


P2SC-ROB-WR-292 - 20151026 Weekly report #292	<b>P2SC Weekly report</b>	
Period covered: Date:  Written by: Approved by:	Mon Oct 26 to Sun Nov 01 2015 04 Nov 2015  Robbe Vansintjan D.B. Seaton	Royal Observatory of Belgium  - PROBA2 Science Center
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## 1. Science

### Solar & Space weather events

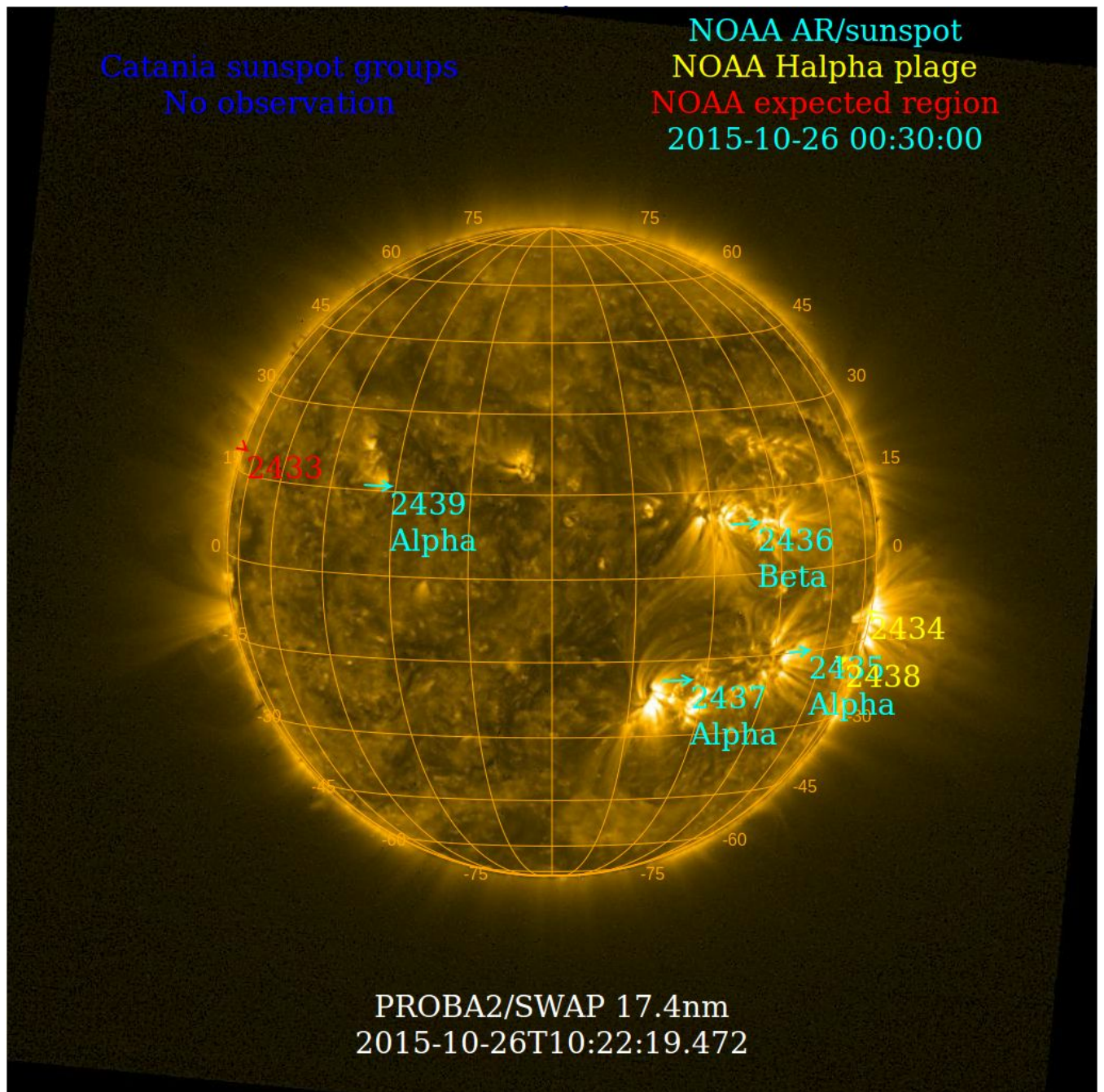
The level of solar activity<sup>1</sup> fluctuated between **low** and **moderate** this week.

