


P2SC-ROB-WR-347 - 20161114 Weekly report #347	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Nov 14 to Sun Nov 20, 2016 23 Nov 2016 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

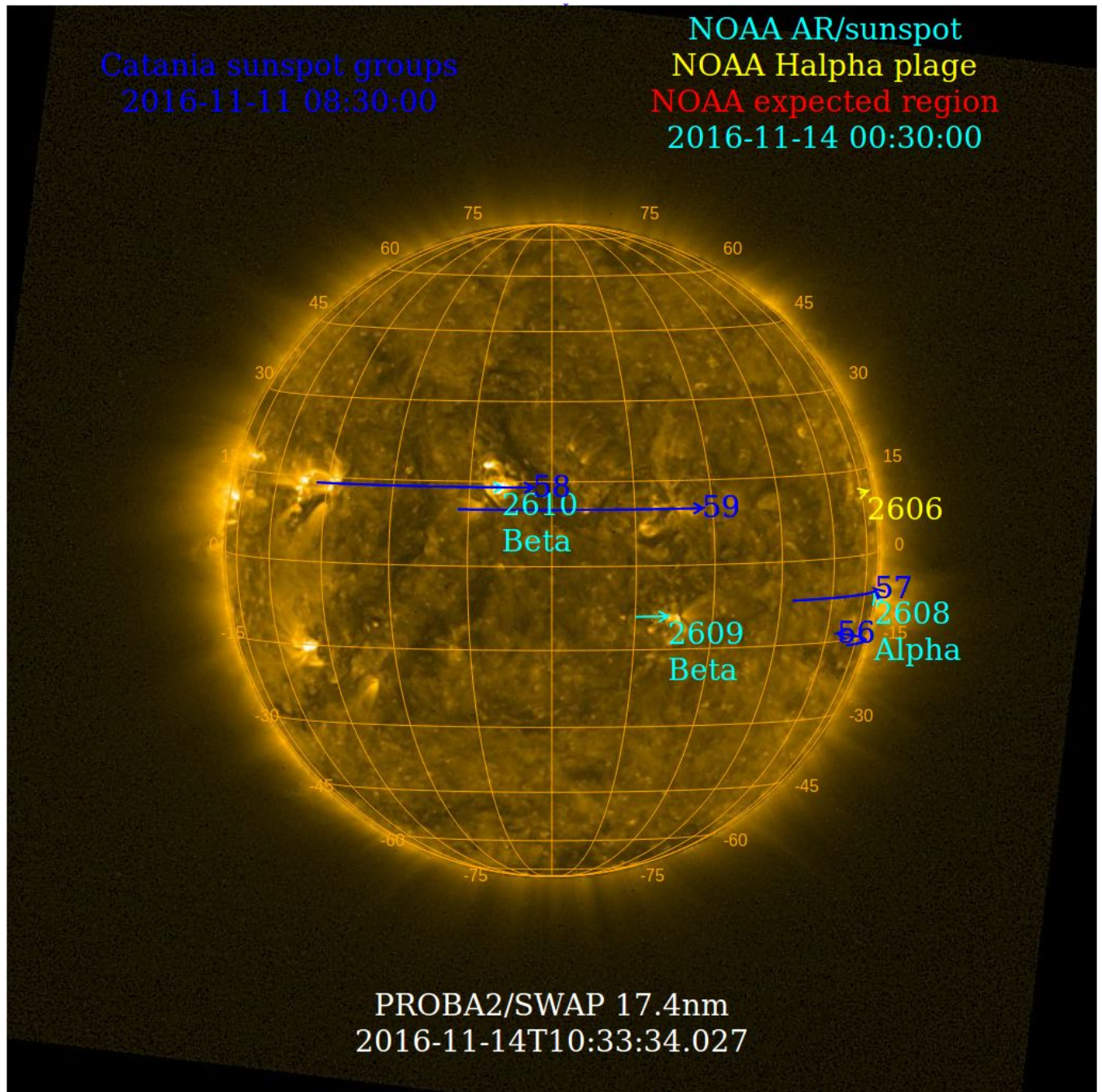
The level of solar activity¹ remained **very low** this week.

