P2SC-ROB-WR-355 - 20170109 Weekly report #355	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Jan 09 to Sun Jan 15, 2017 23 Jan 2017 Laurence Wauters Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

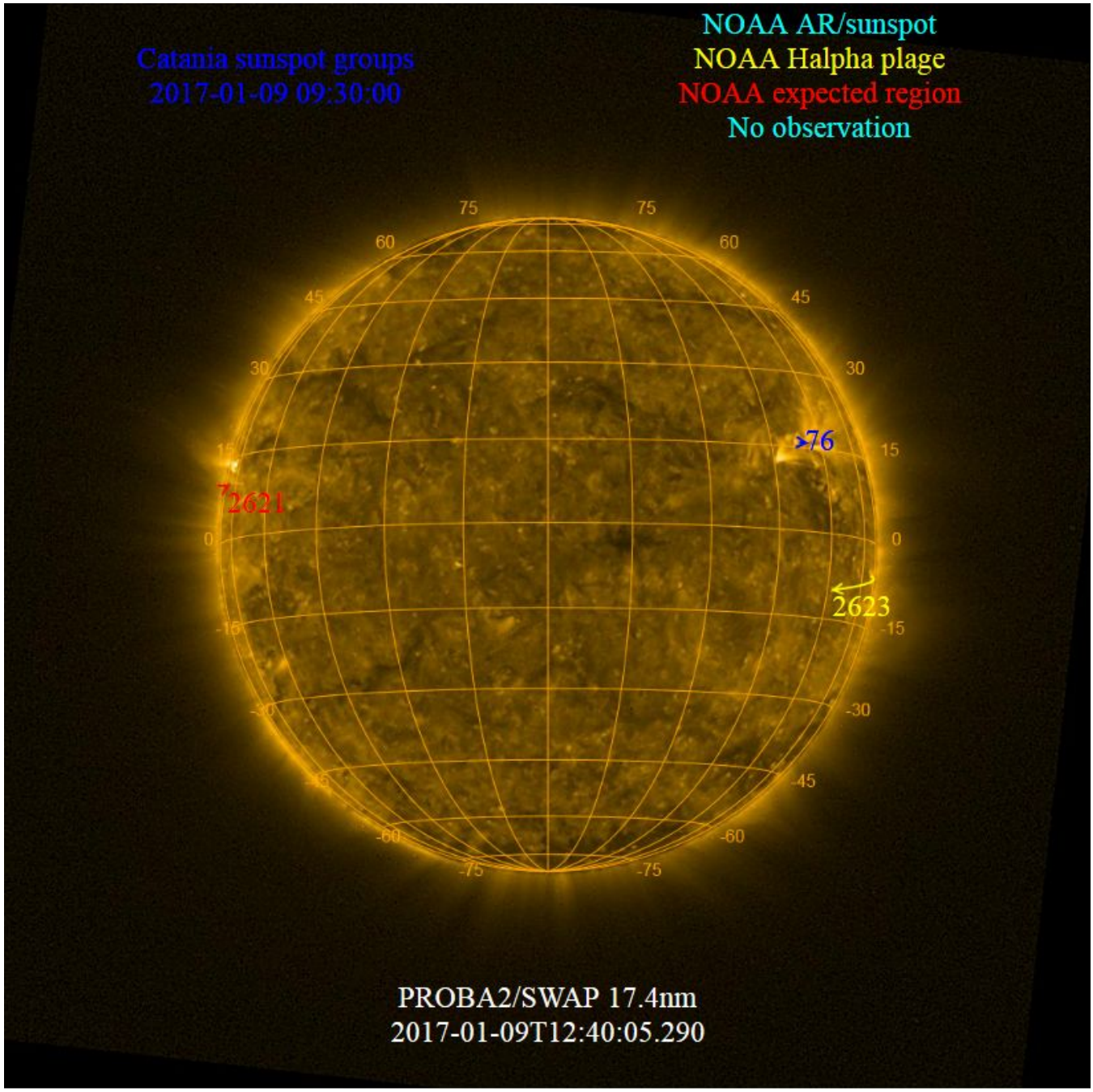
The level of solar activity[1] fluctuated between very low and low this week.