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

	Monday 26 Oct	Tuesday 27 Oct	Wednesday 28 Oct	Thursday 29 Oct	Friday 30 Oct	Saturday 31 Oct	Sunday 01 Nov
Activity	low	low	low	low	low	moderate	low
Flares	-	-	-	-	-	<b>M1.0@17:52</b>	-

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

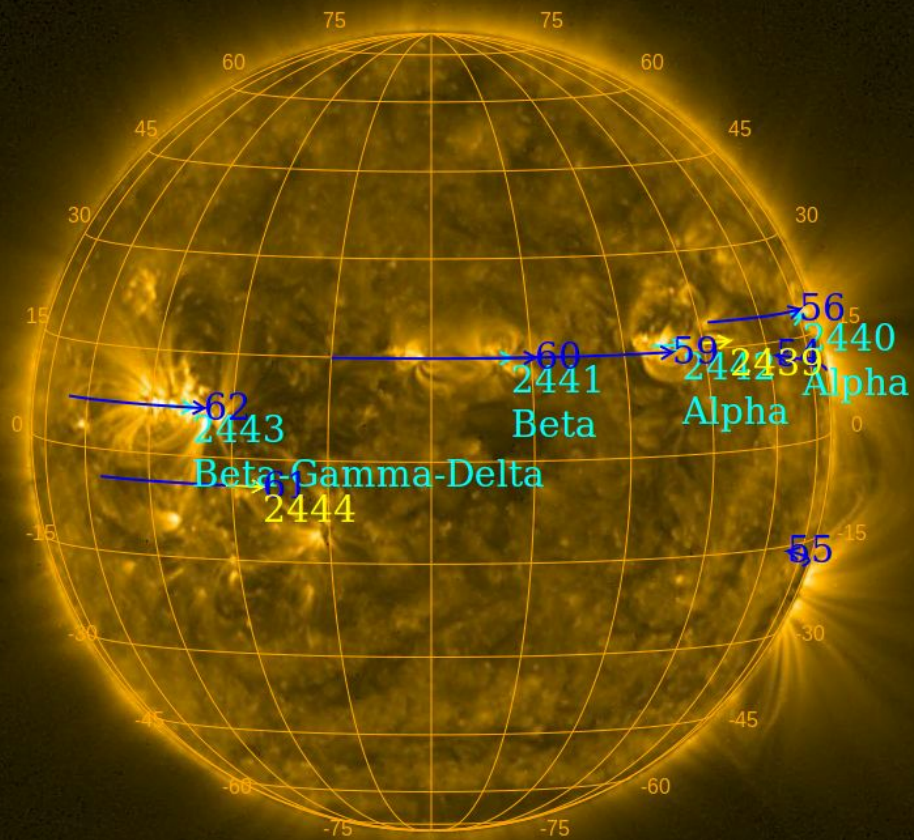
The SWAP images of Oct 26 and Nov 01 are shown below, with annotated active regions.



