P2SC-ROB-WR-246 - 20141208 Weekly report #246	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Dec 08 to Sun Dec 14, 2014 17 Dec 2014 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
To:	LYRA PI, marie.dominique@sidc.be SWAP PI, dseaton@sidc.be	http://proba2.sidc.be ++ 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

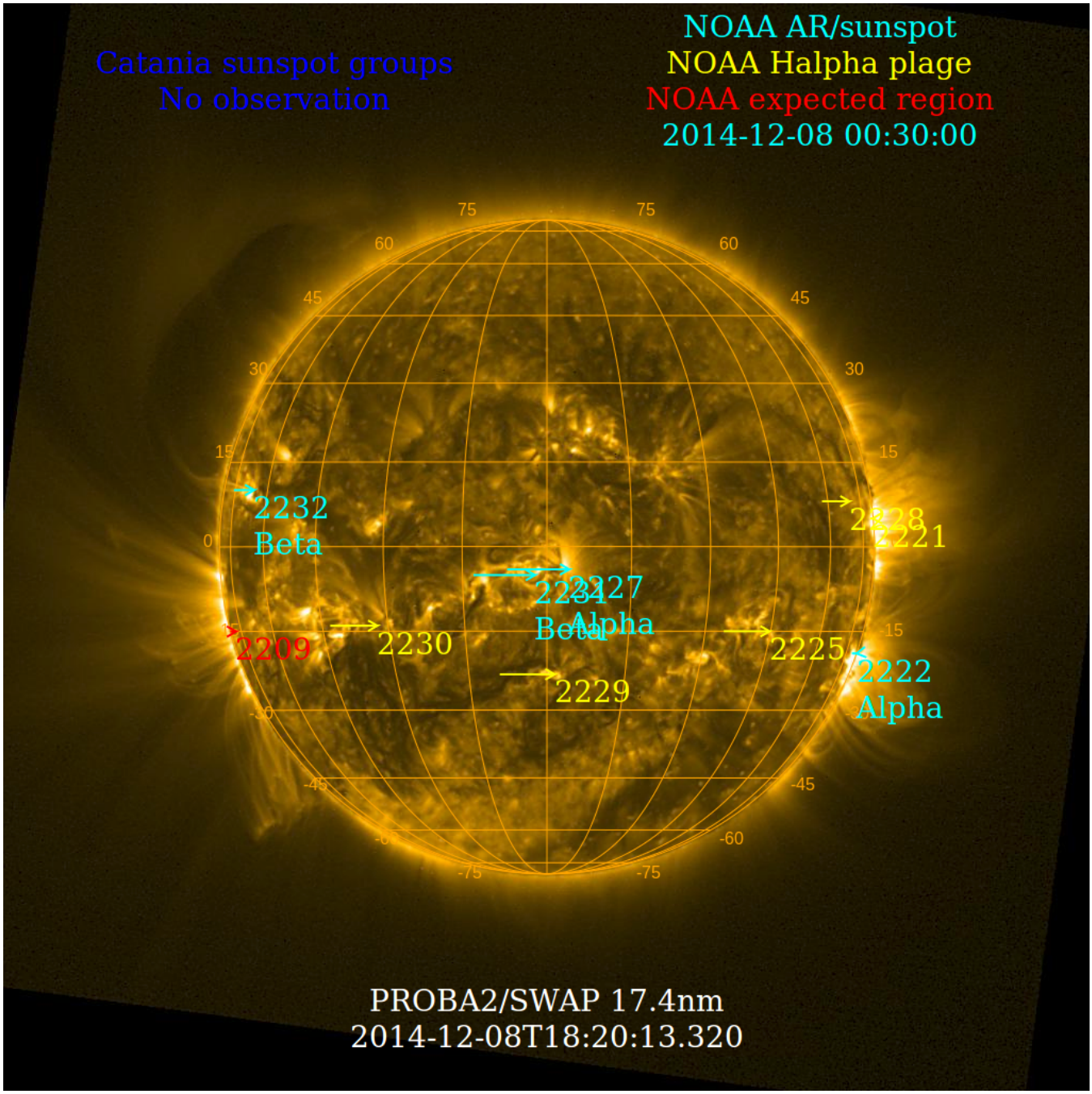
The level of solar activity[1] fluctuated between **low** and **moderate** this week.

