P2SC-ROB-WR-199 - 20140113 Weekly report #199	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Jan 13 to Sun Jan 19, 2014 22 Jan 2014 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

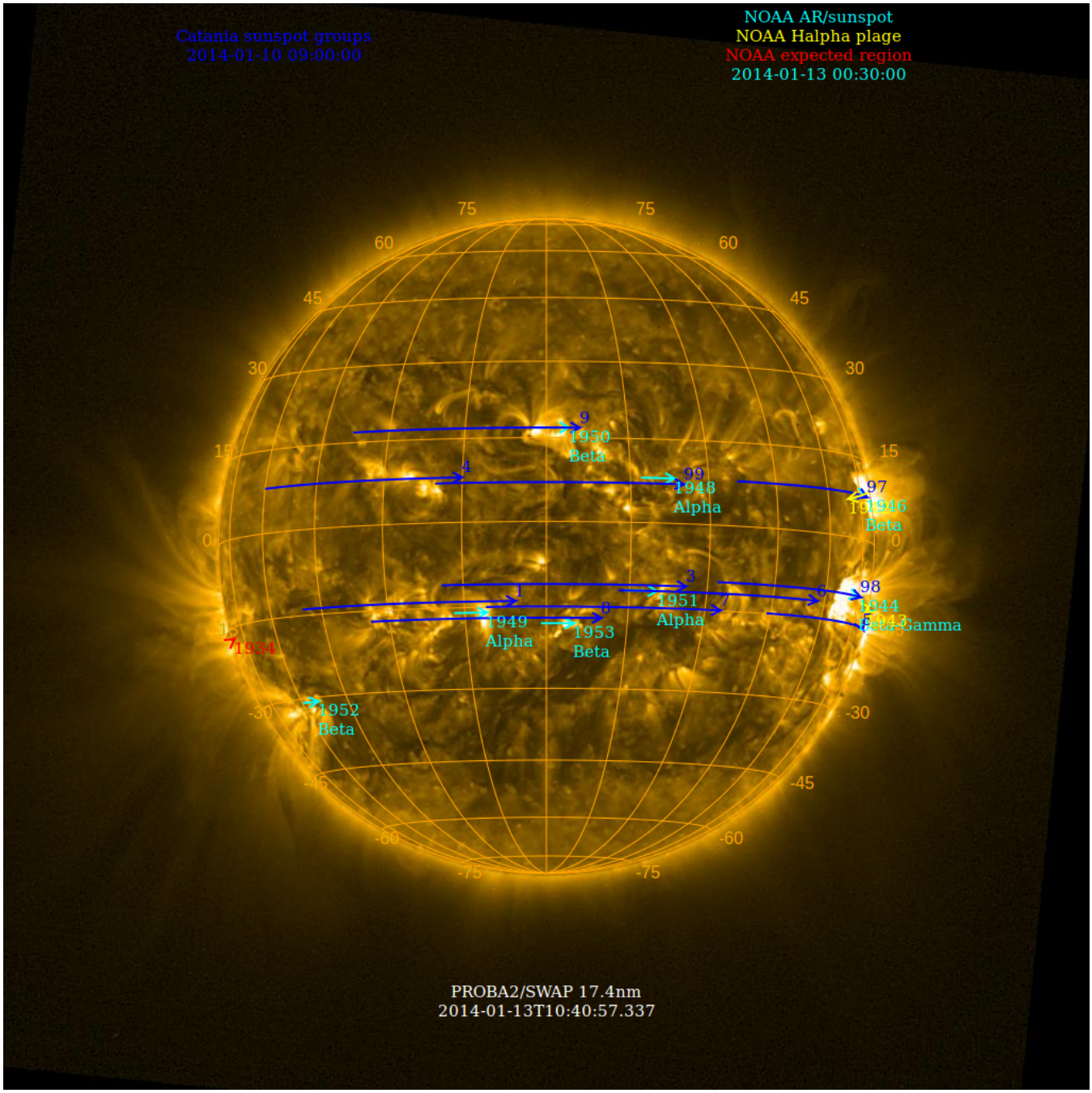
The level of solar activity[1] fluctuated between **very low** and **moderate** this week.

