


P2SC-ROB-WR-242 - 20141110 Weekly report #242	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Nov 10 to Sun Nov 16, 2014 19 Nov 2014 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

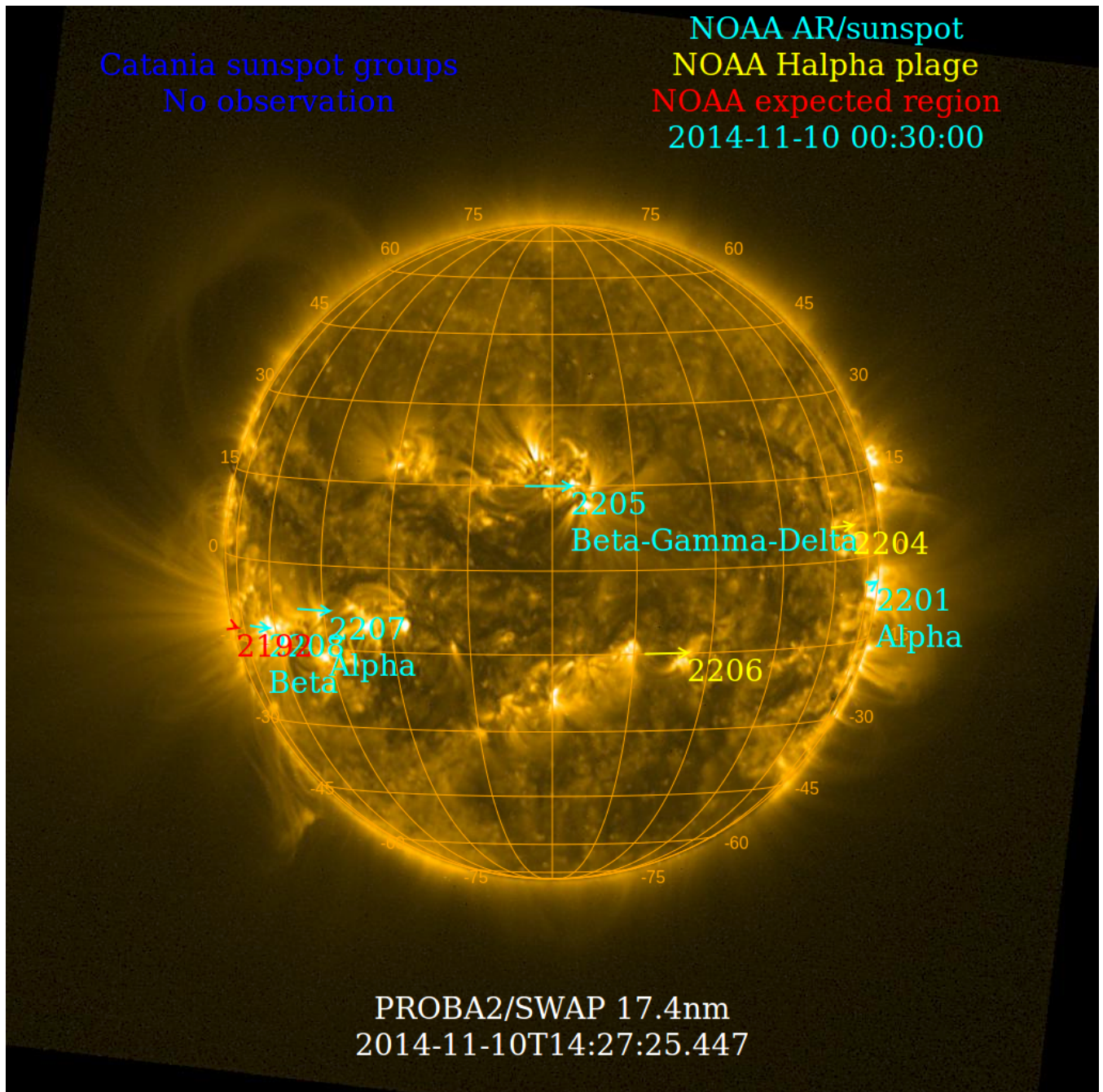
The level of solar activity¹ fluctuated between **low** and **moderate** this week.