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

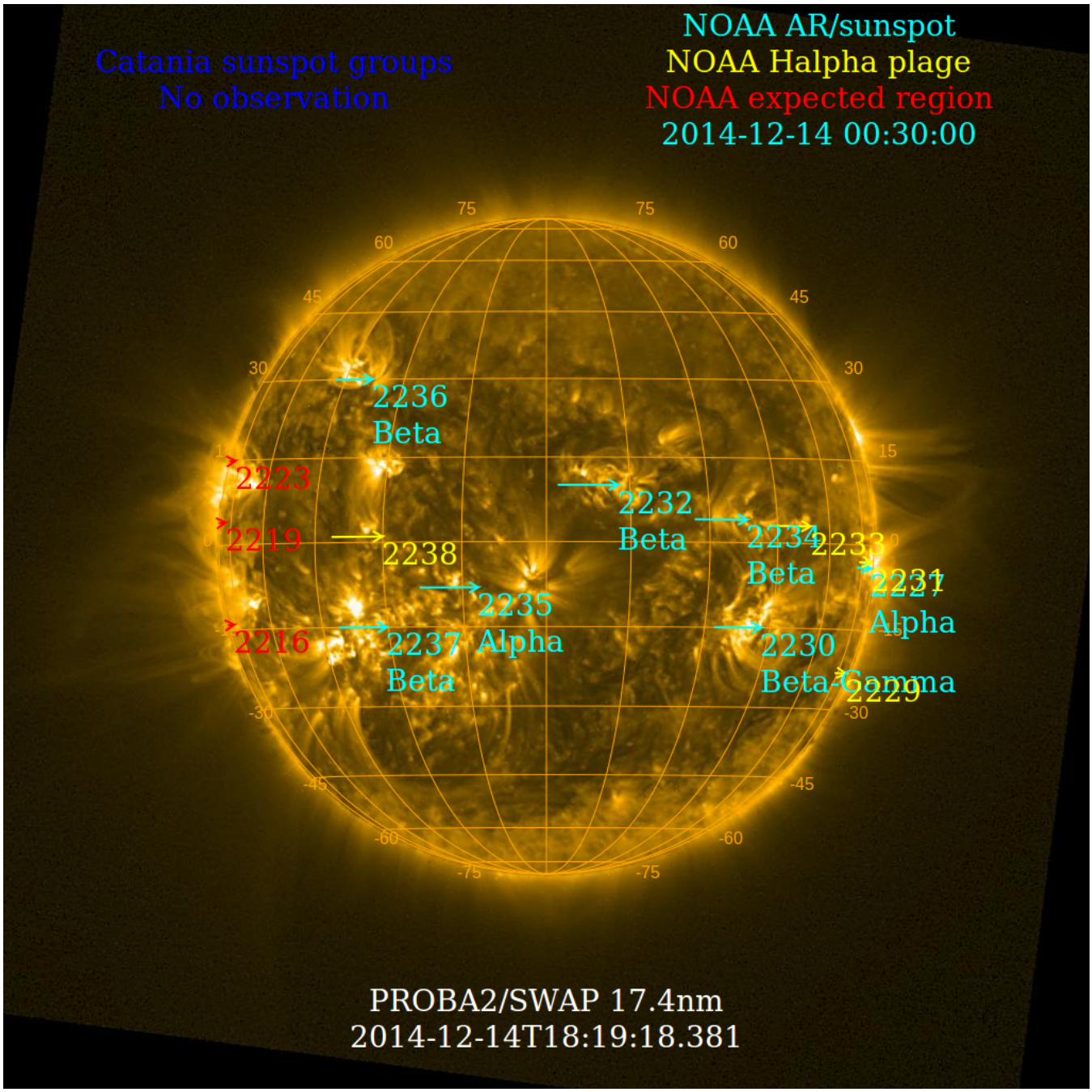
	Monday 08 Dec	Tuesday 09 Dec	Wednesday 10 Dec	Thursday 11 Dec	Friday 12 Dec	Saturday 13 Dec	Sunday 14 Dec
Activity	low	low	low	low	low	moderate	moderate
Flares	-	-	-	-	-	**M1.5@05:20**	**M1.6@19:33**

[1] See appendix. All timings are given in UT.

