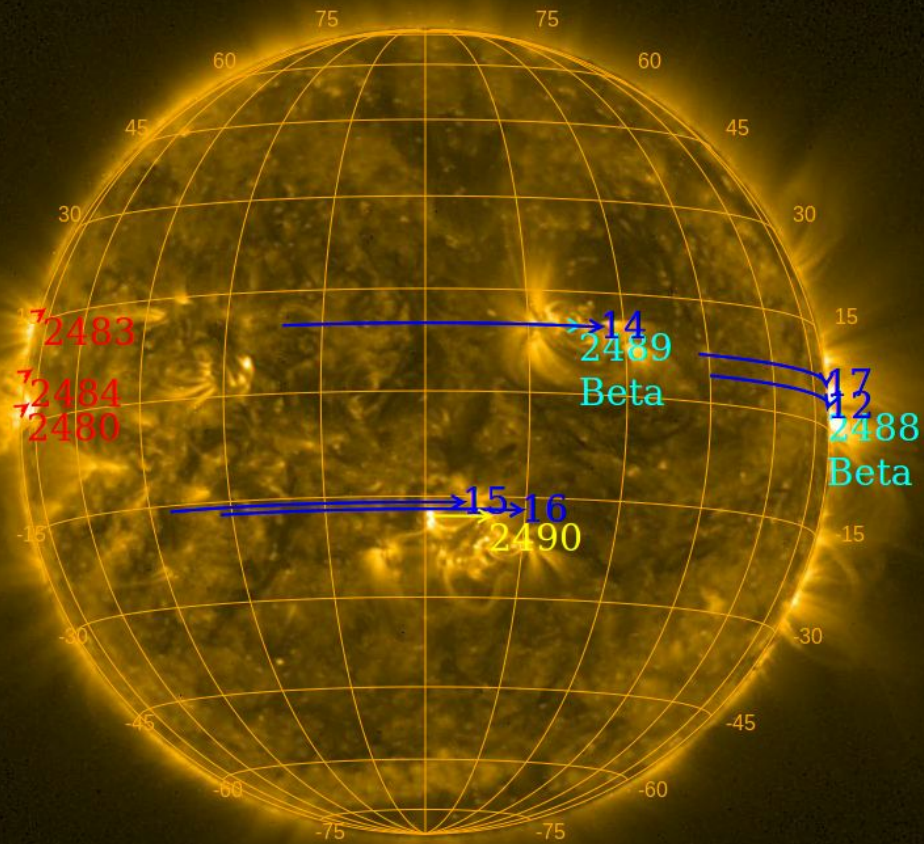


<http://sidc.be/soteria/soteria.php>



Catania sunspot groups  
2016-01-28 09:18:00

NOAA AR/sunspot  
NOAA Halpha plage  
NOAA expected region  
2016-01-31 00:30:00



PROBA2/SWAP 17.4nm  
2016-01-31T14:55:34.275

## **Solar Activity**

Solar flare activity fluctuated between very low and low during the week.

