


P2SC-ROB-WR-357 - 20170123 Weekly report #357	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Jan 23 to Sun Jan 29, 2017 1 Feb 2017 Laurence Wauters Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

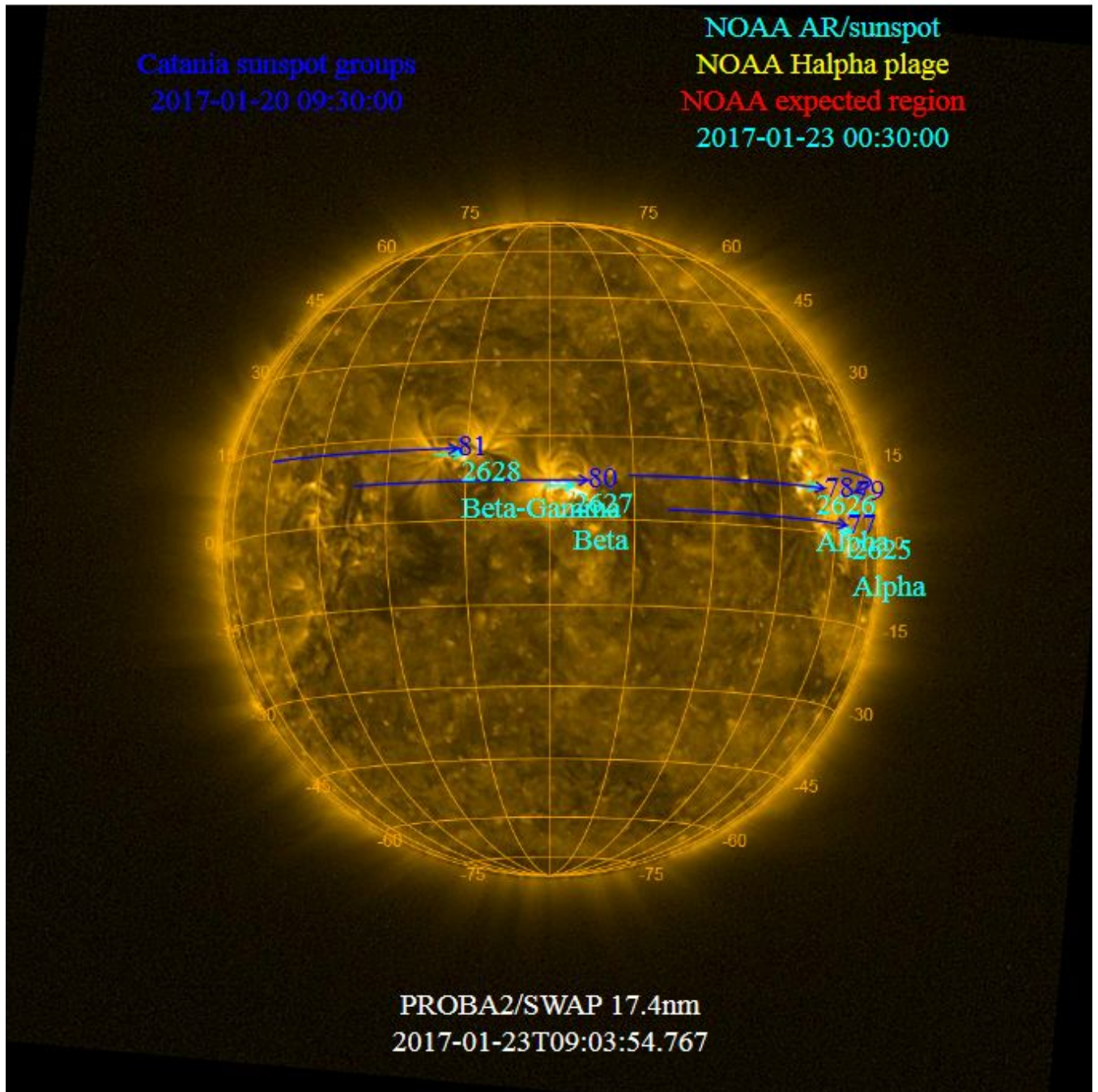
The level of solar activity¹ fluctuated between quiet and low this week.