The SWAP images of Dec 08 and Dec 14 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
2014-12-14 00:30:00
75
60
45
30
15
0
-15
-30
-45
-60
-75
2236
Beta
2223
2219
2238
2232
Beta
2234
Beta
2233
2231
2227
Alpha
2235
2216
2237
Beta
Alpha
2230
Beta-Gamma
2229
PROBA2/SWAP 17.4nm
2014-12-14T18:19:18.381

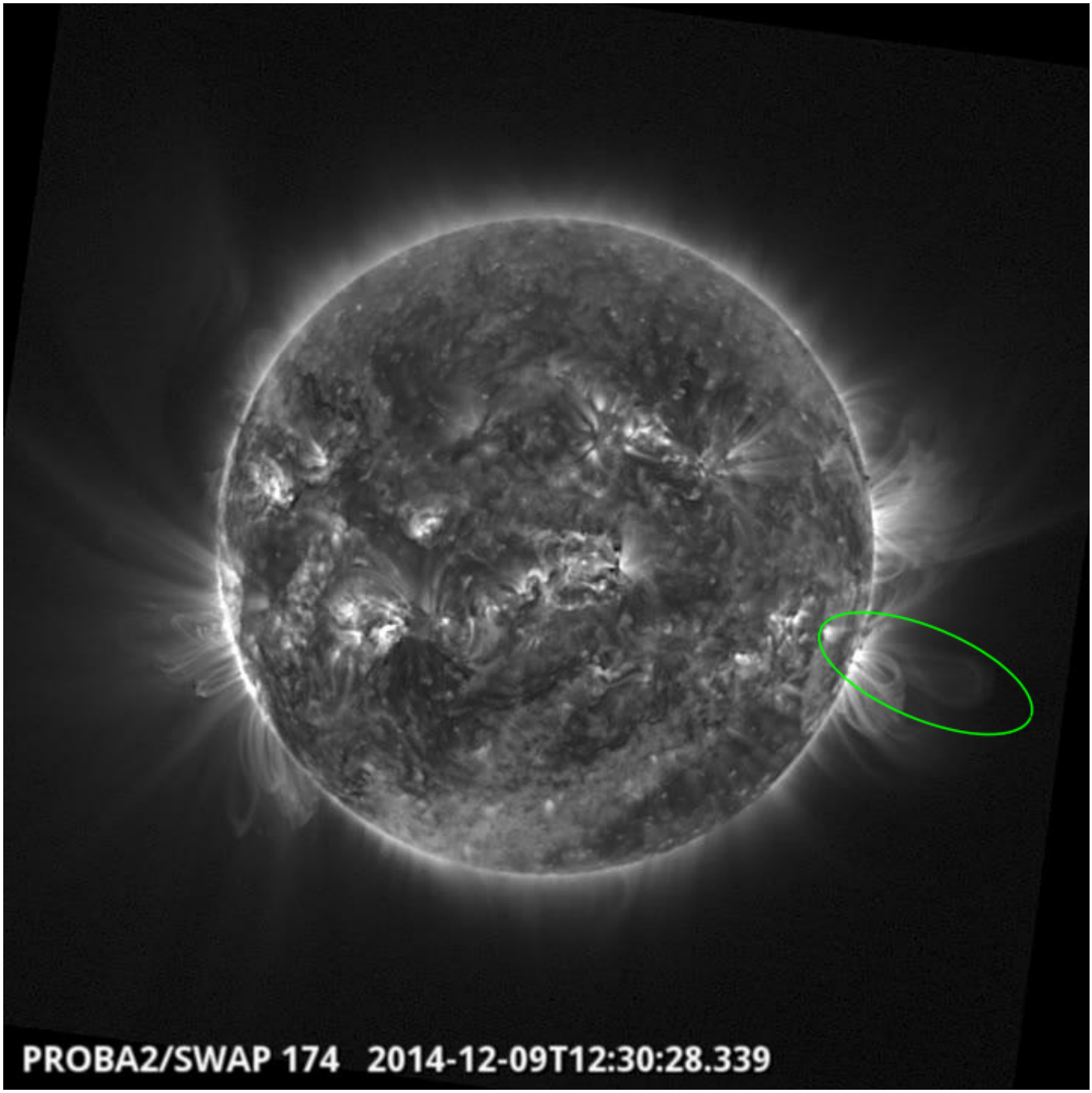
Solar Activity

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 246).