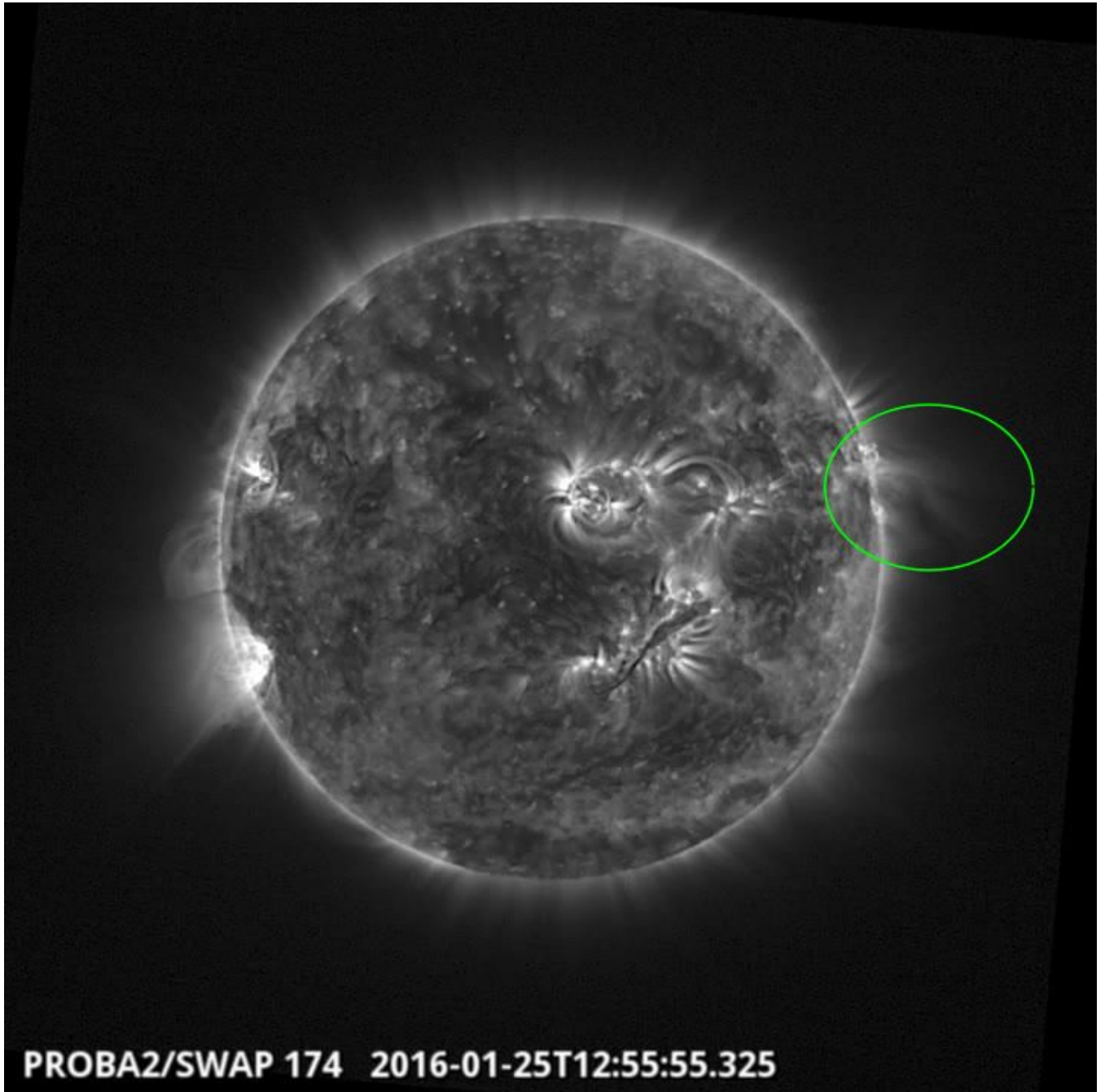
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: <http://proba2.oma.be/ssa>

This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 305).