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

	Monday 23 Jan	Tuesday 24 Jan	Wednesday 25 Jan	Thursday 26 Jan	Friday 27 Jan	Saturday 28 Jan	Sunday 29 Jan
Activity	quiet	very low	very low	very low	very low	low	very low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

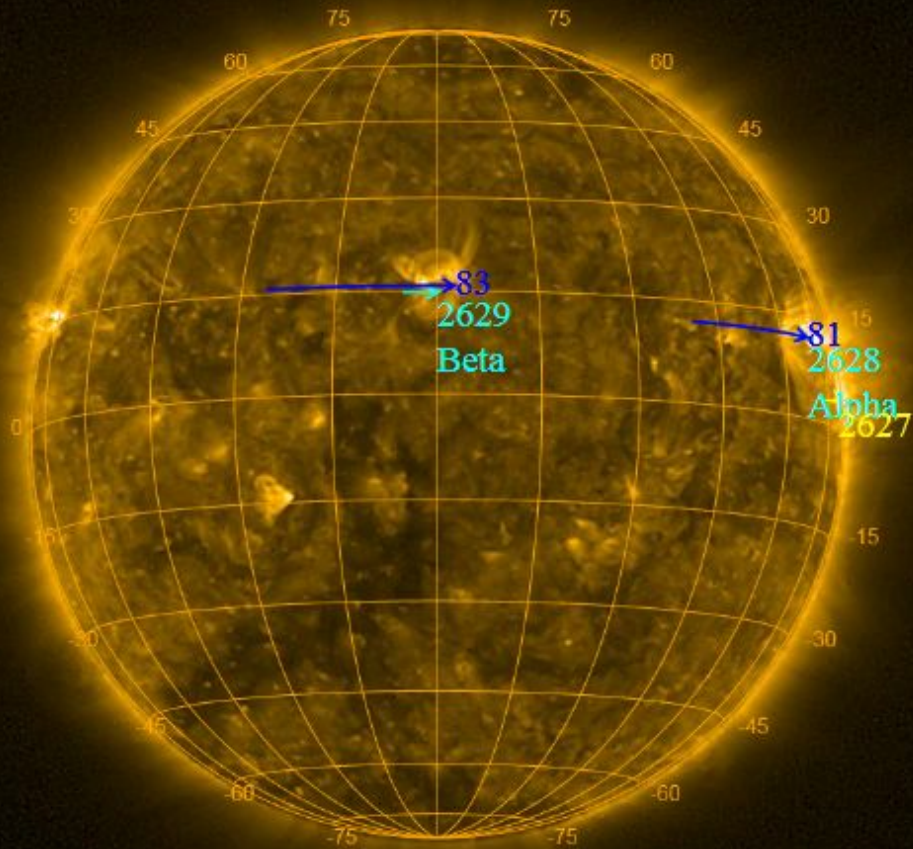
The SWAP images of Jan 23 and Jan 29 are shown below, with annotated active regions.



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

Catania sunspot groups
2017-01-27 09:30:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2017-01-29 00:30:00