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

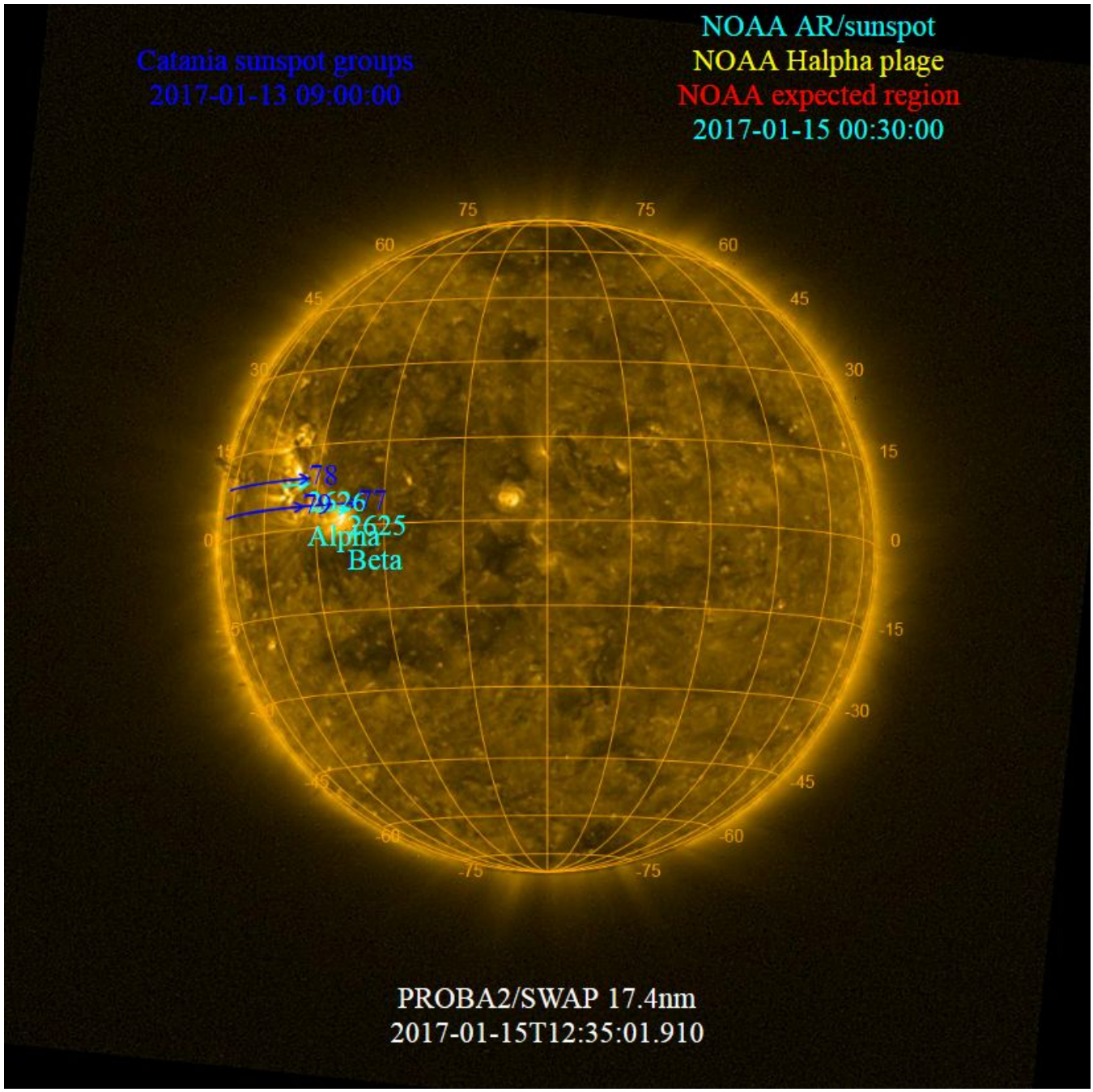
	Monday 09 Jan	Tuesday 10 Jan	Wednesday 11 Jan	Thursday 12 Jan	Friday 13 Jan	Saturday 14 Jan	Sunday 15 Jan
Activity	very low	very low	very low	low	very low	very low	very low
Flares	-	-	-	-	-	-	-

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

The SWAP images of Jan 09 and Jan 15 are shown below, with annotated active regions.