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

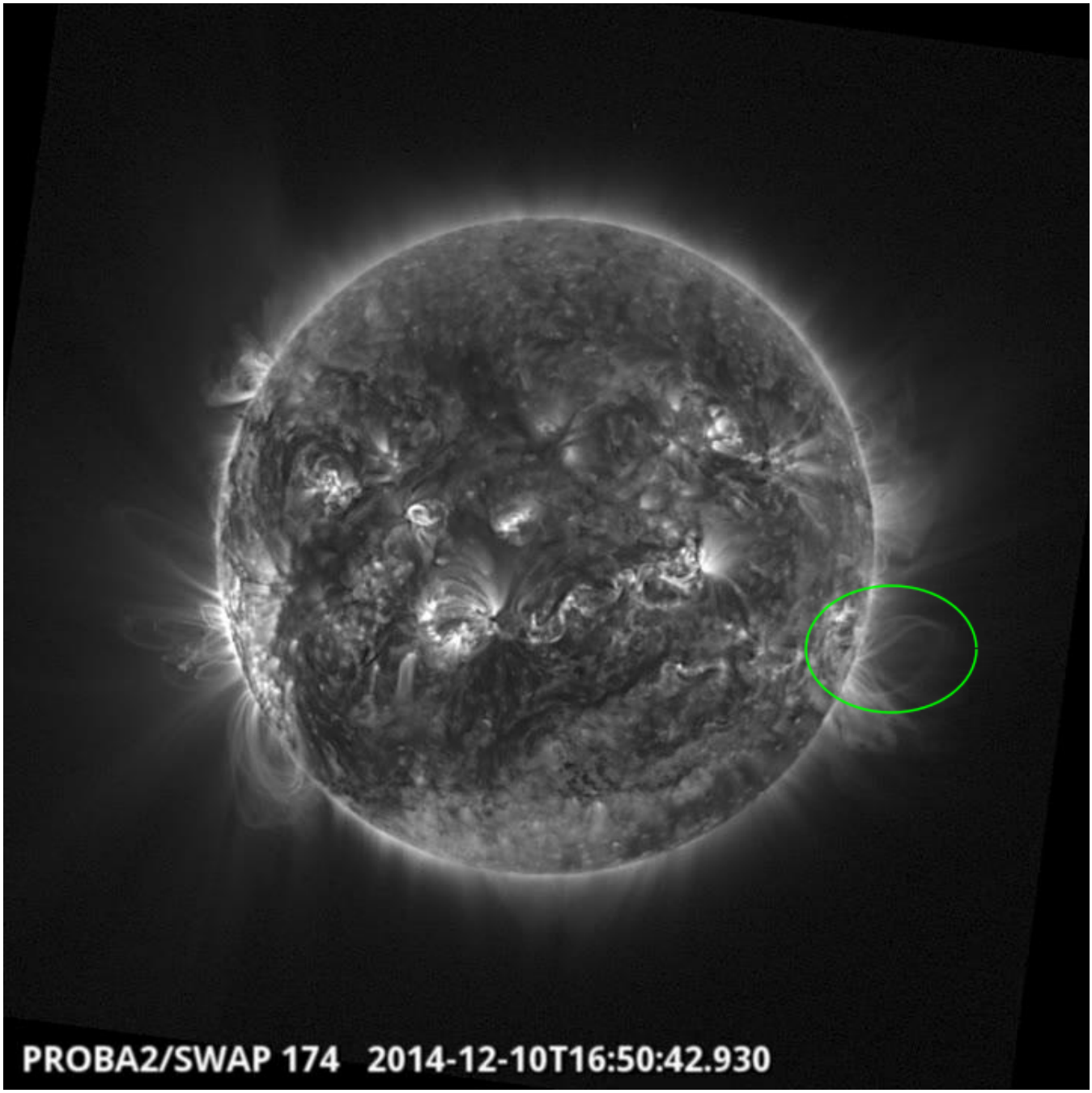
Tuesday Dec 09



Eruption on west limb @ 12:30 - SWAP image

Find a movie of the event **here** (SWAP movie)