PROBA2/SWAP 17.4nm
2017-01-29T09:03:08.610

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>

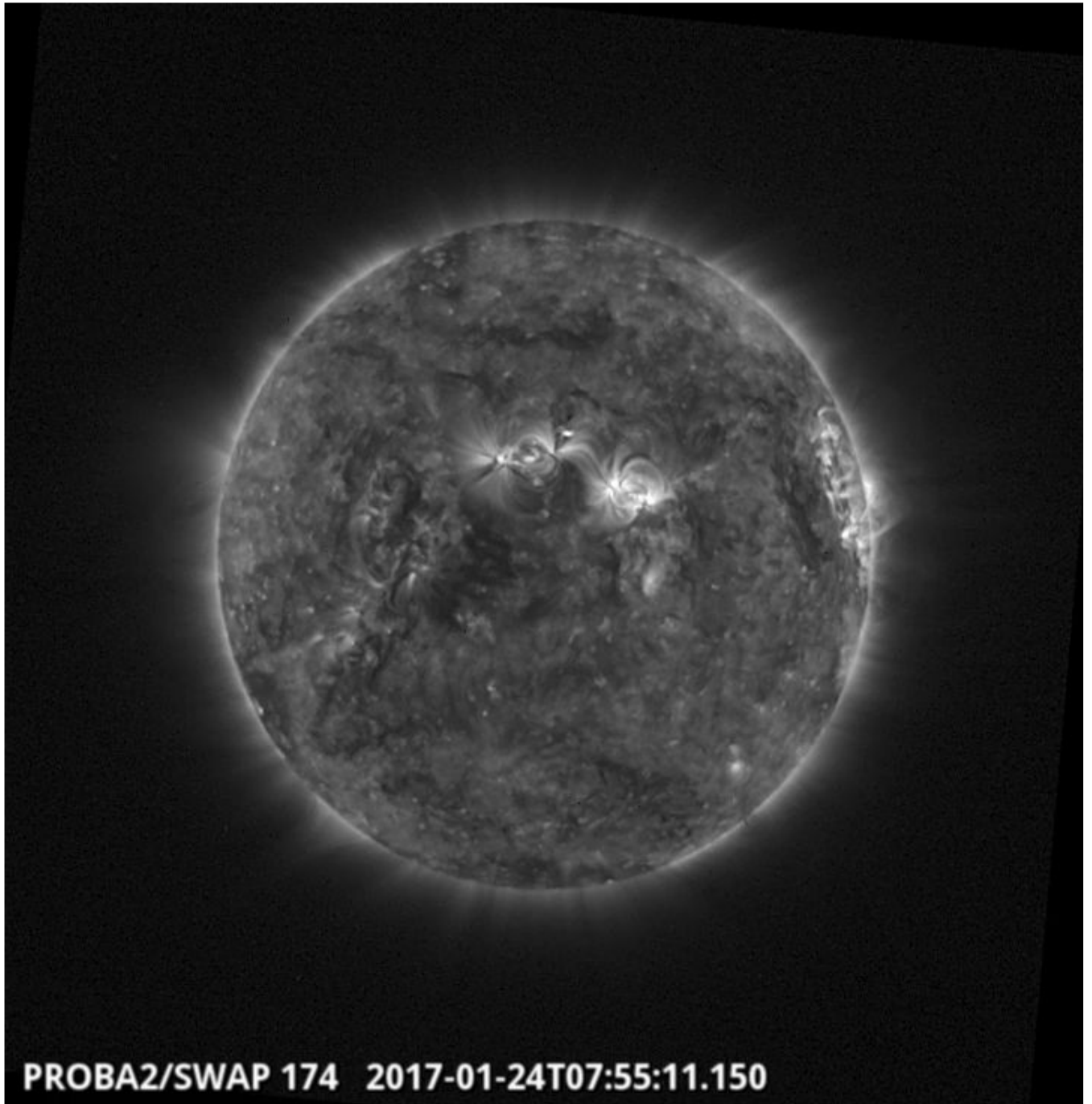
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 357).

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](#)