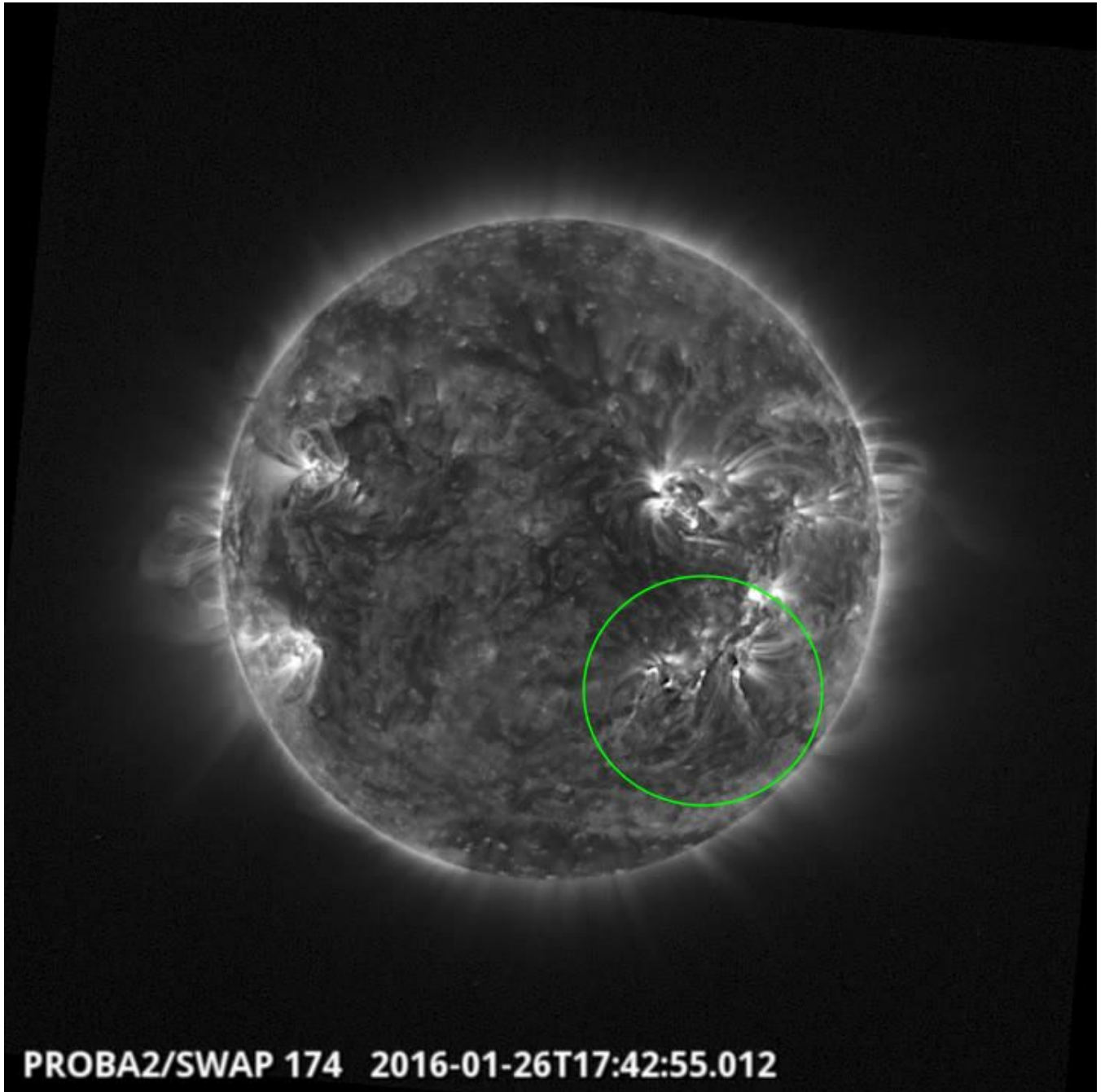
Details about some of this week's events, can be found further below.

Monday Jan 25



On 2016-Jan-25 SWAP observed an eruption on the West limb at 12:55 UT  
Find a movie of the event [here](#) (SWAP movie)