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

Catania sunspot groups  
2015-10-30 07:30:00

NOAA AR/sunspot  
NOAA Halpha plage  
NOAA expected region  
2015-11-01 00:30:00



PROBA2/SWAP 17.4nm  
2015-11-01T10:23:35.143

## **Solar Activity**

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

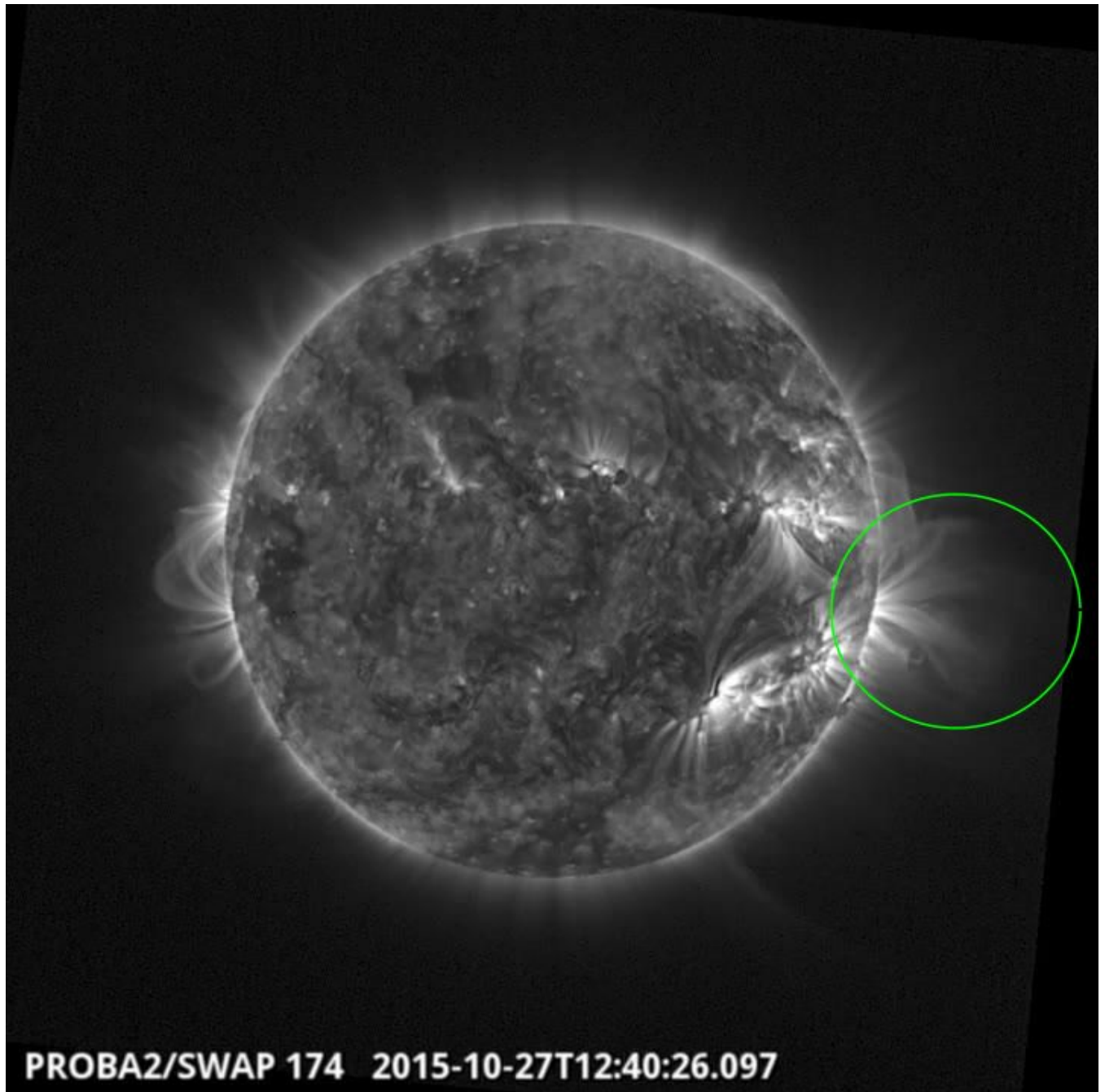
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: <http://proba2.oma.be/ssa>

This page also lists the recorded flaring events.