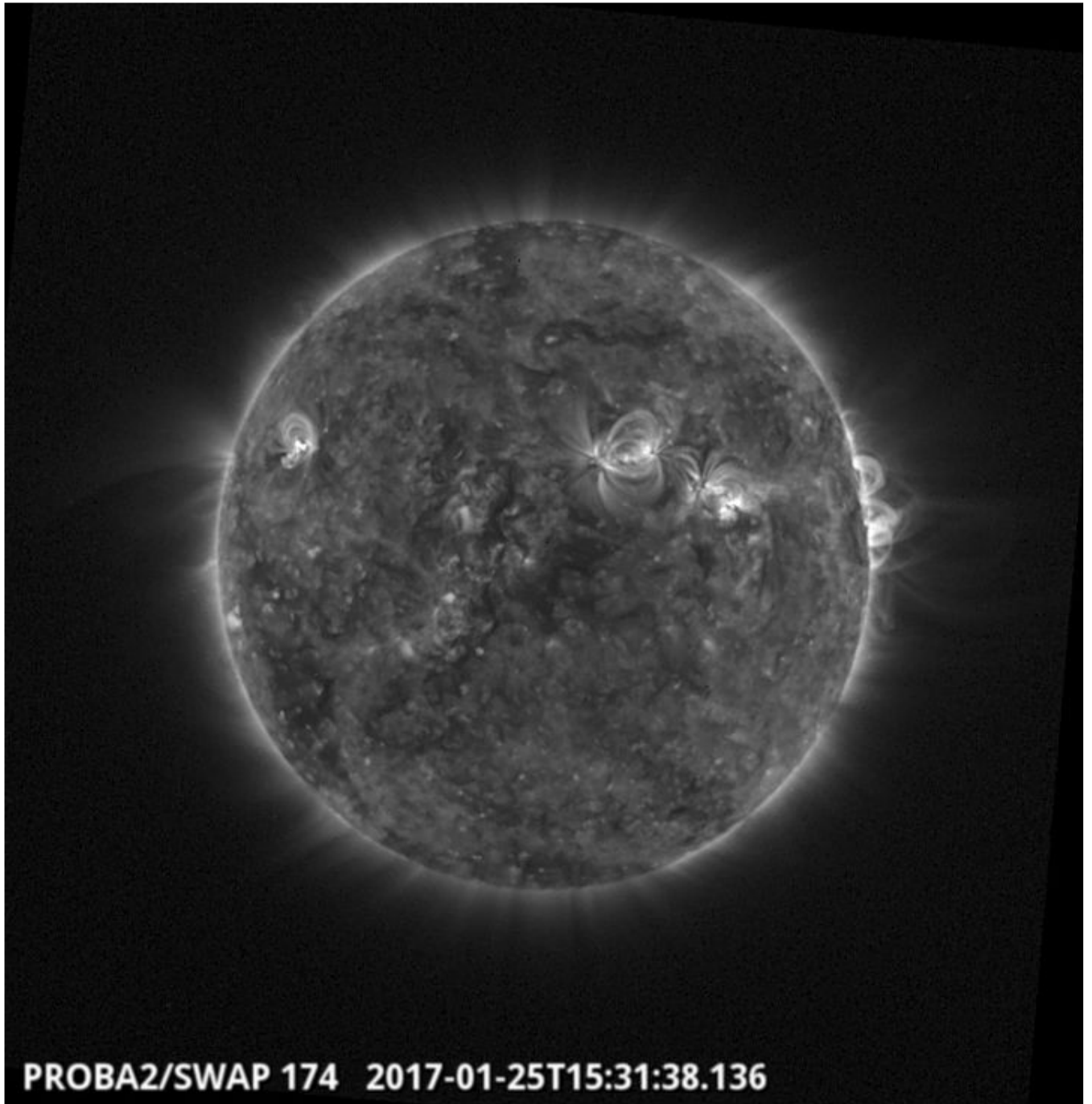
Tuesday Jan 24



A filament eruption was observed in the center-North region of the Sun between the two active regions AR 2627 and AR 2628 - which can be seen in the above SWAP image.