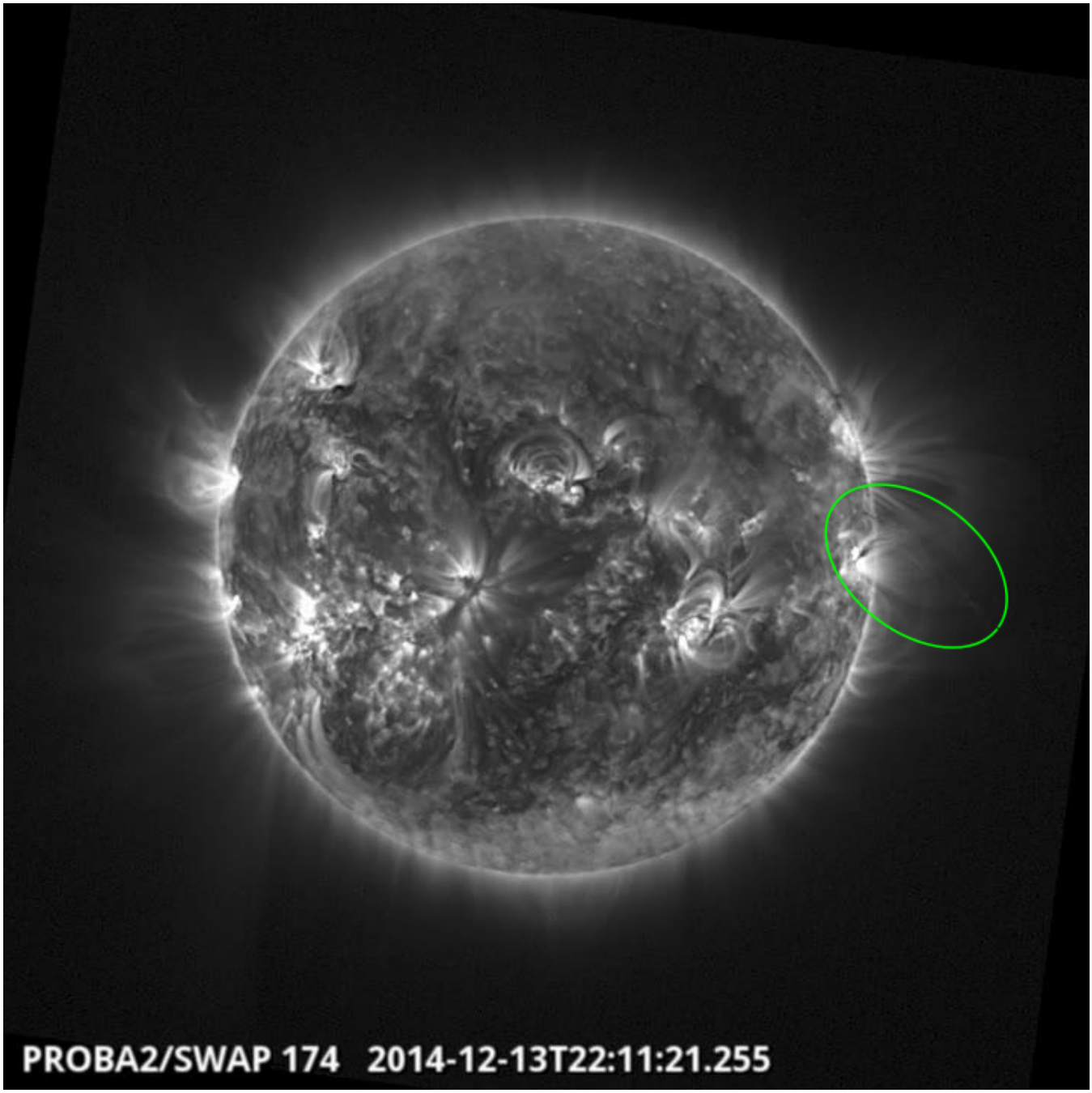
Wednesday Dec 10



Eruption on the west limb @ 16:50 - SWAP image

Find a movie of the event **here** (SWAP movie)