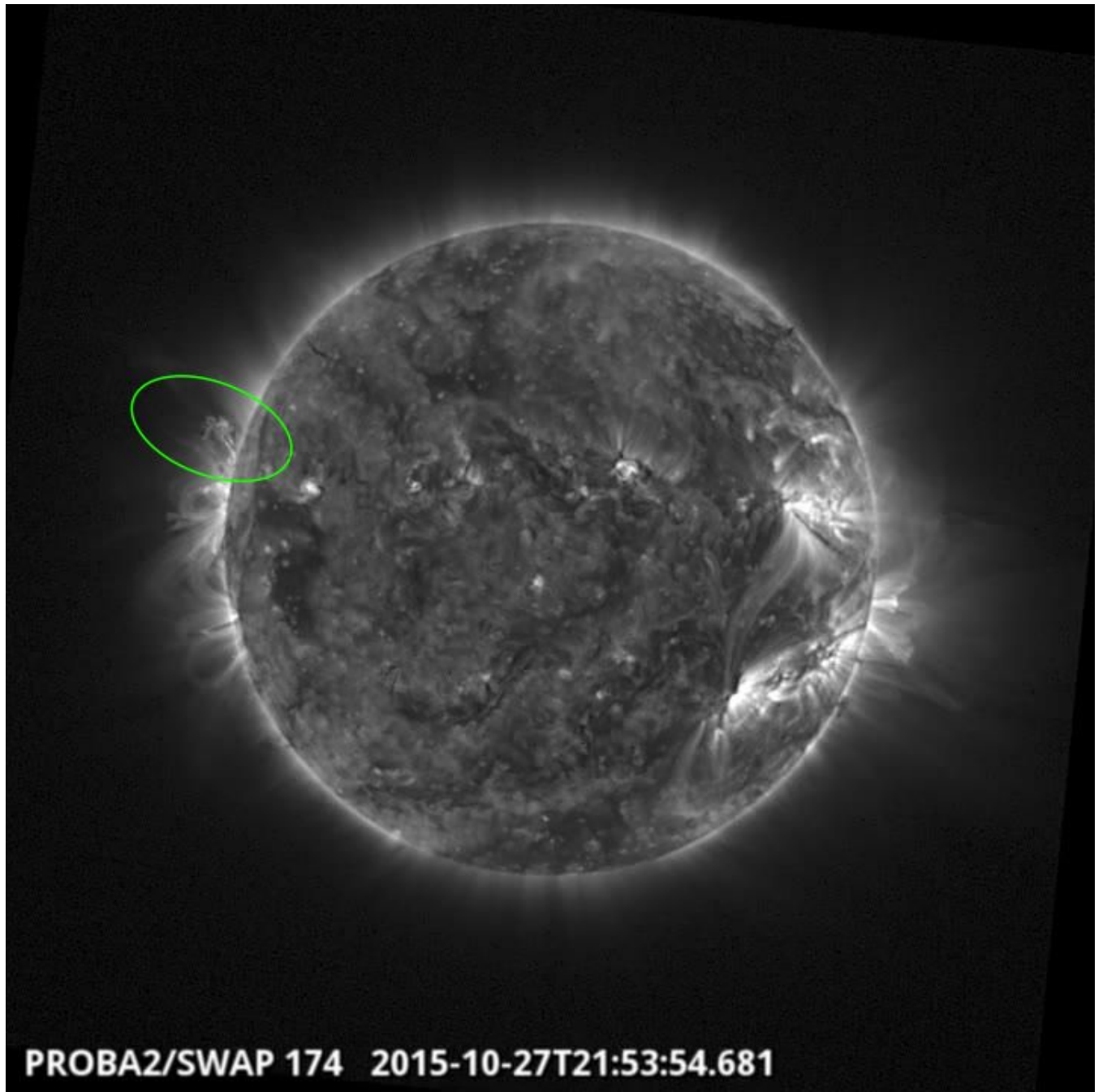
A weekly overview movie can be found [here](#) (SWAP week 292).