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

	Monday 10 Nov	Tuesday 11 Nov	Wednesday 12 Nov	Thursday 13 Nov	Friday 14 Nov	Saturday 15 Nov	Sunday 16 Nov
Activity	low	low	low	low	low	moderate	moderate
Flares	-	-	-	-	-	M3.7@20:46 M3.2@12:03	M5.7@17:48

¹ See appendix. All timings are given in UT.

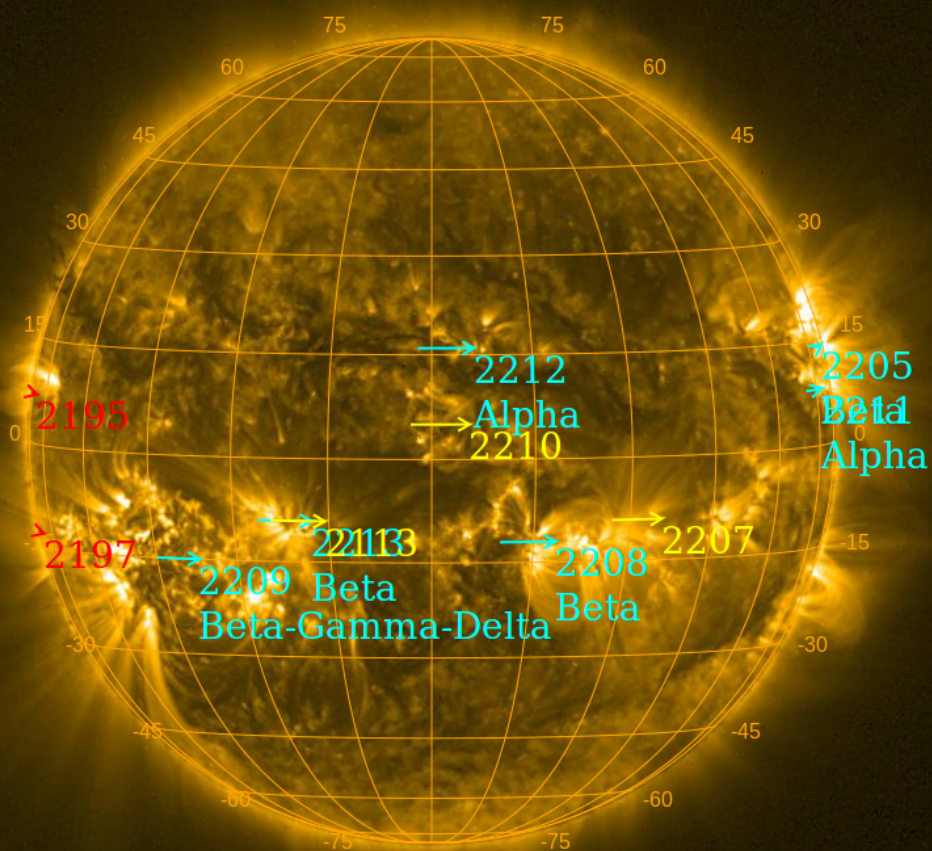
The SWAP images of Nov 10 and Nov 16 are shown below, with annotated active regions.