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

	Monday 14 Nov	Tuesday 15 Nov	Wednesday 16 Nov	Thursday 17 Nov	Friday 18 Nov	Saturday 19 Nov	Sunday 20 Nov
Activity	very low	very low	very low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

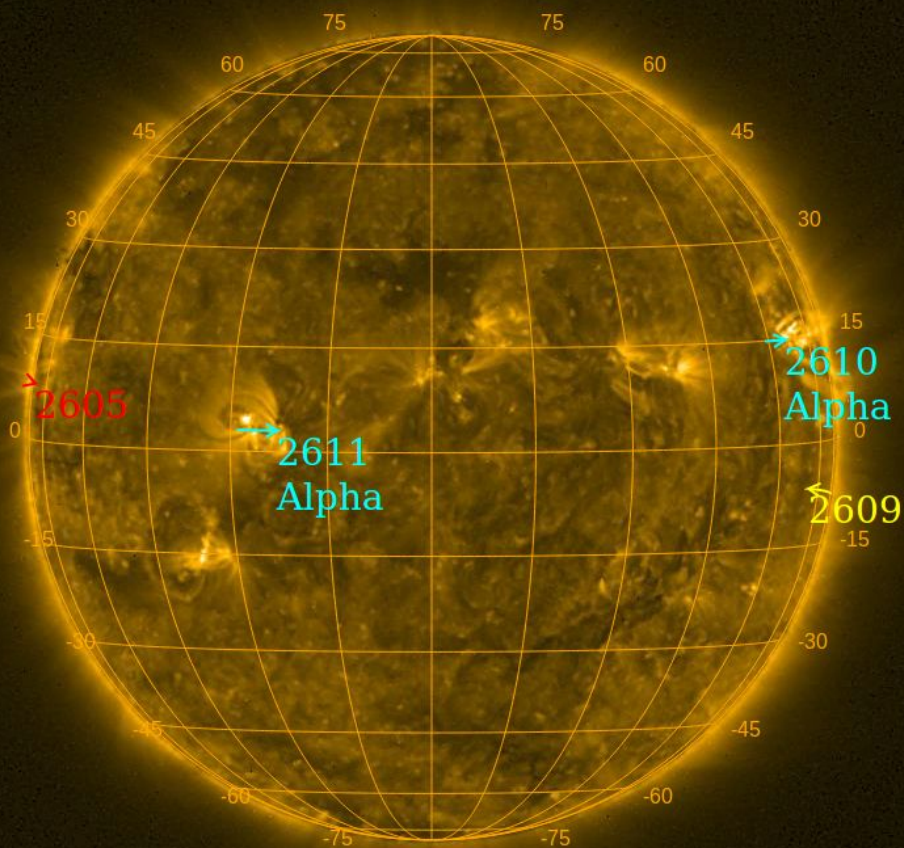
The SWAP images of Nov 14 and Nov 20 are shown below, with annotated active regions.