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

Tuesday Oct 27



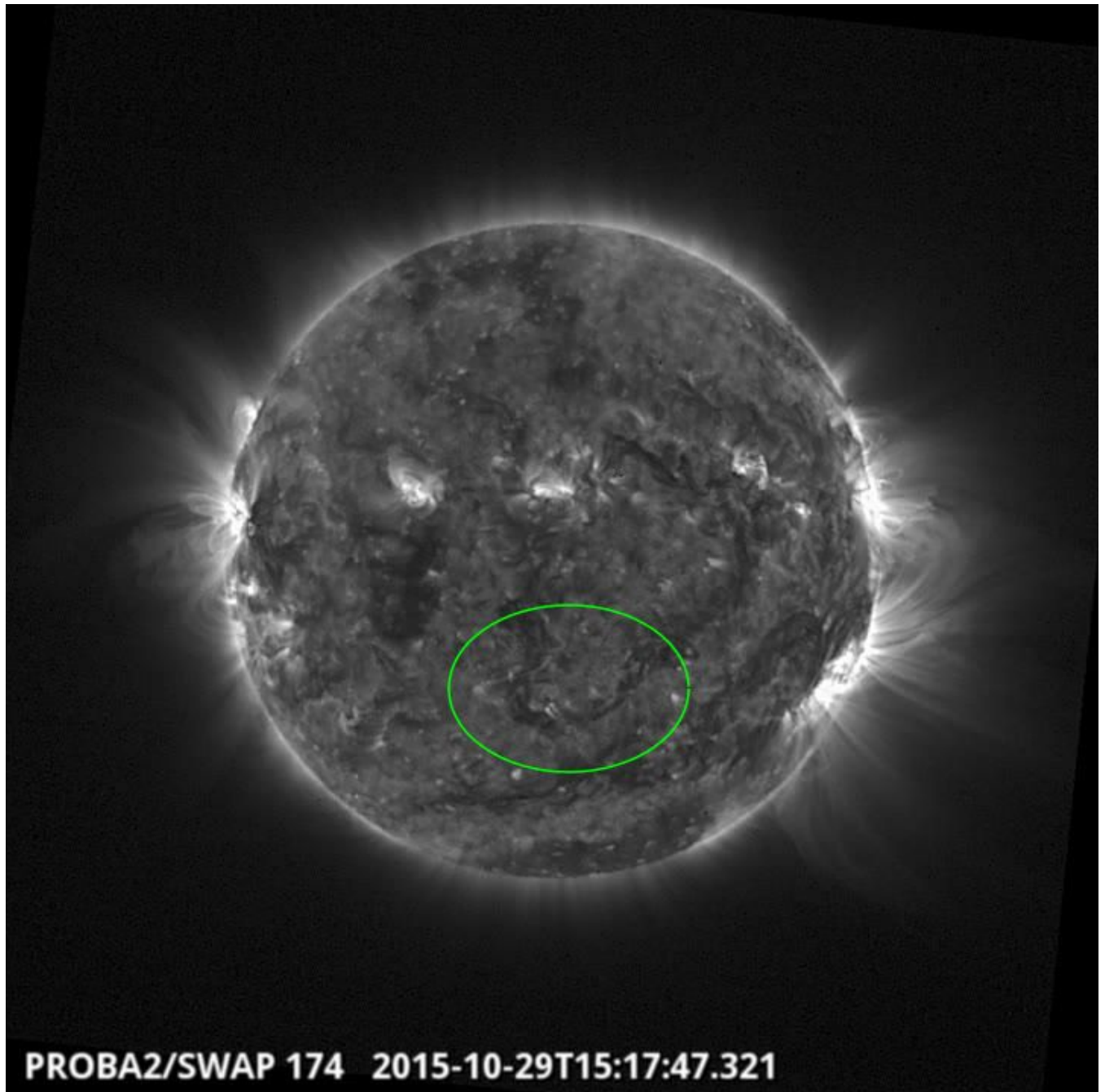
Eruption on the west limb @ 12:50 - SWAP image  
Find a movie of the event [here](#) (SWAP movie)