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

Catania sunspot groups
No observation

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2014-11-16 00:30:00



PROBA2/SWAP 17.4nm
2014-11-16T14:16:26.986

Solar Activity

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

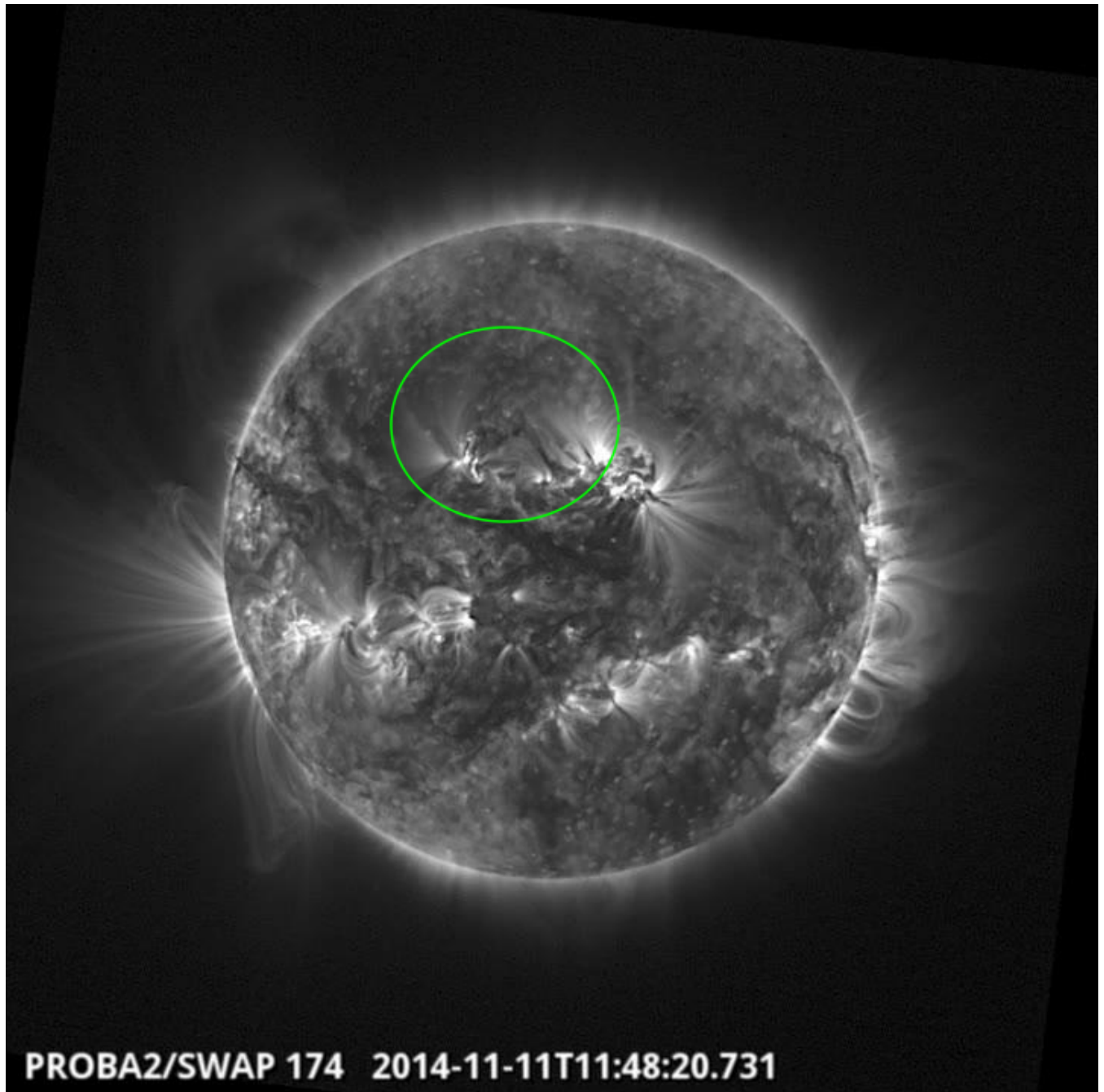
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: <http://proba2.oma.be/ssa>

This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 242).