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

Catania sunspot groups
No observation

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2016-11-20 00:30:00



PROBA2/SWAP 17.4nm
2016-11-20T10:59:34.579

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>

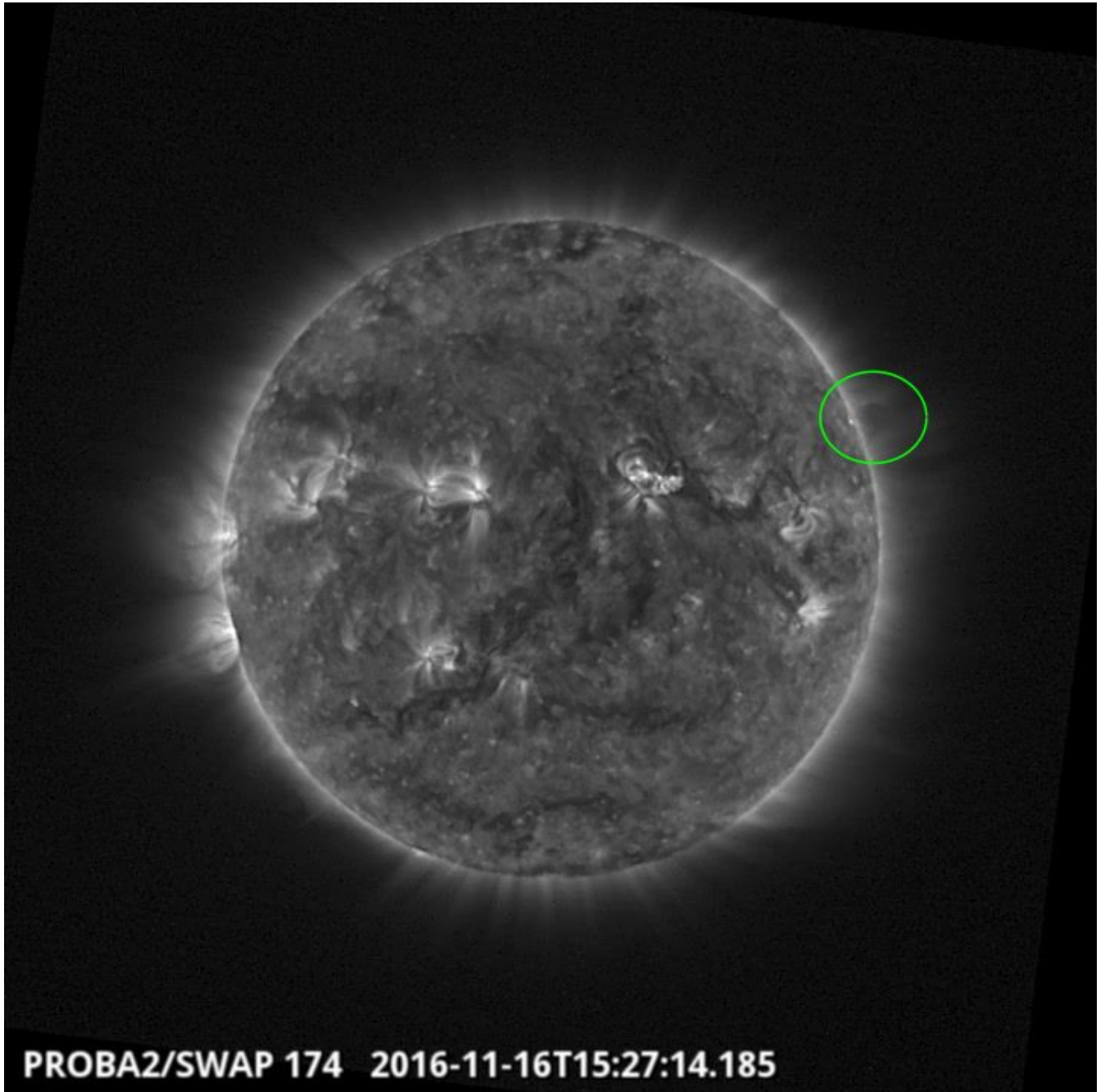
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 347).

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

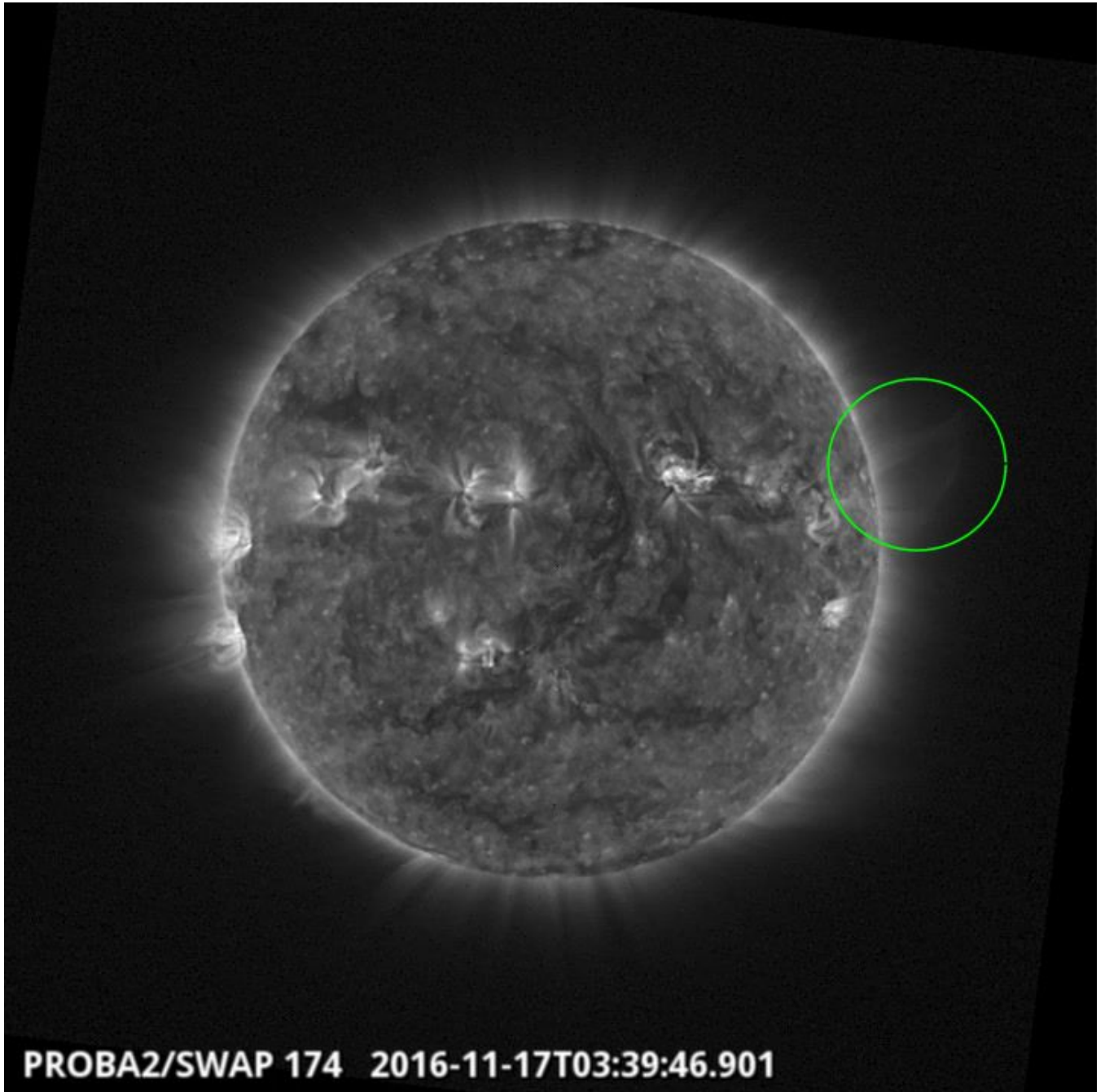
If any of the linked movies are unavailable they can be found in the P2SC movie repository [here](#)