**PROBA2/SWAP 174 2015-10-27T21:53:54.681**

**Eruption on the east limb @ 21:53 - SWAP image**  
Find a movie of the event [here](#) (SWAP movie)

Thursday Oct 29

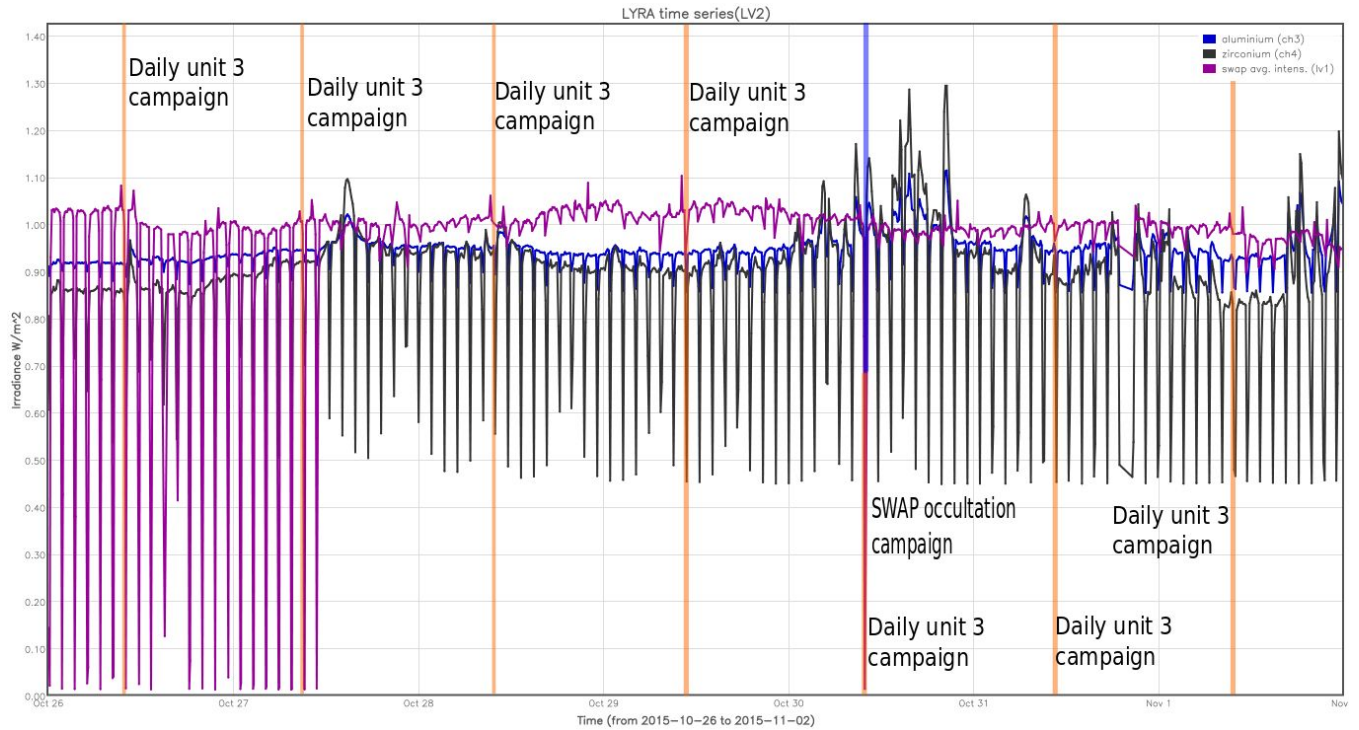


Plasma dynamics in the centre @ 15:17 - SWAP image  
Find a movie of the event [here](#) (SWAP movie)

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:

- SWAP occultation campaign, 2015-10-30

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

- Daily unit 3 campaign, 2015-10-26
- Daily unit 3 campaign, 2015-10-27
- Daily unit 3 campaign, 2015-10-28
- Daily unit 3 campaign, 2015-10-29
- Daily unit 3 campaign, 2015-10-30
- Daily unit 3 campaign, 2015-10-31
- Daily unit 3 campaign, 2015-11-01



## **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**

- Adam Kobelski, National Radio Astronomy Observatory, USA
  - Studying AR-AR Reconnection after Flux Emergence
- Sabrina Savage, NASA Marshall Space Flight Center, USA
  - Using SWAP Data to Tie Coronal Flows to Flare Arcades Spines

## 2. LYRA instrument status

### Calibration

No calibration this week.

### IOS & operations

Monday 26 Oct	Tuesday 27 Oct	Wednesday 28 Oct	Thursday 29 Oct	Friday 30 Oct	Saturday 31 Oct	Sunday 01 Nov
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
LYIOS00503	LYIOS00503	LYIOS00503	LYIOS00503	LYIOS00505	LYIOS00505	LYIOS00505

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

### LYRA detector temperature

LYRA detector 2 temperature globally varied between 51.2 and 53 °C.

### 3. SWAP instrument status

#### Calibration

No calibration this week.

#### MCPM errors

The number of MCPM recoverable errors increased from 316 to 488.

The number of MCPM unrecoverable errors remained at 0.

#### IOS & operations

Monday 26 Oct	Tuesday 27 Oct	Wednesday 28 Oct	Thursday 29 Oct	Friday 30 Oct	Saturday 31 Oct	Sunday 01 Nov
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition + occultation campaign	Nominal acquisition	Nominal acquisition
IOS00602 578 images	IOS00602 - > IOS00604 344 images	IOS00604 478 images	IOS00604 578 images	IOS00605 711 images	IOS00605 565 images	IOS00605 630 images

Special operations for SWAP, this week:

- occultation campaign

#### SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 2.2 and 3.35 °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 18824 to 18886) was nominal, except for:

- 18877.

In order to avoid a pass with high RF instability, the pass 18877 was moved from Redu U/D to Svalbard (Dwn). However the pass was not taken into account by the KSAT scheduling system and therefore the pass was missed.

Due to an internet problem at Redu which started on 25/10/2015 and ended on 28/10/2015 the passes from Svalbard were not sent until the problem was resolved. The affected days were re-processed and no data was lost in the end.

### Data coverage HK

All HK data files (LYRA\_AD) have been received, except:

- 18877.

### Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received, except:

- 18877.

Total number of images between 2015 Oct 26 0UT and 2015 Nov 02 0UT: 3924

Highest cadence in this period: 0 seconds

Average cadence in this period: 154.11 seconds

Number of image gaps larger than 300 seconds: 194

Largest data gap: 30.00 minutes

The data gap is caused by occultation jumps.

### Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received, except:

- 18877

## 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)