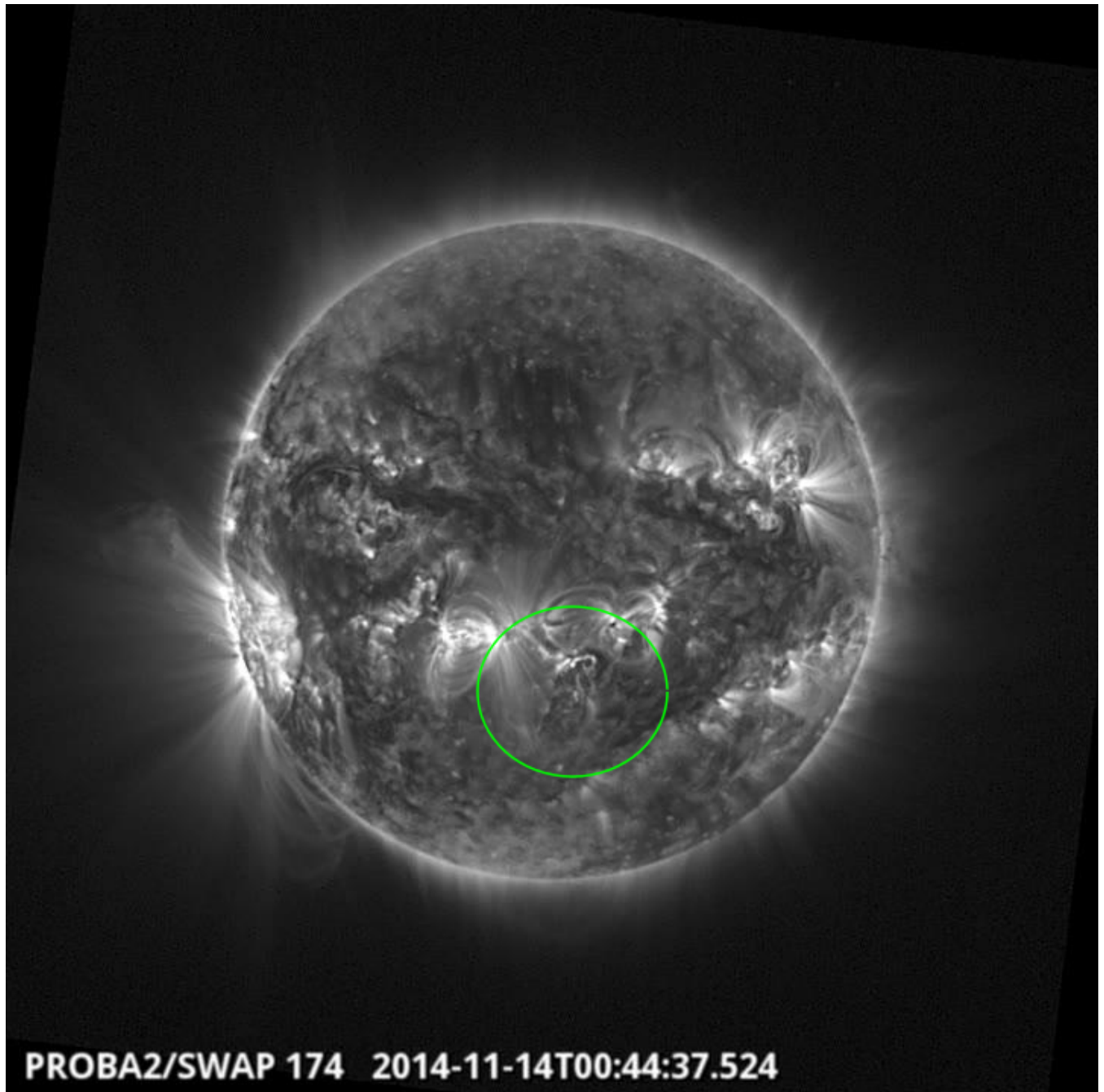
Details about some of this week's events, can be found further below.