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


Catania sunspot groups
2017-01-13 09:00:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2017-01-15 00:30:00
75
60
45
30
15
0
-15
-30
-45
-60
-75
78
3625
Alpha
Beta
PROBA2/SWAP 17.4nm
2017-01-15T12:35:01.910

Solar Activity

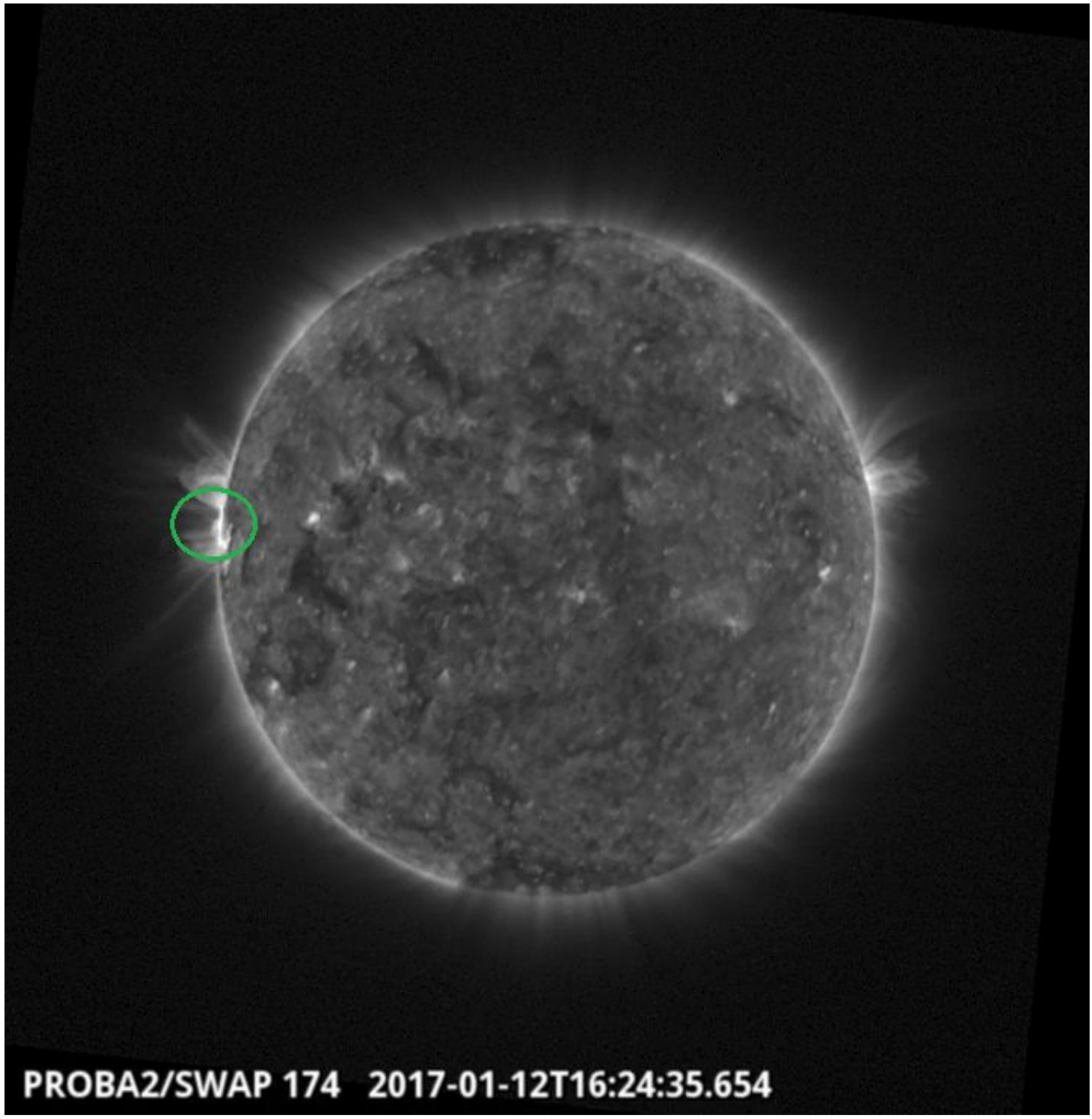
Solar flare activity fluctuated between very low and low during the week.
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: http://proba2.oma.be/ssa
This page also lists the recorded flaring events.

A weekly overview movie can be found here (SWAP week 355).