Tuesday Jan 26



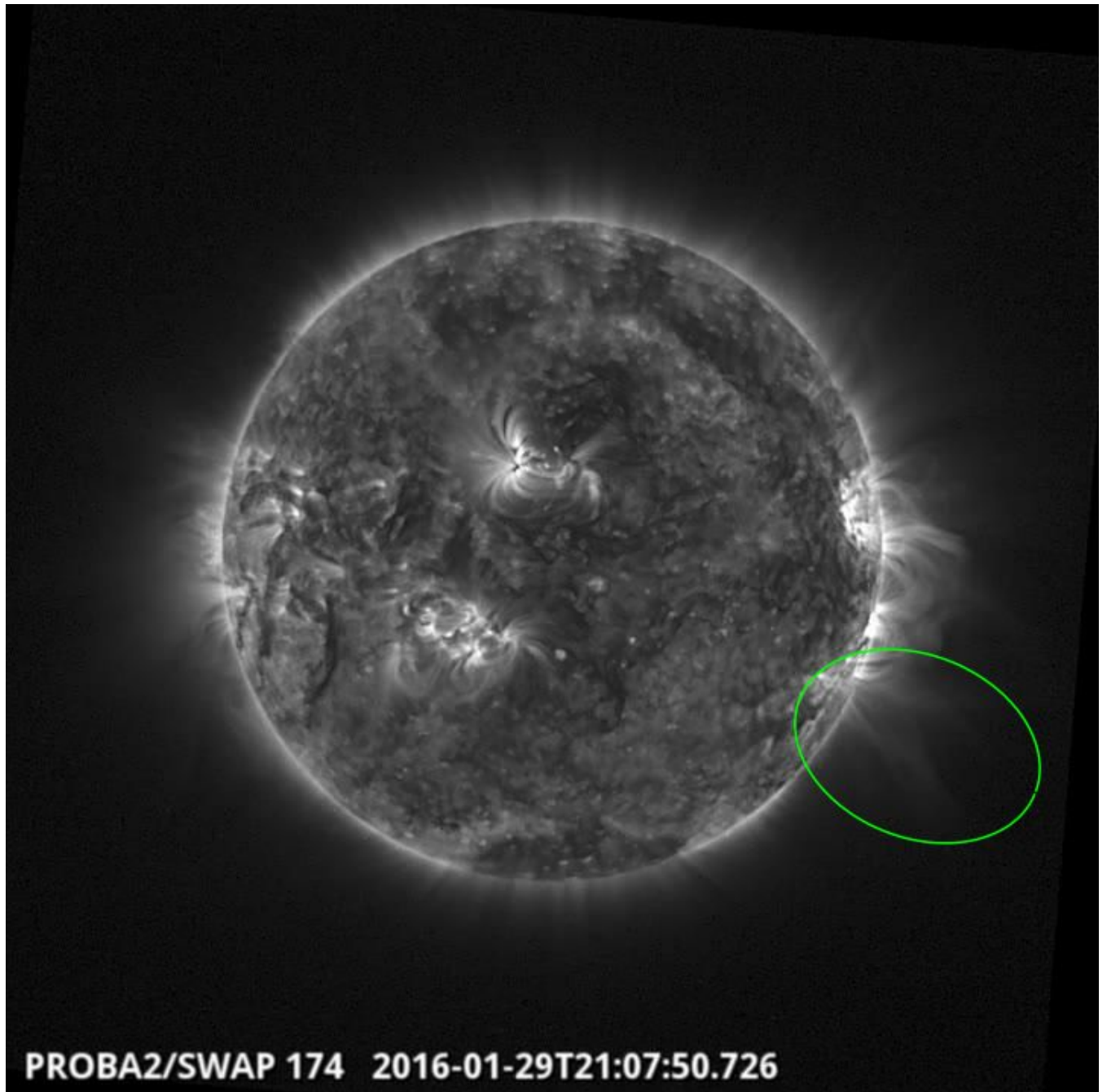
**PROBA2/SWAP 174 2016-01-26T17:42:55.012**

On 2016-Jan-26 SWAP at 17:42 UT SWAP observed a filament eruption in the South-east quadrant

Find a movie of the events [here](#) (SWAP movie)