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

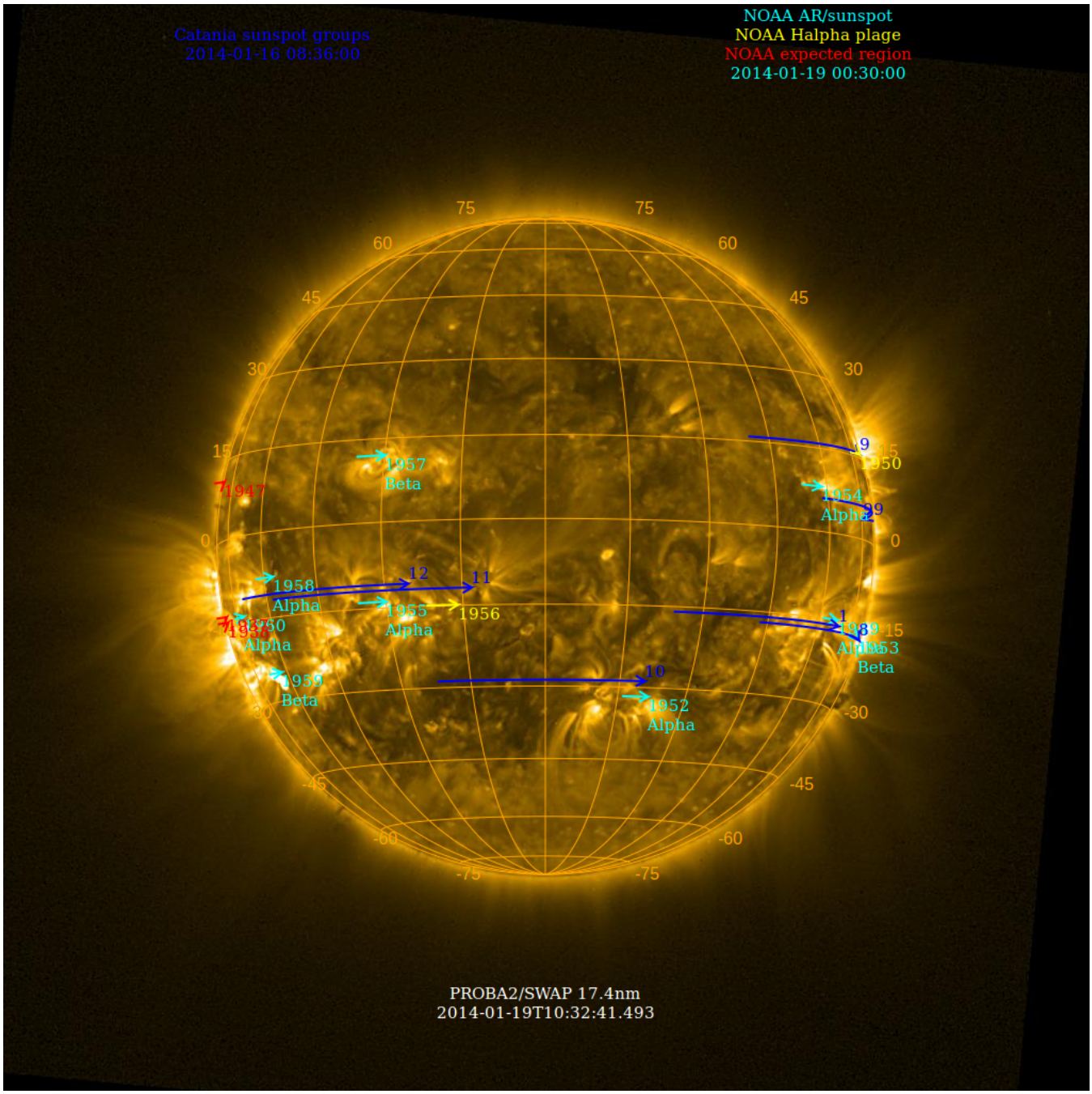
	Monday 13 Jan	Tuesday 14 Jan	Wednesday 15 Jan	Thursday 16 Jan	Friday 17 Jan	Saturday 18 Jan	Sunday 19 Jan
Activity	moderate	low	very low	low	low	low	low
Flares	**M1.3@21:51**	-	-	-	-	-	-