Tuesday Nov 11

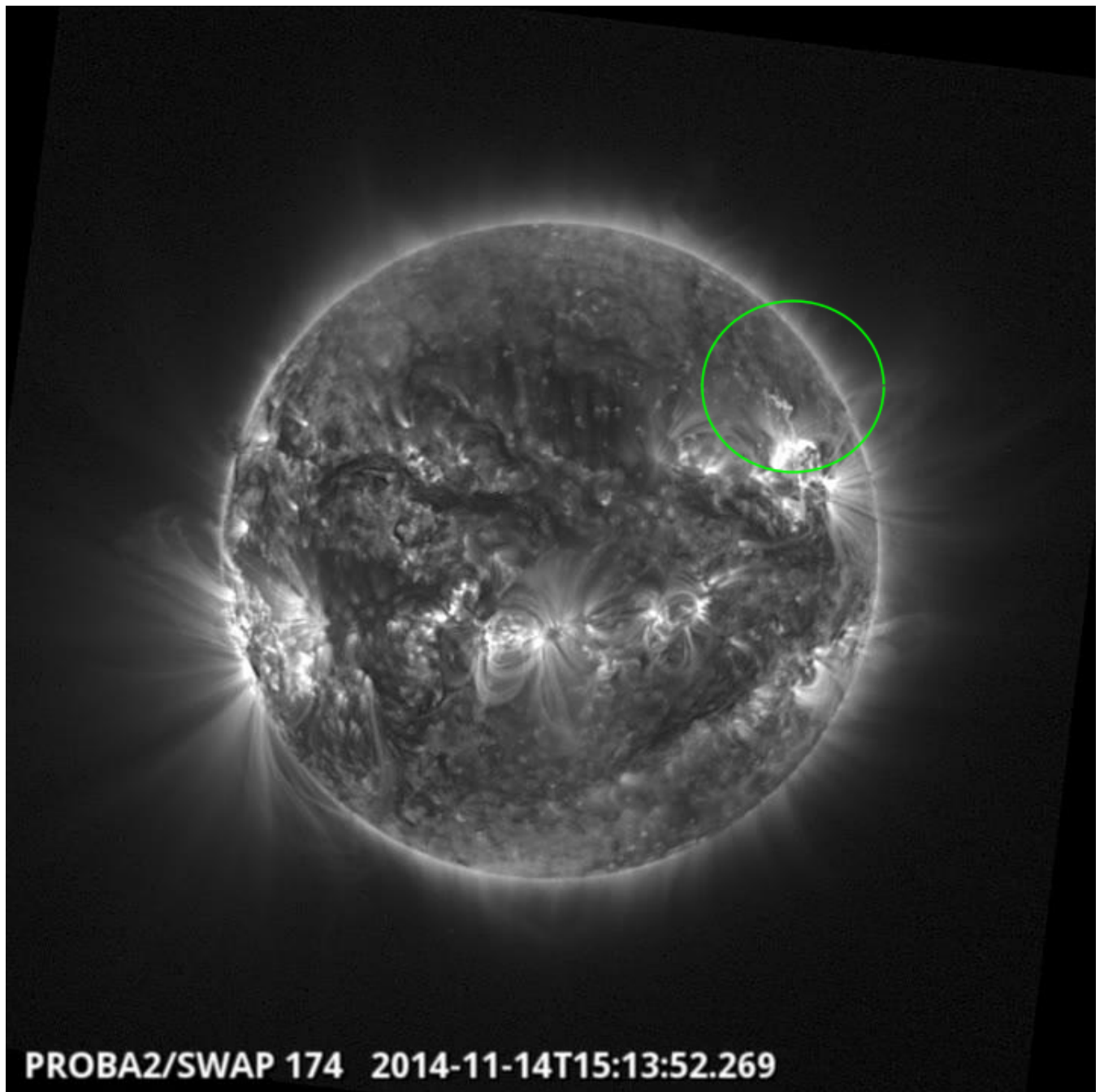


Eruption on the north east quad @ 11:48 - SWAP image
Find a movie of the event [here](#) (SWAP movie)

