


P2SC-ROB-WR-205 - 20140224 Weekly report #205	<b>P2SC Weekly report</b>	
Period covered: Date:	Mon Feb 24 to Sun Mar 02, 2014 05 Feb 2014	Royal Observatory of Belgium -
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## 1. Science

### Solar & Space weather events

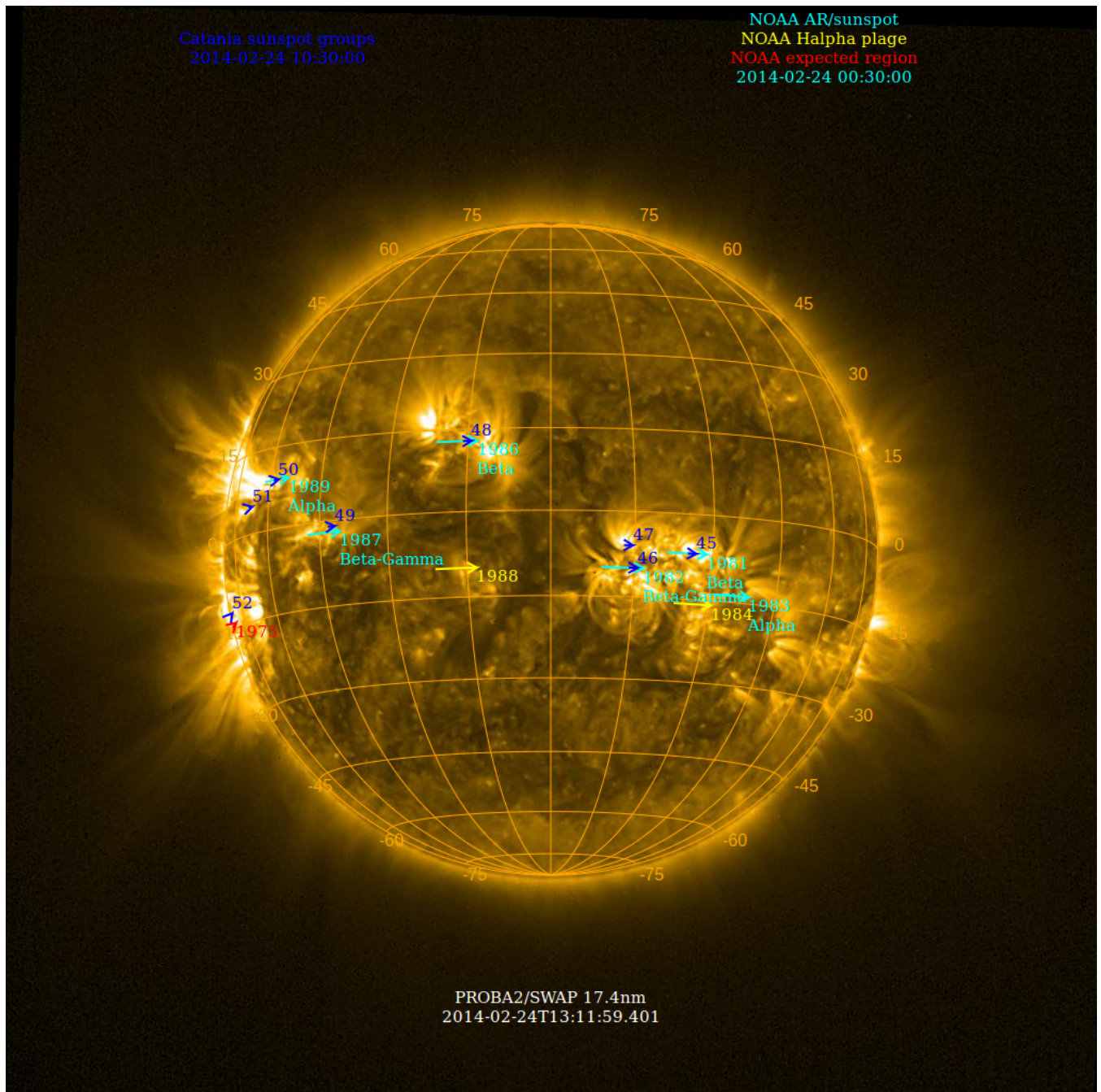
The level of solar activity<sup>1</sup> fluctuated between **low** and **high** this week.