Wednesday Nov 16



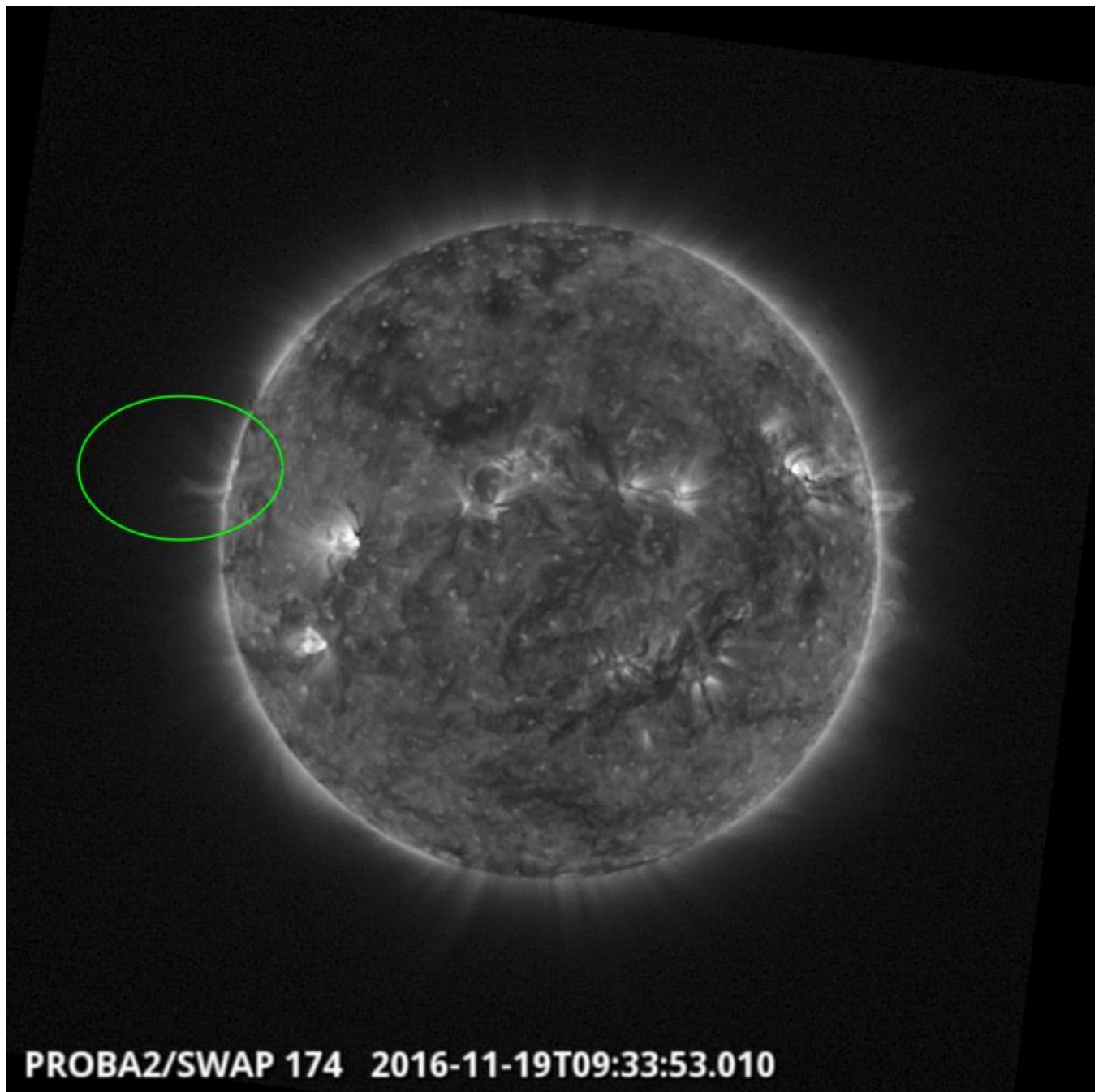
An eruption was observed by SWAP on the west limb of the Sun on 2016-Nov-16 at 15:27 UT
Find a movie of the event [here](#) (SWAP movie)