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

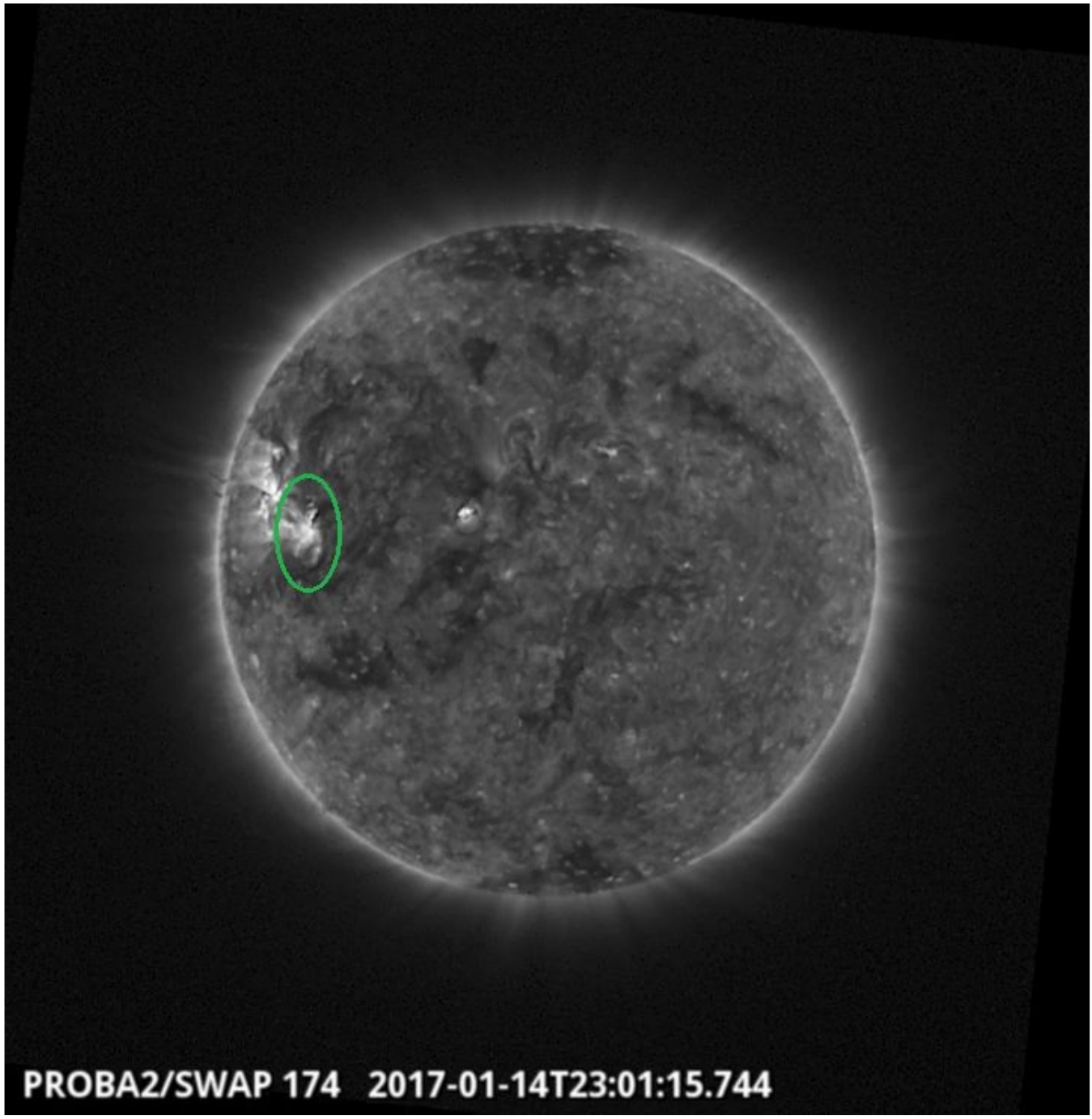
Thursday Jan 12



Flare on the Eastern limb at 16:24 UT - SWAP image

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

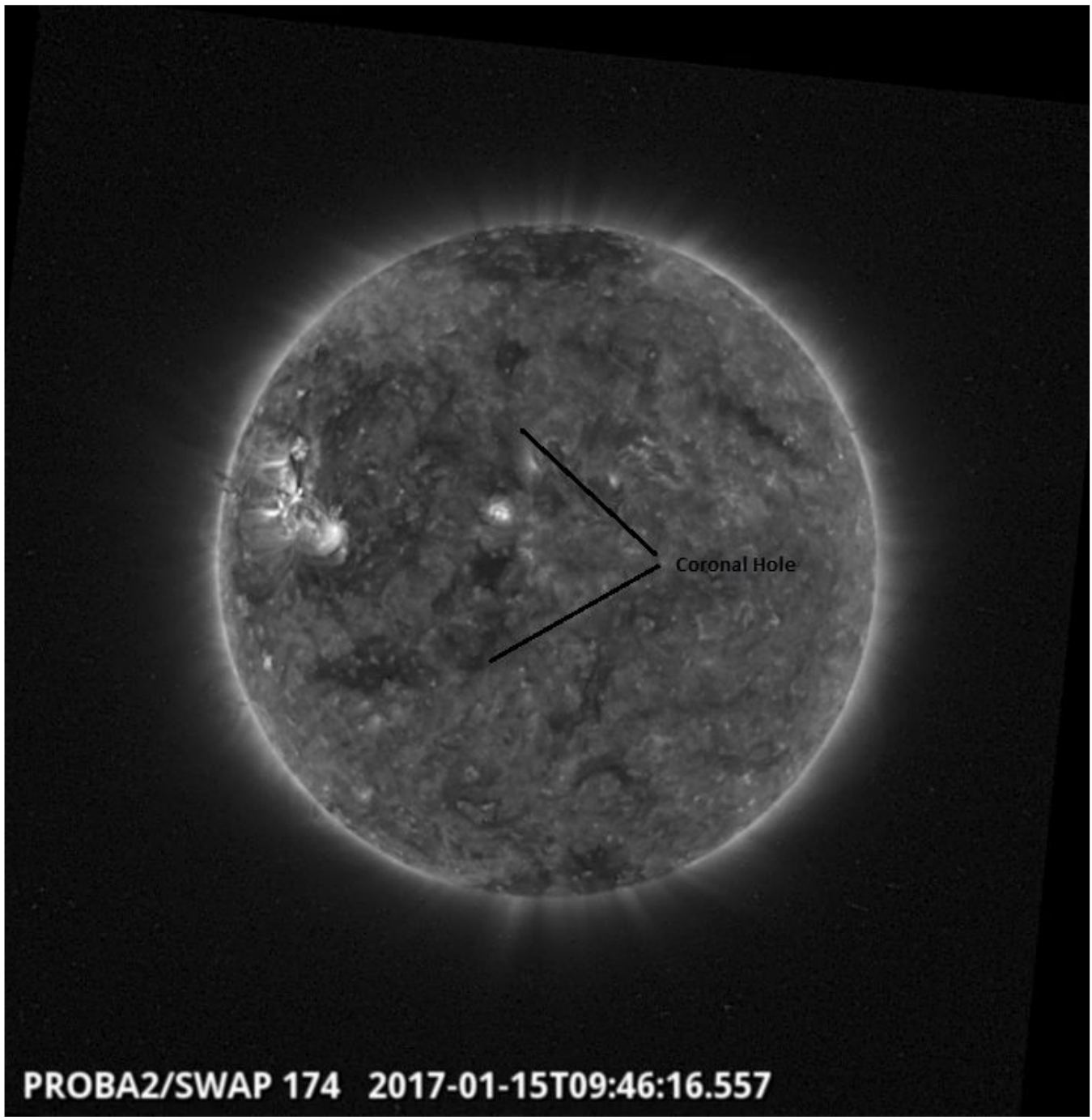
Saturday Jan 14



Eruption in the Eastern Hemisphere at 23:01 UT - SWAP image

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

Sunday Jan 15

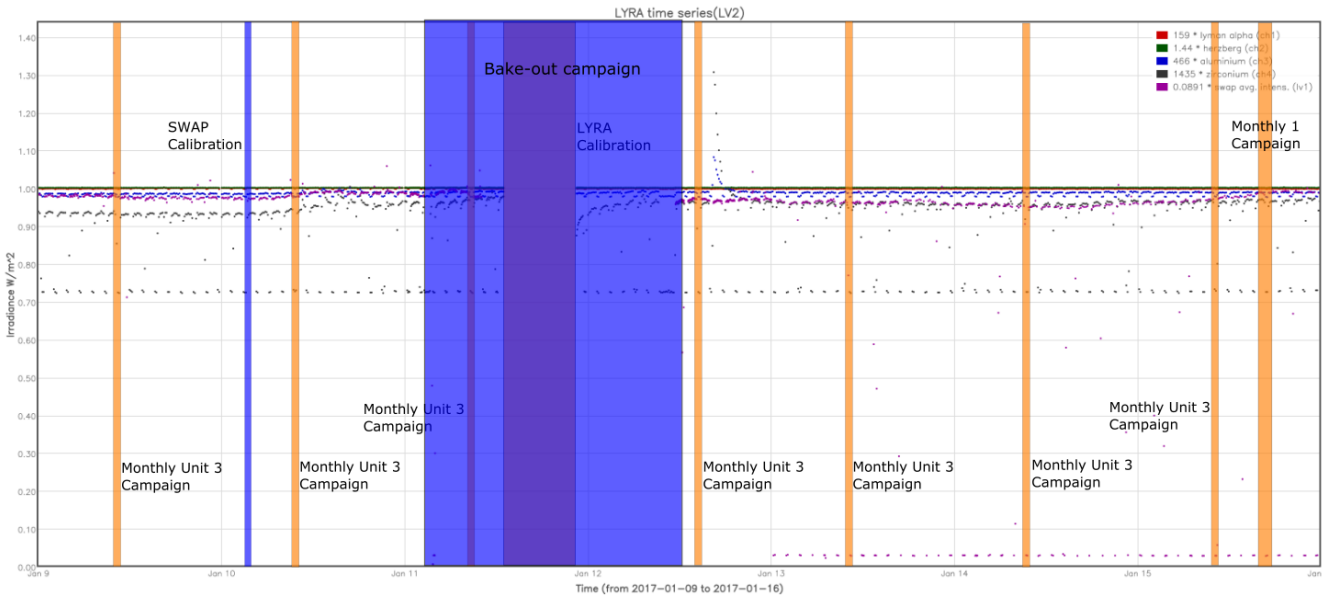


A trans-equatorial coronal hole stretching from the northern hemisphere into the southern hemisphere has dominated the solar disk since 13-Jan-2017. This is clearly seen on 15-Jan-2017.

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 calibration, 2017-Jan-10
- Bake-out campaign from 2017-Jan-11, 02:30 UT until 2017-Jan-12, 11:23 UT

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

- Daily unit 3 campaign, 2017-Jan-09
- Daily unit 3 campaign, 2017-Jan-10
- Daily unit 3 campaign, 2017-Jan-11
- Bi-weekly calibration, 2017-Jan-11
- Daily unit 3 campaign, 2017-Jan-12
- Daily unit 3 campaign, 2017-Jan-13