Friday Nov 14



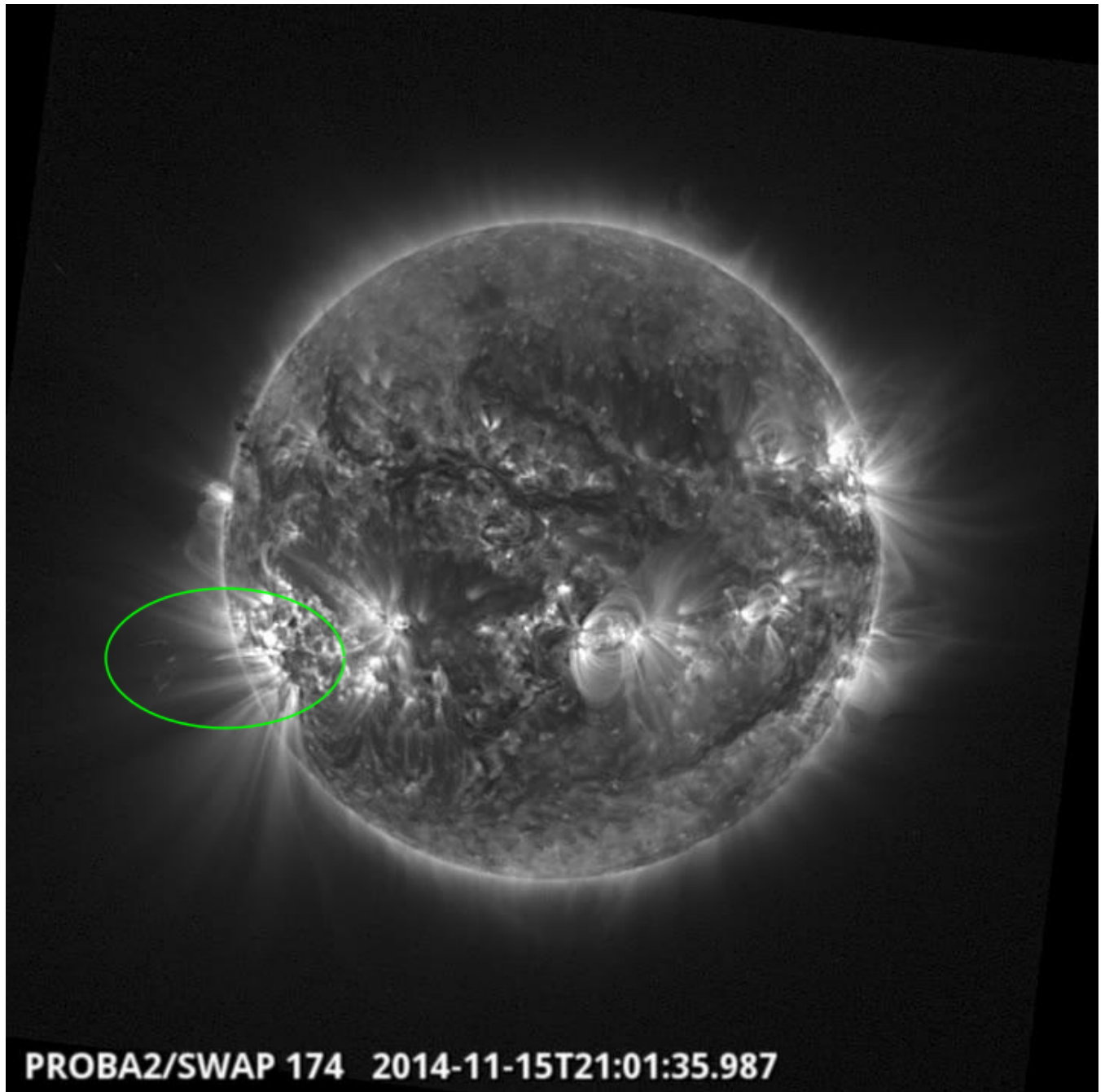
Eruption on the south half @ 00:44 - SWAP image
Find a movie of the event [here](#) (SWAP movie)



PROBA2/SWAP 174 2014-11-14T15:13:52.269

Eruption on the north west quad @ 15:13 - SWAP image
Find a movie of the event [here](#) (SWAP movie)