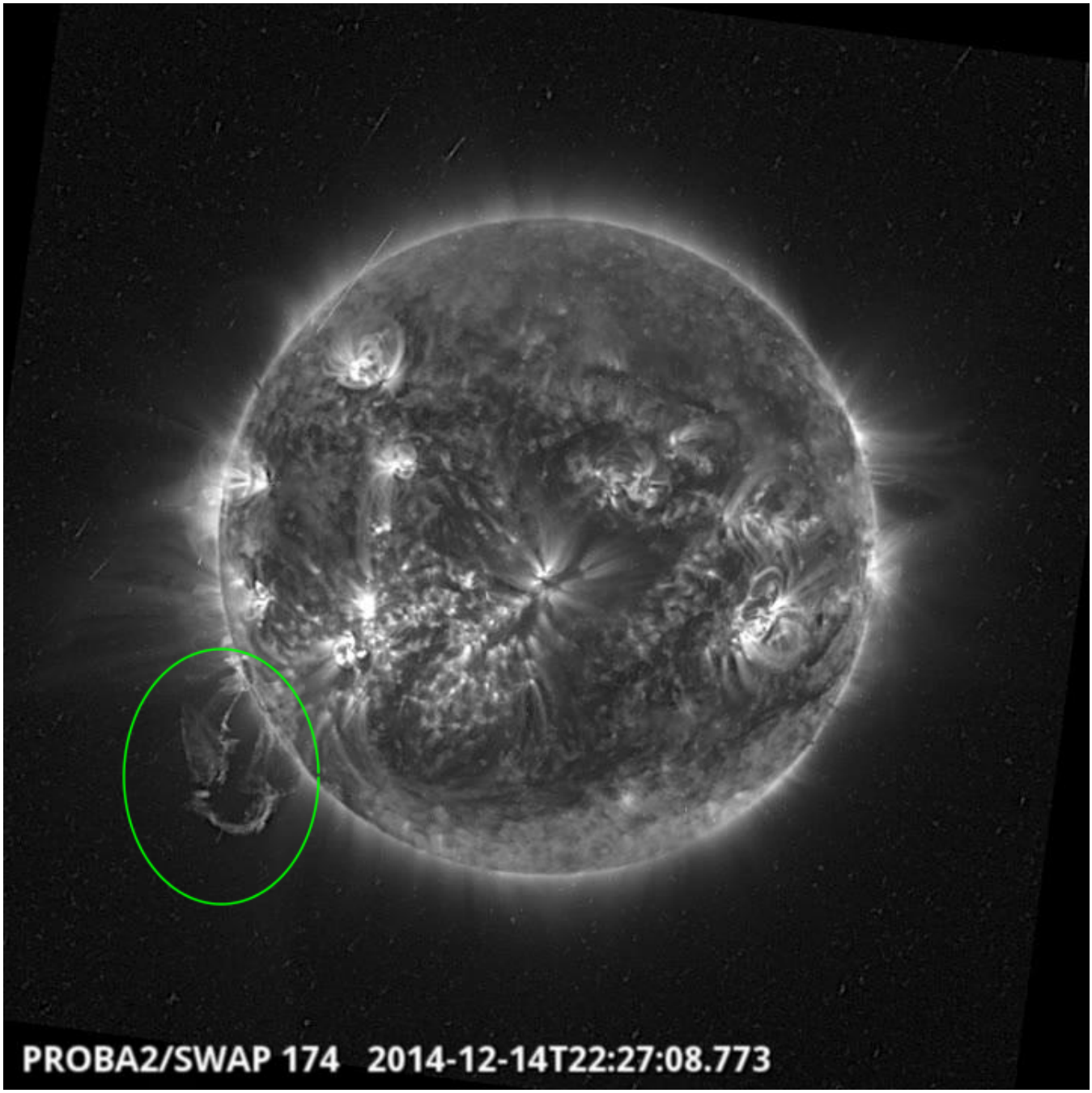
Saturday Dec 13



Eruption on the west limb @ 22:11 - SWAP image

Find a movie of the event **here** (SWAP movie)