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

The SWAP images of Jan 13 and Jan 19 are shown below, with annotated active regions.



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

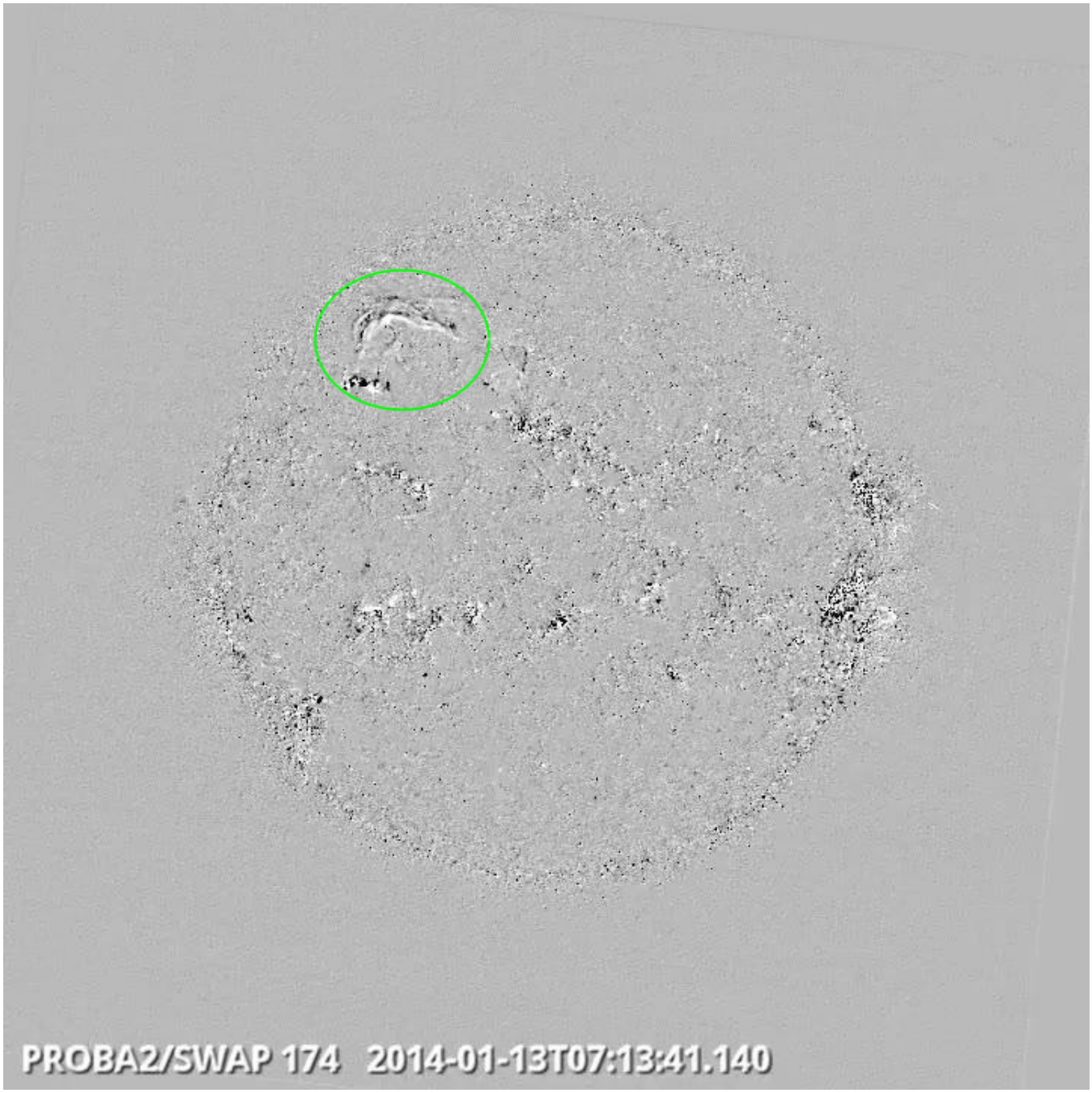

Catania sunspot groups
2014-01-16 08:36:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2014-01-19 00:30:00
75
60
45
30
15
0
-30
-45
-60
-75
1957
Beta
1947
1954
Alpha
1958
Alpha
12
11
1955
Alpha
1956
1950
Alpha
1959
Beta
10
1952
Alpha
1953
Beta
PROBA2/SWAP 17.4nm
2014-01-19T10:32:41.493

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 199).

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

Monday Jan 13:

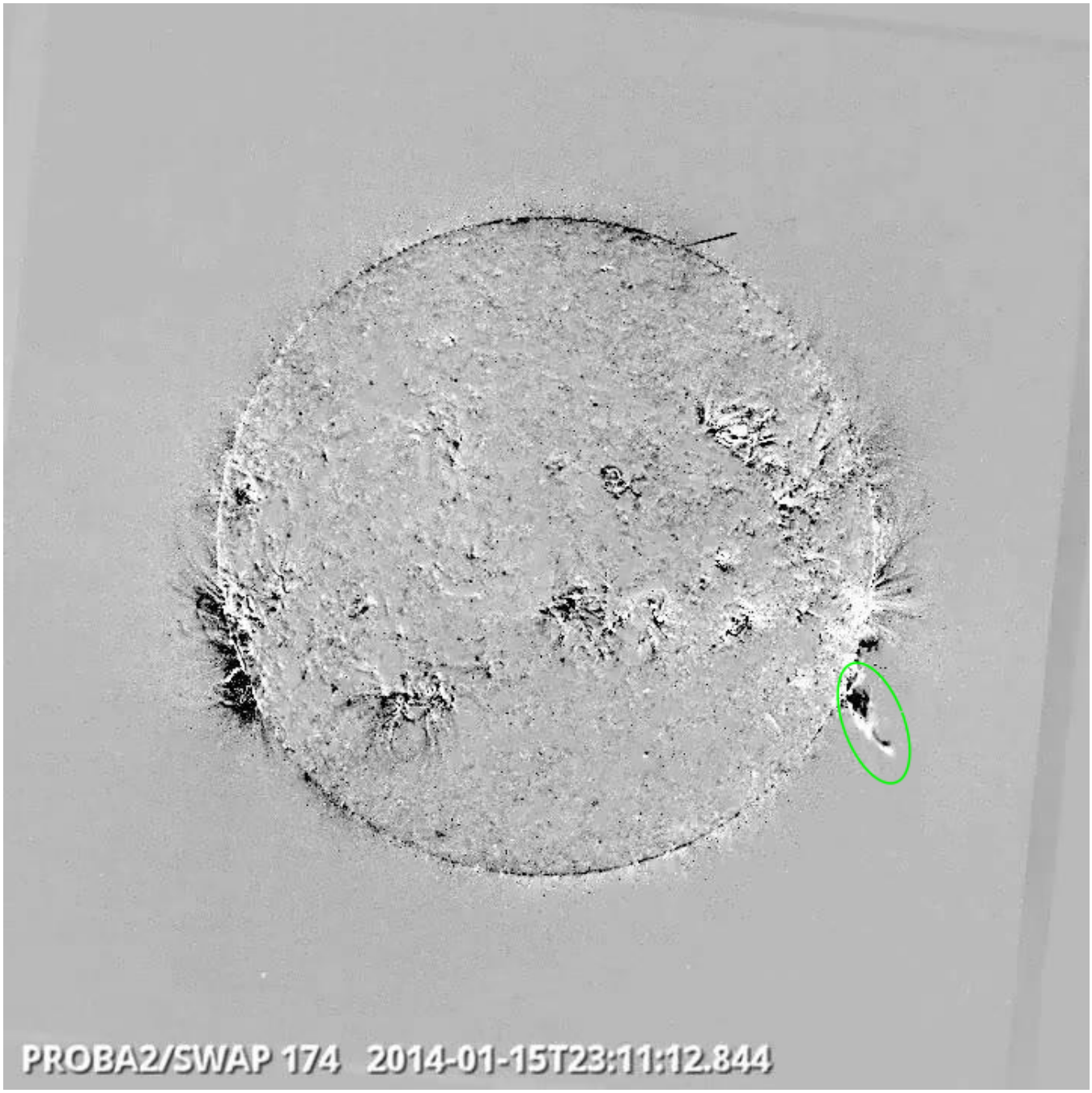


Eruption in the north east quadrant @ 07:13 - SWAP difference image

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