Saturday Nov 15

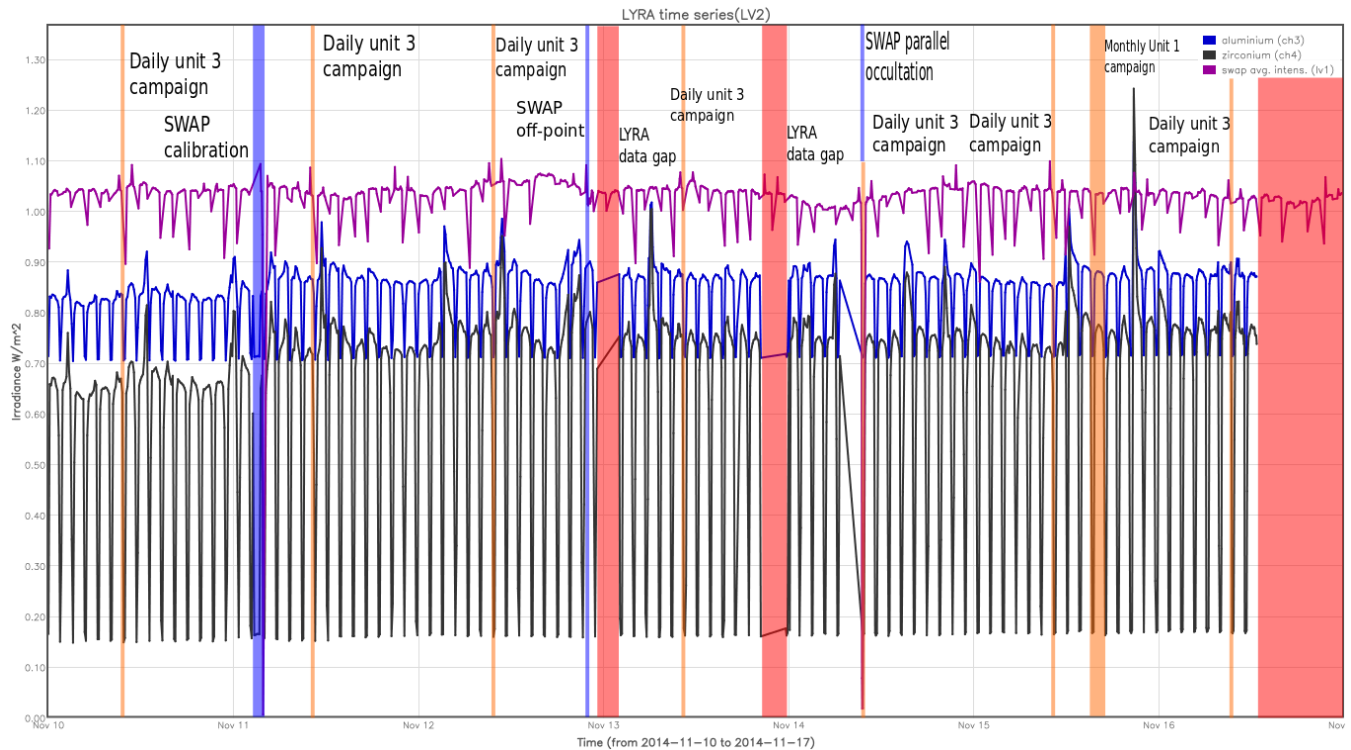


Eruption on the south east quad @ 21:01 - SWAP image
Find a movie of the event [here](#) (SWAP movie)

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:

- weekly SWAP calibration with extra darks
- SWAP off-point regarding big active region
- SWAP parallel occultation campaign with LYRA

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

- daily unit 3 campaign, six times.
- Monthly unit 1 campaign
- daily, unit 3 campaign

The red shaded period corresponds to:

- LYRA data gap due to a timestamp issue, two times
- LYRA data gap probably due to the LYTMR tool experiencing a blocked database.

For each data gap the RAW LYRA data was received. These gaps are under investigation and should be resolved in the future.

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>).

On Nov 5, L.Rachmeler gave a talk titled "Large scale magnetic structure determination from coronal polarimetric (1074.7 nm) data". The talk discusses how SWAP EUV images can be used with coronal polarimetry to improve our understanding of the coronal magnetic field. The talk was at the COST *The magnetic solar corona as revealed by polarimetry workshop* in Toulouse, FR.

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 10 Nov	Tuesday 11 Nov	Wednesday 12 Nov	Thursday 13 Nov	Friday 14 Nov	Saturday 15 Nov	Sunday 16 Nov
Nominal acquisition + daily U3 LYIOS00436	Nominal acquisition + daily U3 LYIOS00436	Nominal acquisition + daily U3 LYIOS00436	Nominal acquisition + daily U3 LYIOS00436	Nominal acquisition + daily U3 LYIOS00436	Nominal acquisition + daily U3 + unit 1 campaign LYIOS00437	Nominal acquisition + daily U3 LYIOS00437

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- monthly unit 1 campaign
- Dark current measurements with U3

LYRA detector temperature

LYRA detector 2 temperature globally varied between 44.6 and 47.7 °C, taking into account the daily U3 activation periods and unit 1 activation period.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 23625 to 23863.

The number of MCPM unrecoverable errors increased from 2237 to 2405.

IOS & operations

Monday 10 Nov	Tuesday 11 Nov	Wednesday 12 Nov	Thursday 13 Nov	Friday 14 Nov	Saturday 15 Nov	Sunday 16 Nov
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition + off point	Nominal acquisition + parallel occultation	Nominal acquisition	Nominal acquisition
IOS00547 588 images	IOS00547 612 images	IOS00547 -> IOS00548 601 images	OS00548 570 images	IOS00548 627 images	IOS00549 568 images	IOS00549 583 images

Special operations for SWAP, this week:

- weekly calibration plus half an hour of extra darks
- a half an hour off-point to study the large active region on the eastern limb
- parallel occultation campaign with LYRA

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -2.4 and 0.2 °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 15736 to 15796) 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 2014 Nov 10 0UT and 2014 Nov 17 0UT: 4150

Highest cadence in this period: 0 seconds

Average cadence in this period: 145.68 seconds

Number of image gaps larger than 300 seconds: 102

Largest data gap: 29.63 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
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)