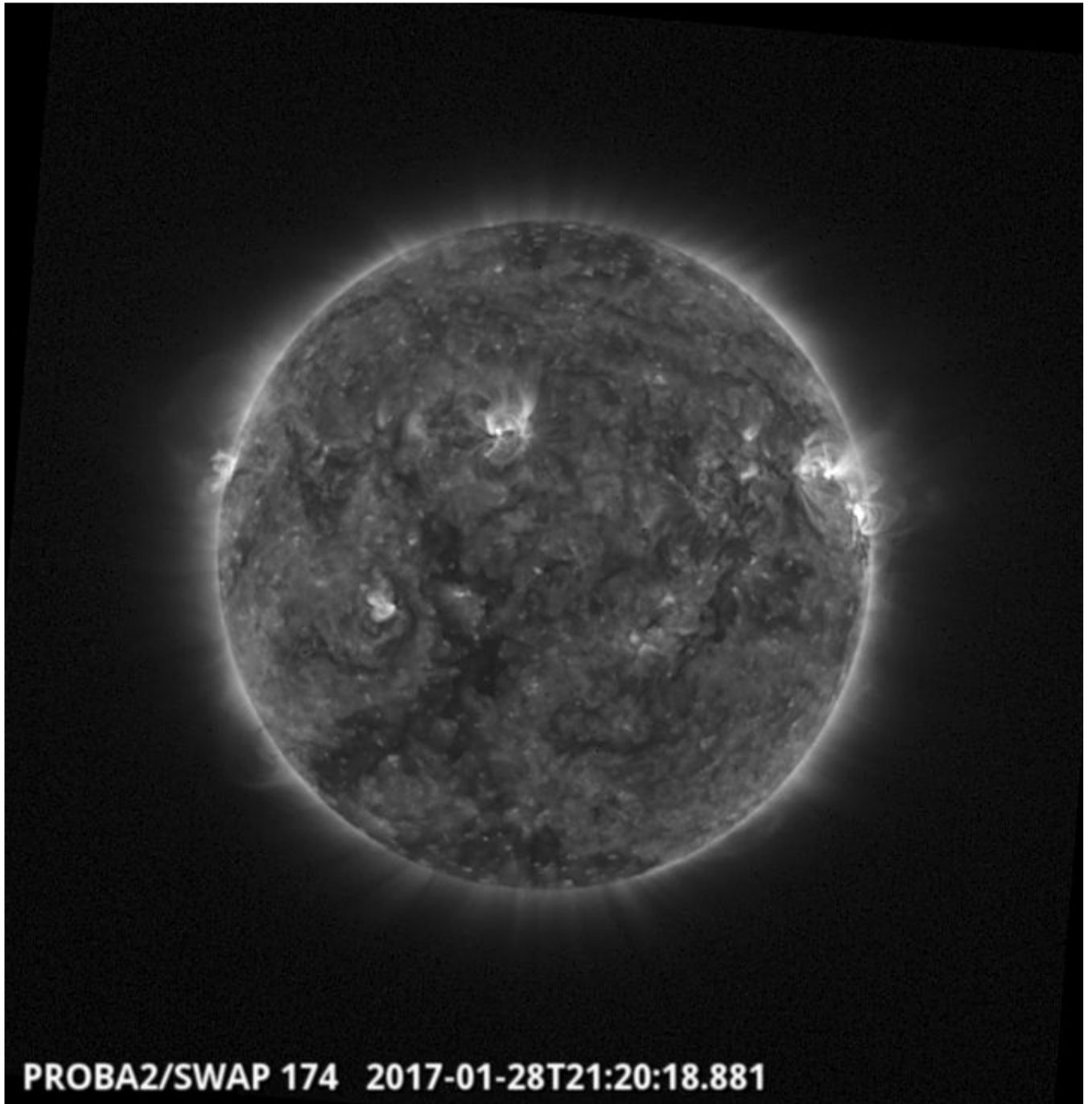
Find a movie of the events [here](#) (SWAP movie)

Wednesday Jan 25



AR 2629 produced several B class Flares from Jan 24 until Jan 27. One of them, on January 25 at 15:31 UT in North East Quadrant - Which can be seen in the above SWAP image
Find a movie of the events [here](#) (SWAP movie)