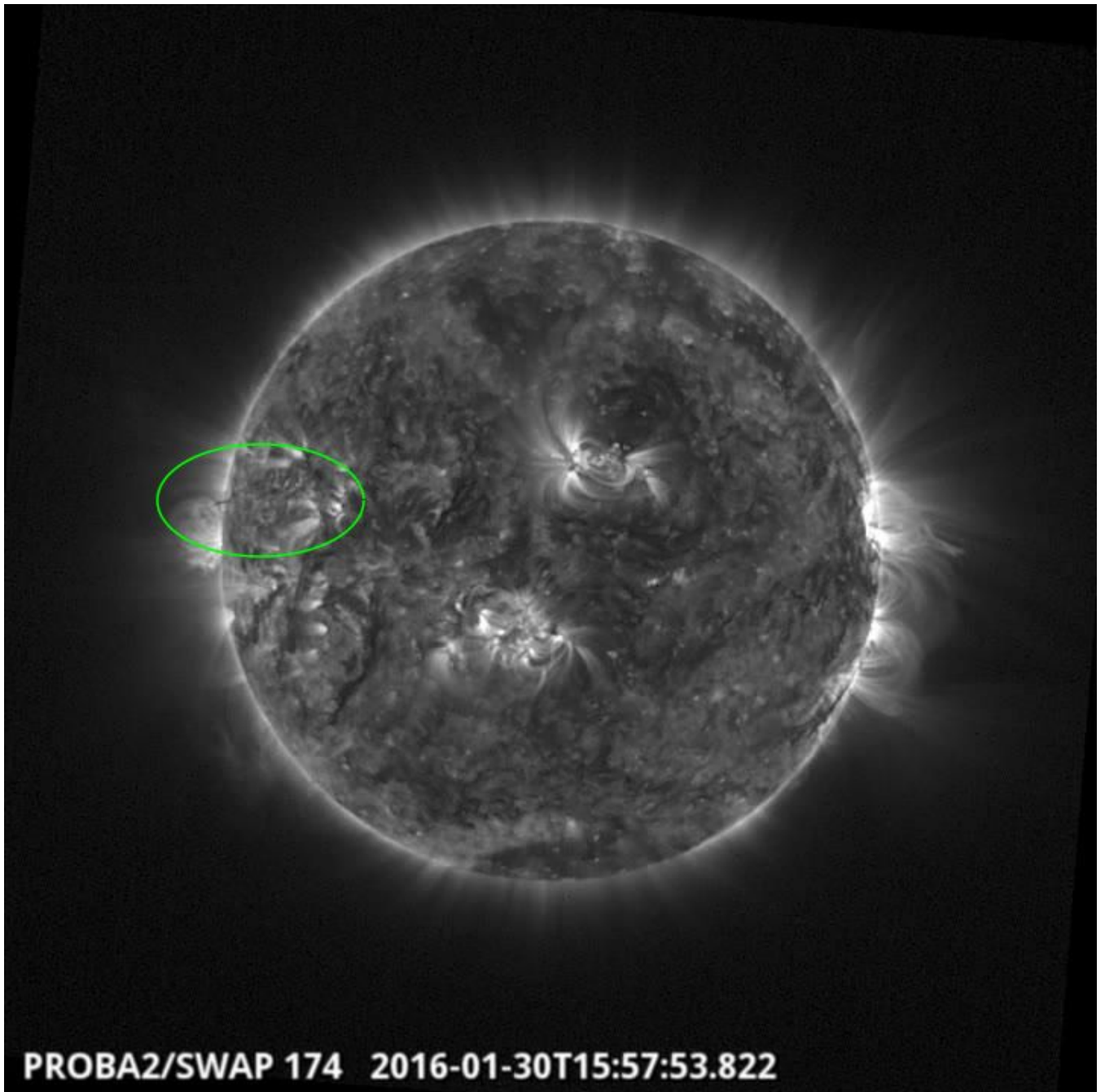
Friday Jan 29



**PROBA2/SWAP 174 2016-01-29T21:07:50.726**

**On 2016-Jan-29 at 21:07 UT SWAP observed a small filament eruption on the West limb,  
followed by a set of extensive post eruption loops  
Find a movie of the events [here](#) (SWAP movie)**