Thursday Nov 17



An eruption was observed by SWAP on the west limb of the Sun on 2016-Nov-17 at 03:39 UT
Find a movie of the event [here](#) (SWAP movie)

Thursday Nov 19

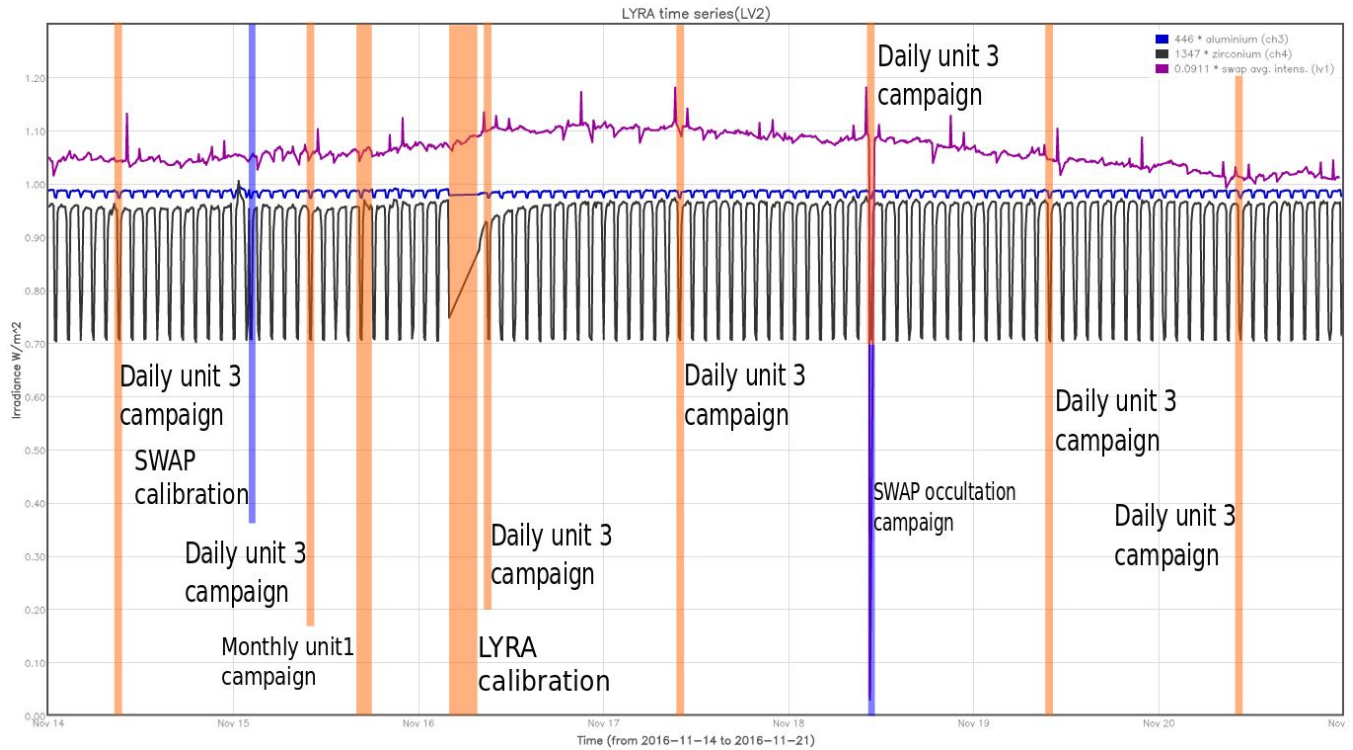


An eruption was observed by SWAP on the east limb of the Sun on 2016-Nov-19 at 09:33 UT
Find a movie of the event [here](#) (SWAP movie)

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:

- bi-weekly SWAP calibration, 2016-Nov-15
- SWAP parallel occultation campaign, 2016-Nov-18

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

- Daily unit 3 campaign, 2016-Nov-14
- Daily unit 3 campaign, 2016-Nov-15
- Monthly unit 1 campaign, 2016-Nov-15
- Bi-weekly calibration campaign, 2016-Nov-16
- Daily unit 3 campaign, 2016-Nov-16
- Daily unit 3 campaign, 2016-Nov-17
- Daily unit 3 campaign, 2016-Nov-18
- Daily unit 3 campaign, 2016-Nov-19
- Daily unit 3 campaign, 2016-Nov-20

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.

European Space Weather Week was held from 14-18 November in Oostende Belgium. Throughout the week PROBA2 was heavily represented. A screen and poster boards advertised SWAP and LYRA observations throughout the week.

The 14th PROBA2 Science Working Team (SWT) meeting, was held on Wednesday November 16, 2016 from 13:15 to 14:45 central european time at the European Space Weather Week. The meeting was held in the Mercator room at the ESWW. Science talks relating to PROBA2 were given by:

Barbara Thompson - SWAP's role in bridging the gap between coronal dimmings and CMEs

Vratislav Krupar - Radio signatures of shock waves and their association with coronal structures seen by Proba2/SWAP and SDO/AIA

Laurence Wauters - LYRA mid-term periodicities

Chloé Guennou - Lifecycle of a large polar coronal Pseudostreamer/cavity system

More details can be found here:

<http://proba2.oma.be/SWT14>

On Friday November 18 Matthew west discussed PROBA2: Science Mission and Space Weather Tool in Session 12 of space weather week: Space Weather Needs and Opportunities From Upcoming Space Missions.

Several other talks reference PROBA2 data throughout the week

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

- O. Panasenco is visiting the P2SC from 2016 Nov 07 - 2016 Dec 07 to work on Pseudostreamers and their Immediate Environment: Observations and Modeling

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 14 Nov	Tuesday 15 Nov	Wednesday 16 Nov	Thursday 17 Nov	Friday 18 Nov	Saturday 19 Nov	Sunday 20 Nov
Nominal acquisition + daily U3	Nominal acquisition + daily U3 + monthly U1	Nominal acquisition + daily U3 + calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00585	LYIOS00585	LYIOS00585	LYIOS00585	LYIOS00585	LYIOS00585	LYIOS00585

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

On 2016-Nov-15

- Monthly unit 1 campaign

On 2016-Nov-16

- Bi-weekly calibration campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 42.2 and 46.1 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 5579 to 5593.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 14 Nov	Tuesday 15 Nov	Wednesday 16 Nov	Thursday 17 Nov	Friday 18 Nov	Saturday 19 Nov	Sunday 20 Nov
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition + occultation	Nominal acquisition	Nominal acquisition
IOS00669 699 images	IOS00670 681 images	IOS00670 708 images	IOS00670 741 images	IOS00670 740 images	IOS00671 698 images	IOS00671 681 images

Special operations for SWAP, this week:

On 2016-Nov-15

- Bi-weekly calibration campaign

On 2016-Nov-18

- SWAP and LYRA parallel occultation campaign

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.9 and -3 °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 22325 to 22391) 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 Nov 14 0UT and 2016 Nov 21 0UT: 5003

Highest cadence in this period: 30 seconds

Average cadence in this period: 120.59 seconds

Number of image gaps larger than 300 seconds: 127

Largest data gap: 32.32 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)