- Daily unit 3 campaign, 2017-Jan-14
- Daily unit 3 campaign, 2017-Jan-15
- Monthly Unit 1 Campaign, 2017-Jan-15

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).

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 09 Jan	Tuesday 10 Jan	Wednesday 11 Jan	Thursday 12 Jan	Friday 13 Jan	Saturday 14 Jan	Sunday 15 Jan
Nominal acquisition + daily U3 LYIOS00592	Nominal acquisition + daily U3 LYIOS00592	Nominal acquisition + daily U3+ Calibration LYIOS00593	Nominal acquisition + daily U3 LYIOS00593	Nominal acquisition + daily U3 LYIOS00594	Nominal acquisition + daily U3 LYIOS00594	Nominal acquisition + daily U3+ Monthly 1 Campaign LYIOS00594

The following science campaigns were performed by LYRA:

- Daily U3 observation campaigns

On 2017-Jan-11

- Bi weekly calibration campaign

On 2017-Jan-15

- Monthly Unit 1 campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 39.96287 and 45.61496 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 5607 to 5610.
The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 09 Jan	Tuesday 10 Jan	Wednesday 11 Jan	Thursday 12 Jan	Friday 13 Jan	Saturday 14 Jan	Sunday 15 Jan
Nominal acquisition IOS00678 666 images	Nominal acquisition+ Calibration IOS00678 764 images	Nominal acquisition+ Bake-out Campaign IOS00679 402 images	Nominal acquisition+ Bake-out Campaign IOS00679 413 images	Nominal acquisition IOS00679 452 images	Nominal acquisition IOS00679 399 images	Nominal acquisition IOS00679 390 images

Special operations for SWAP, this week:

On 2017-Jan-10

- Bi-weekly calibration

On 2017-Jan-11 and 2017-Jan-12

- Bake-out campaign

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -4.32999 and 50.14999 °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 22856 to 22921) 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:

- 22884,22885,22886,22887,2288 - during bake-out.

Total number of images between 2017 Jan 09 0UT and 2017 Jan 16 0UT: 3496
Highest cadence in this period: 0 seconds
Average cadence in this period: 172.99 seconds
Number of image gaps larger than 300 seconds: 159
Largest data gap: 1403.98 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)