Saturday Jan 28

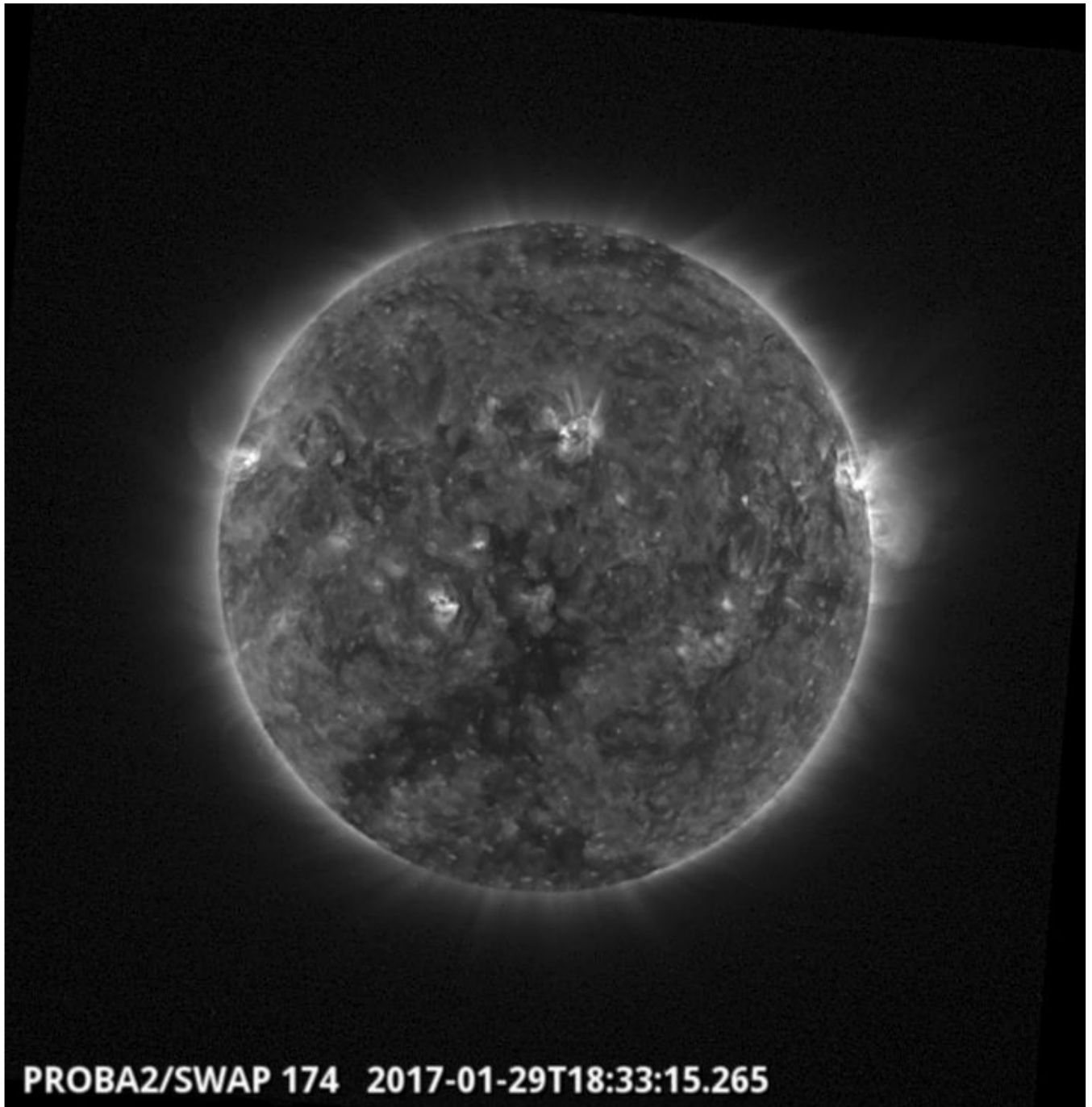


PROBA2/SWAP 174 2017-01-28T21:20:18.881

AR 2627, close to North West Limb, produced a C-class flare on January 28 at 21:20 UT - which can be seen in the above SWAP image