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

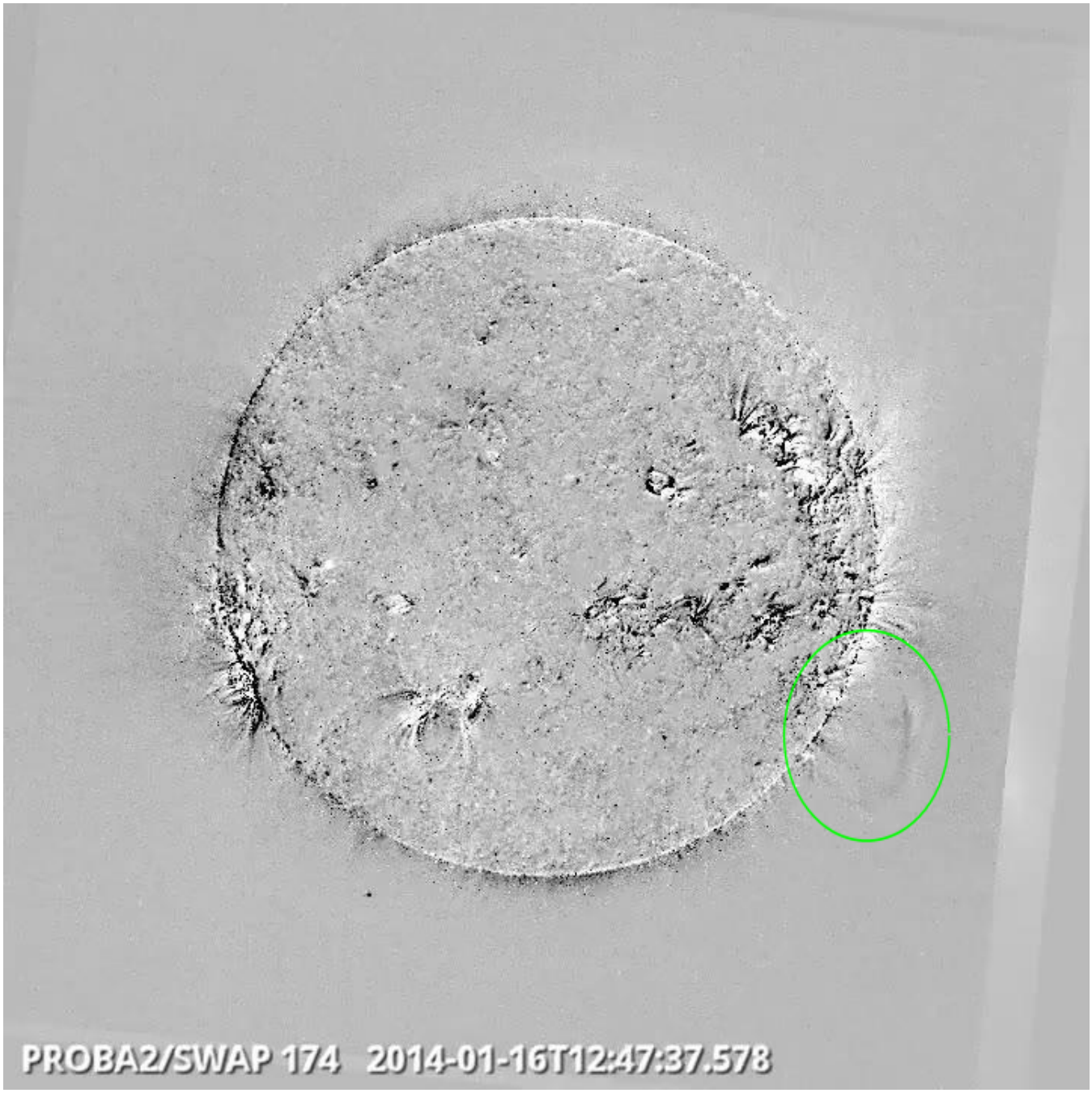
Wednesday Jan 15:



Eruption on the west limb @ 23:11 - SWAP difference image

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

Thursday Jan 16:



Eruption on the west limb @ 12:47 - SWAP difference image

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

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

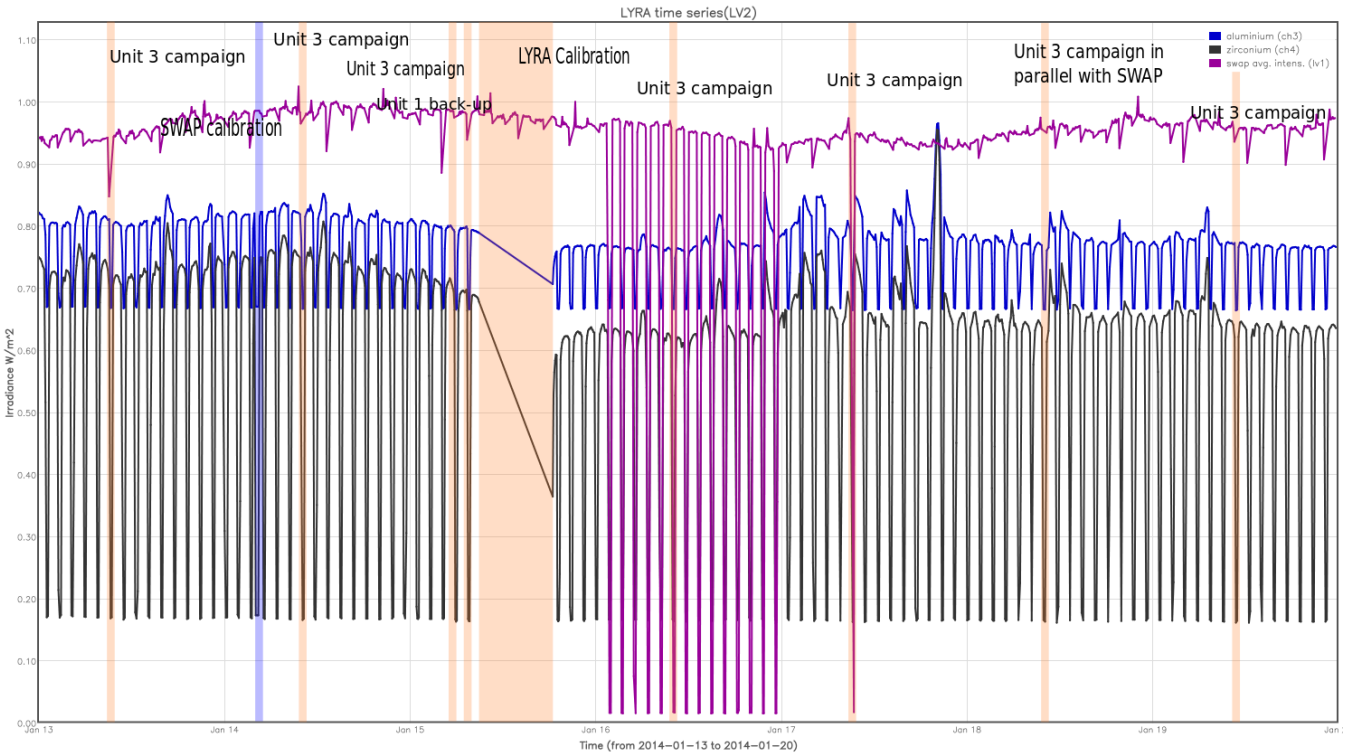
Friday Jan 17:

Eruption on the east limb @ 15:33 - SWAP difference image

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

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

- Unit 3 occultation campaign, three times
- Unit 1 back-up campaign
- LYRA bi-weekly calibration
- Unit 3 occultation campaign, two times
- Unit 3 occultation campaign in parallel with SWAP
- Unit 3 occultation campaign

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).

N, Nitta gave a presentation of his work at the Royal observatory of Belgium

RHESSI science nugget on Coronal waves which makes use of SWAP data

Guest Investigator Program

- N, Nitta, “Studying the dome-like structure of large scale coronal propagating fronts and their relation with shock waves.”

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 13 Jan	Tuesday 14 Jan	Wednesday 15 Jan	Thursday 16 Jan	Friday 17 Jan	Saturday 18 Jan	Sunday 19 Jan
Nominal acquisition + daily U3 LYIOS00366	Nominal acquisition + daily U3 LYIOS00367	Nominal acquisition + daily U3 + U1 backup + calibration LYIOS00367	Nominal acquisition + daily U3 LYIOS00367	Nominal acquisition + daily U3 LYIOS00367	Nominal acquisition + daily U3 LYIOS00367	Nominal acquisition + daily U3 LYIOS00367

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- Unit 1 back-up campaign
- bi-weekly calibration

LYRA detector temperature

LYRA detector 2 temperature globally varied between 41.0 and 44.0 °C, taking into account the daily U3 activation periods, the Unit 1 back-up campaign and the calibration.

To be explored

- None

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 15328 to 15511.
The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 13 Jan	Tuesday 14 Jan	Wednesday 15 Jan	Thursday 16 Jan	Friday 17 Jan	Saturday 18 Jan	Sunday 19 Jan
Nominal acquisition IOS00495 536 images	Nominal acquisition + calibration IOS00496 587 images	Nominal acquisition IOS00496 561 images	Nominal acquisition IOS00496 579 images	Nominal acquisition IOS00496 581 images	Nominal acquisition IOS00496 550 images	Nominal acquisition IOS00496 466 images

Special operations for SWAP, this week:

- Bi-weekly calibration

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -3.6 and -1.4 °C.

To be explored

- None

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 13105 to 13162) was nominal, except for:

- 13131, 13132

A SWAP MCPM blockage occurred during pass 13130. The MOC performed the unblocking procedure during pass 13133, so no images were returned during passes 13131 and 13132.

- 13142

BBE5 blocked at 10:45:39z during pass 13142 (2014-01-17T10:44:08 - 2014-01-17T10:52:08). The BBE was reset and restarted properly before the end of the pass, and downoading resumed at 10:50:23z. 332 BINSWAP files were lost during the interruption.

Data coverage HK

All HK data files (LYRA_AD) have been received

Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received, except for those expected during the following passes:

- 13131, 13132 (MCPM blockage, no data downloaded)
- 13142 (BBE5 blockage, 332 BINSWAP files lost)

Total number of images between 2014 Jan 13 0UT and 2014 Jan 20 0UT: 3969
Highest cadence in this period: 29 seconds
Average cadence in this period: 152.19 seconds
Number of image gaps larger than 300 seconds: 99
Largest data gap: 30.45 minutes

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received, except:

- 13142

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)