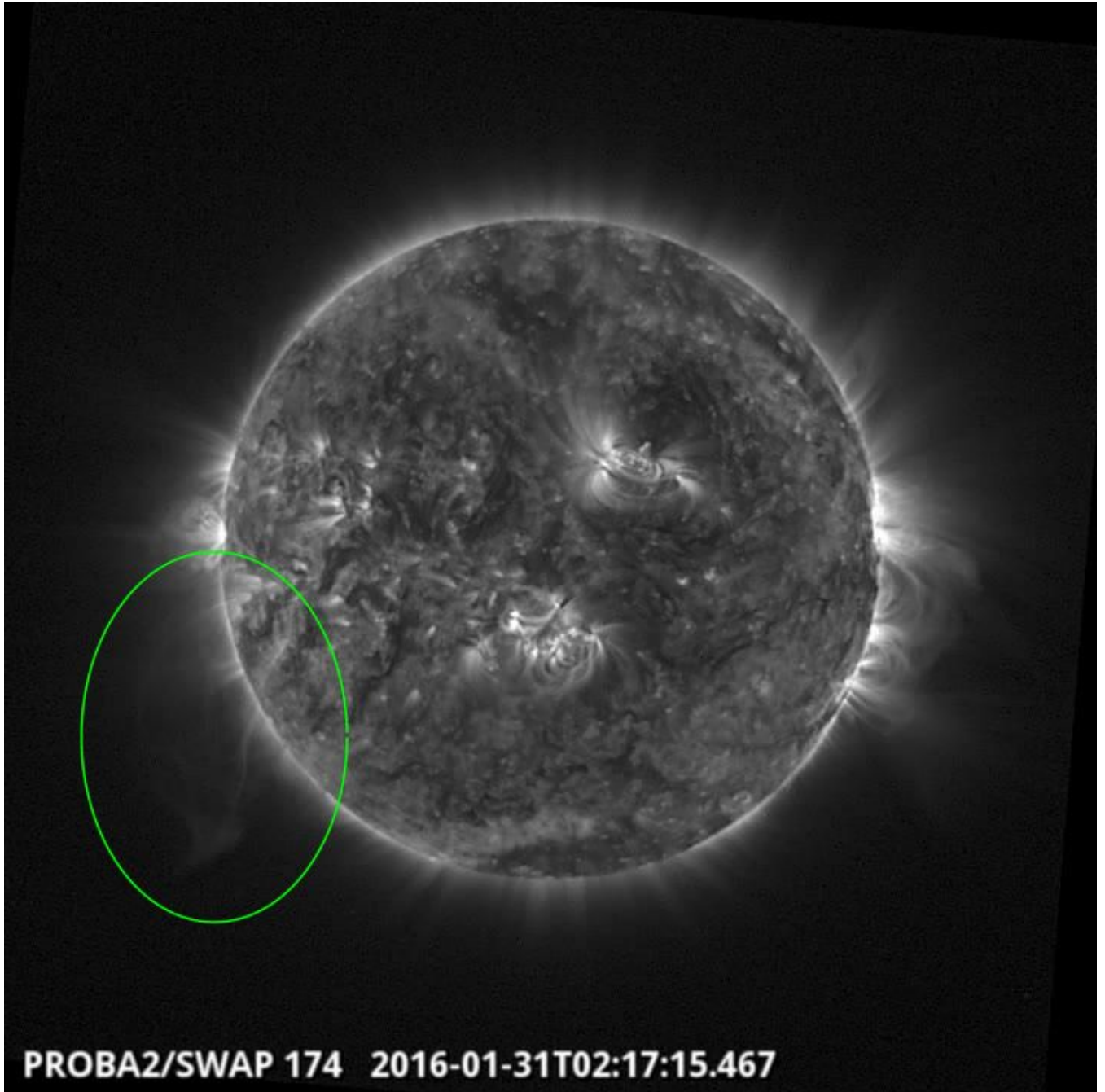
Saturday Jan 30



At 15:57 UT on 2016-Jan-30 SWAP observed a small prominence eruption on the East limb  
Find a movie of the events [here](#) (SWAP movie)