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

Sunday Jan 29



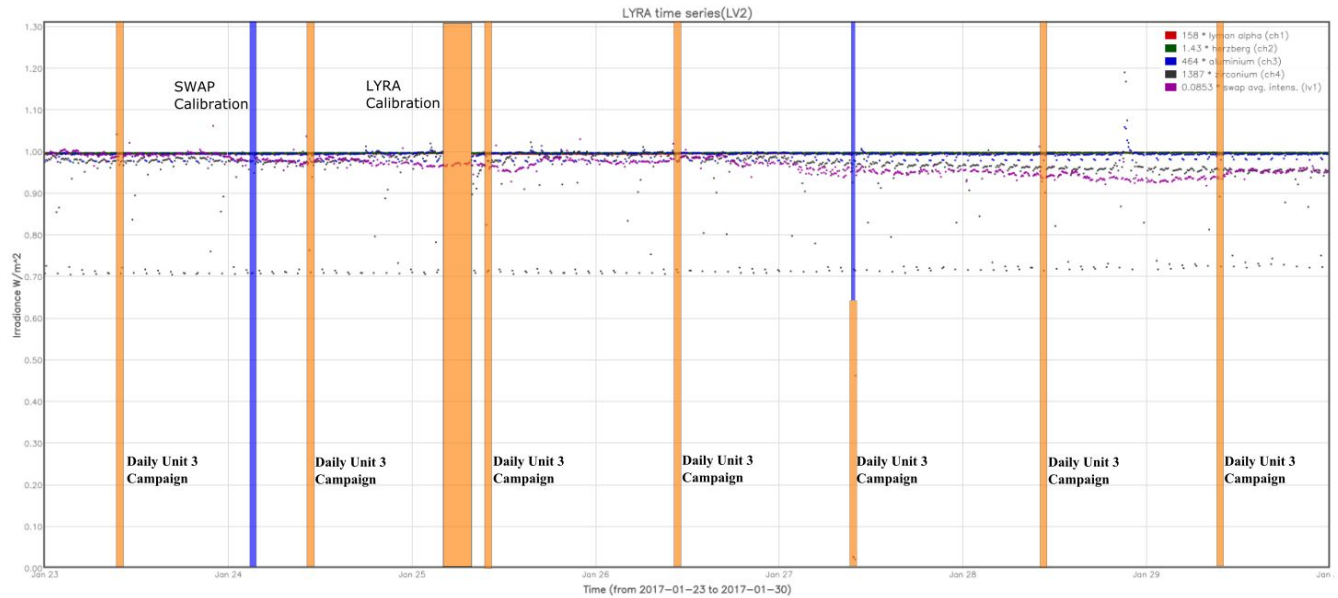
A Southern trans-equatorial coronal hole, which produced enhanced geomagnetic conditions at the Earth during its previous transit of the solar disk can be seen in the above SWAP image

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 bi-weekly calibration, 2017-Jan-24
- SWAP occultation campaign, 2017-Jan-27

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

- Daily unit 3 campaign, 2017-Jan-23
- Daily unit 3 campaign, 2017-Jan-24
- LYRA bi-weekly calibration, 2017-Jan-25
- Daily unit 3 campaign, 2017-Jan-25
- Daily unit 3 campaign, 2017-Jan-26
- Daily unit 3 campaign, 2017-Jan-27
- Daily unit 3 campaign, 2017-Jan-28
- Daily unit 3 campaign, 2017-Jan-29

The red shaded period corresponds to:

- None

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>).

PROBA2 Guest Investigator Frederica Frassati presented her work on “shock front tracking” during the PROBA2 science meeting on 2017-Jan-26.

Guest Investigator Program

- Frederica Frassati is visiting the P2SC from 2017 Jan 23 - 2017 Feb 04, to study shock front tracking using the SWAP instrument on PROBA2.

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 23 Jan	Tuesday 24 Jan	Wednesday 25 Jan	Thursday 26 Jan	Friday 27 Jan	Saturday 28 Jan	Sunday 29 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
LYIOS00595	LYIOS00596	LYIOS00596	LYIOS00596	LYIOS00597	LYIOS00597	LYIOS00597

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

On 2017-Jan-25

- LYRA bi-weekly calibration

LYRA detector temperature

LYRA detector 2 temperature globally varied between 44.67 and 50.60 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 5611 to 5739 .

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 23 Jan	Tuesday 24 Jan	Wednesday 25 Jan	Thursday 26 Jan	Friday 27 Jan	Saturday 28 Jan	Sunday 29 Jan
Nominal acquisition	Nominal acquisition+ calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition+ Occultation	Nominal acquisition	Nominal acquisition
IOS00681 746 images	IOS00682 685 images	IOS00682 741 images	IOS00682 689 images	IOS00683 722 images	IOS00683 613 images	IOS00683 707 images

Special operations for SWAP, this week:

On 2017-Jan-24

- Bi-weekly calibration

On 2017-Jan-27

- SWAP and LYRA parallel occultation campaign

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.93 and 2.07 °C.

4. PROBA2 Science Center Status

The main operator is Laurence Wauters.

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 22987 to 23052) 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 2017 Jan 23 0UT and 2017 Jan 30 0UT: 4815

Highest cadence in this period: 18 seconds

Average cadence in this period: 125.39 seconds

Number of image gaps larger than 300 seconds: 132

Largest data gap: 31.18 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)