Sunday Dec 14

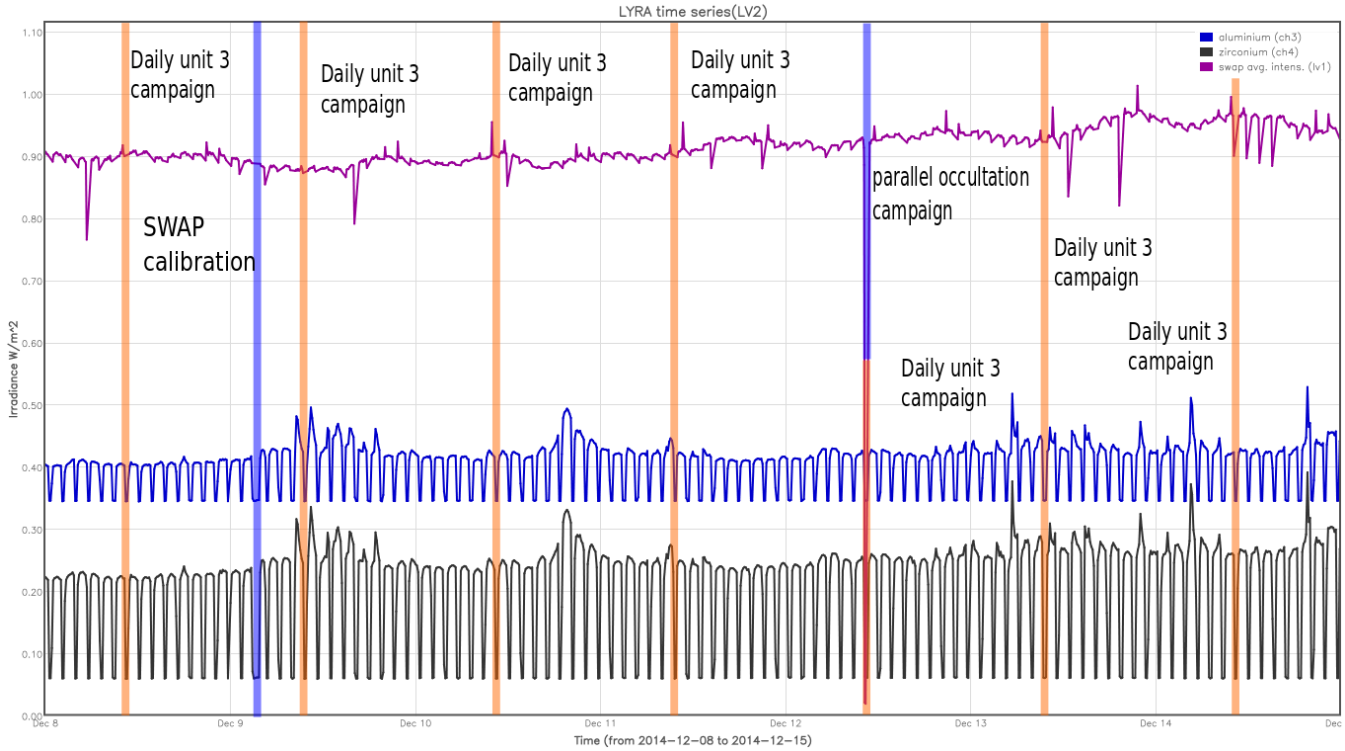


Eruption on the west limb @ 22:27 - SWAP image

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 calibration plus half an hour of extra darks
- SWAP parallel occultation campaign with LYRA

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

- Daily unit 3 campaign, seven times.

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).

- D.B. Seaton gave a presentation on “The SWAP CMOS-APS Detector: Lessons Learned” at the EUI Consortium Meeting, Brussels, 11 December 2014

Guest Investigator Program

- J. de Patoul SWAP “Morphology of evolution of plume and inter-plume regions”

2. LYRA instrument status

Calibration

No calibration campaign this week.

IOS & operations

Monday 08 Dec	Tuesday 09 Dec	Wednesday 10 Dec	Thursday 11 Dec	Friday 12 Dec	Saturday 13 Dec	Sunday 14 Dec
Nominal acquisition + daily U3 LYIOS00440	Nominal acquisition + daily U3 LYIOS00440	Nominal acquisition + daily U3 LYIOS00440	Nominal acquisition + daily U3 LYIOS00440	Nominal acquisition + daily U3 LYIOS00441	Nominal acquisition + daily U3 LYIOS00441	Nominal acquisition + daily U3 LYIOS00441

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 41 and 43.8 °C, taking into account the daily U3 activation periods.

3. SWAP instrument status

Calibration

Extended calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 24439 to 24623.
The number of MCPM unrecoverable errors increased from 2909 to 3077.

IOS & operations

Monday 08 Dec	Tuesday 09 Dec	Wednesday 10 Dec	Thursday 11 Dec	Friday 12 Dec	Saturday 13 Dec	Sunday 14 Dec
Nominal acquisition IOS00555 598 images	Nominal acquisition + calibration IOS00555 667 images	Nominal acquisition IOS00555 597 images	Nominal acquisition IOS00555 619 images	Nominal acquisition + parallel occultation IOS00556 633 images	Nominal acquisition IOS00556 618 images	Nominal acquisition IOS00556 598 images

Special operations for SWAP, this week:

- calibration + half an hour of extra darks
- parallel occultation campaign with LYRA daily U3 observation campaigns

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -4.6 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 15981 to 16042) 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 Dec 08 0UT and 2014 Dec 15 0UT: 4331
Highest cadence in this period: 0 seconds
Average cadence in this period: 139.66 seconds
Number of image gaps larger than 300 seconds: 103
Largest data gap: 32.60 minutes

The data gap is caused by the occultation jumps.

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)