Sunday Jan 31

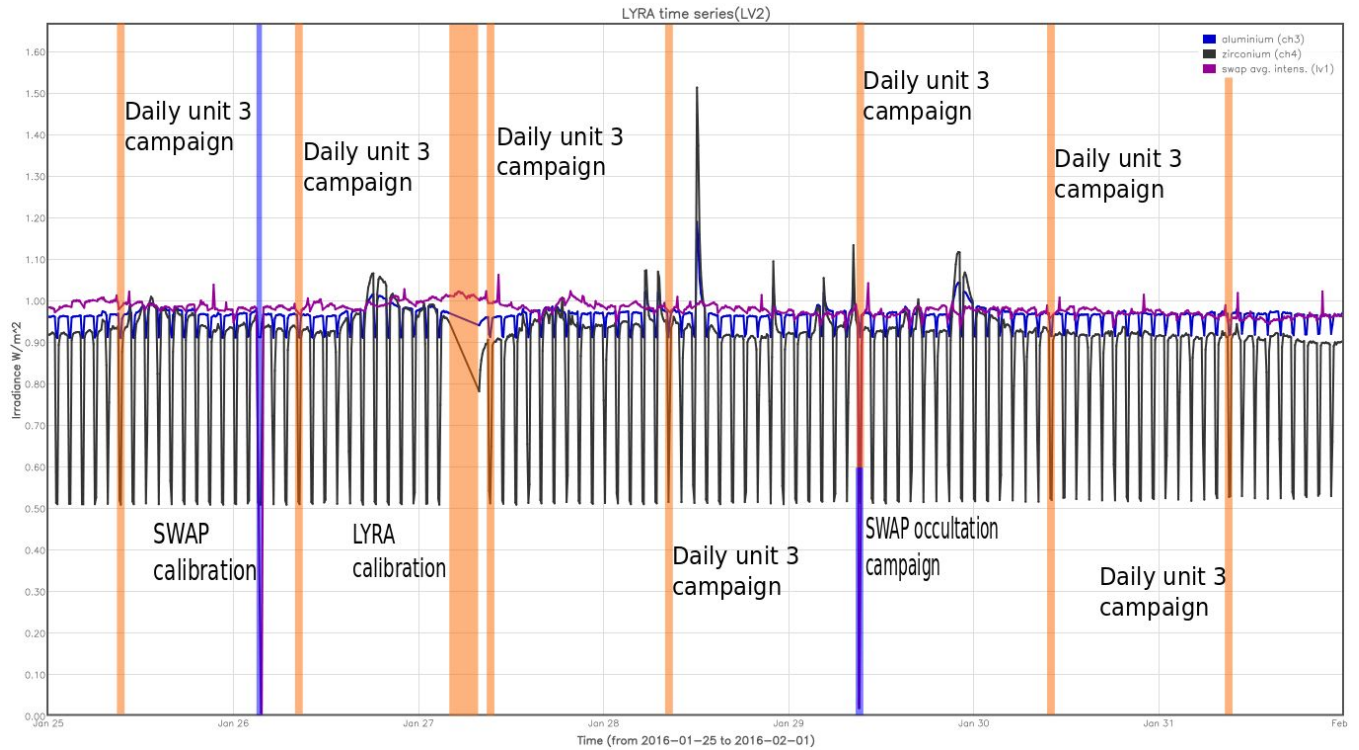


On 2016-Jan-31 at 02:17 UT SWAP observed a slow eruption on the East limb  
Find a movie of the events [here](#) (SWAP movie)

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:

- SWAP calibration, 2016-Jan-26
- SWAP occultation campaign, 2016-Jan-29

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

- Daily unit 3 campaign, 2016-Jan-25
- Daily unit 3 campaign, 2016-Jan-26
- LYRA calibration campaign, 2016-Jan-27
- Daily unit 3 campaign, 2016-Jan-27
- Daily unit 3 campaign, 2016-Jan-28
- Daily unit 3 campaign, 2016-Jan-29
- Daily unit 3 campaign, 2016-Jan-30
- Daily unit 3 campaign, 2016-Jan-31

## **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>).

- M. J. West gave a presentation “SWAP Observations of Post-Flare Giant Arches”
- D. Seaton gave an stce seminar “The Solar Ultraviolet Imager on GOES-R”

## **Guest Investigator Program**

- None

## 2. LYRA instrument status

### Calibration

Calibration campaign on Wednesday this week.

### IOS & operations

Monday 25 Jan	Tuesday 26 Jan	Wednesday 27 Jan	Thursday 28 Jan	Friday 29 Jan	Saturday 30 Jan	Sunday 31 Jan
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00523	LYIOS00523	LYIOS00523	LYIOS00523	LYIOS00524	LYIOS00524	LYIOS00524

The following science campaigns were performed by LYRA:

- Daily U3 observations campaign
- Bi-weekly calibration campaign

### LYRA detector temperature

LYRA detector 2 temperature globally varied between 45.2 and 51 °C.



### 3. SWAP instrument status

#### Calibration

Calibration campaign on 2016-Jan-26 this week.

#### MCPM errors

The number of MCPM recoverable errors increased from 1097 to 1174.

The number of MCPM unrecoverable errors remained at 0.

#### IOS & operations

Monday 25 Jan	Tuesday 26 Jan	Wednesday 27 Jan	Thursday 28 Jan	Friday 29 Jan	Saturday 30 Jan	Sunday 31 Jan
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition + occultation	Nominal acquisition	Nominal acquisition
IOS00624 636 images	IOS00624 682 images	IOS00624 606 images	IOS00624 700 images	IOS00625 600 images	IOS00625 608 images	IOS00625 507 images

Special operations for SWAP, this week:

- calibration campaign
- occultation campaign

#### SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.3 and 2.5 °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 19652 to 19714) 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 2016 Jan 25 00:00 UT and 2016 Feb 01 00:00 UT: 4339

Highest cadence in this period: 29 seconds

Average cadence in this period: 139.24 seconds

Number of image gaps larger than 300 seconds: 134

Largest data gap: 29.83 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
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)