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

	Monday 24 Feb	Tuesday 25 Feb	Wednesday 26 Feb	Thursday 27 Feb	Friday 28 Feb	Saturday 01 Mar	Sunday 02 Mar
Activity	moderate	high	moderate	low	moderate	moderate	moderate
Flares	<b>M1.3@12:05</b> <b>M1.2@11:17</b>	<b>X4.9@00:49</b>	<b>M1.1@15:01</b>	-	<b>M1.1@00:48</b>	<b>M1.1@13:33</b>	<b>M1.1@23:19</b>

<sup>1</sup> See appendix. All timings are given in UT.

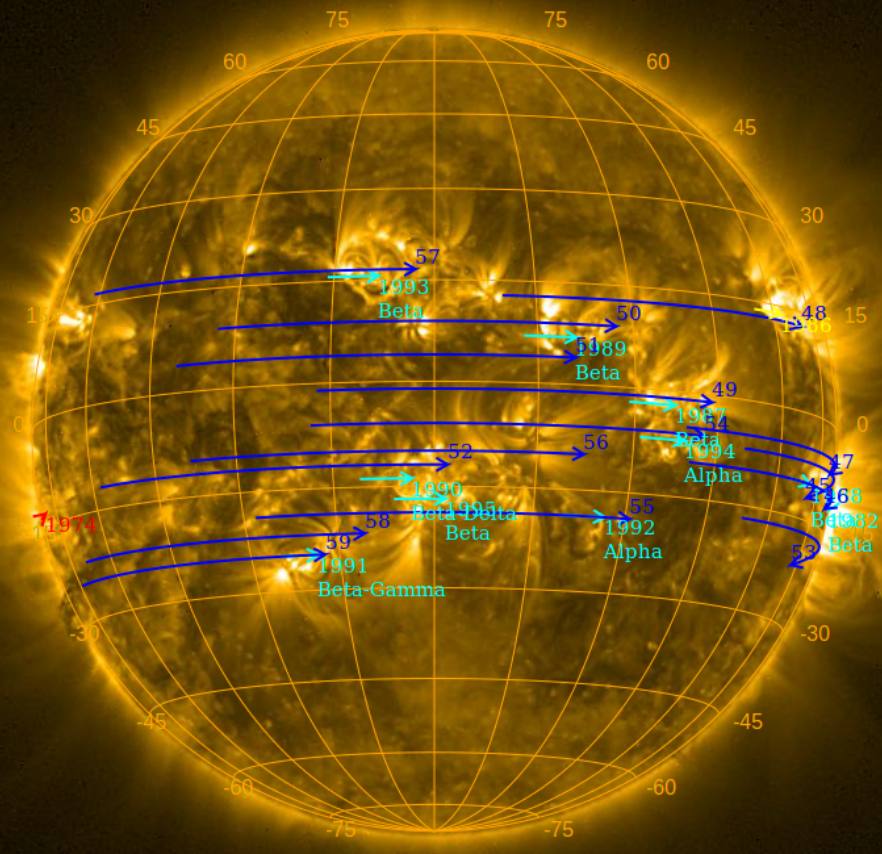
The SWAP images of Feb 24 and Mar 02 are shown below, with annotated active regions.



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

Catania sunspot groups  
2014-02-26 10:18:00

NOAA AR/sunspot  
NOAA Halpha plage  
NOAA expected region  
2014-03-02 00:30:00



PROBA2/SWAP 17.4nm  
2014-03-02T13:16:48.348

## **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.

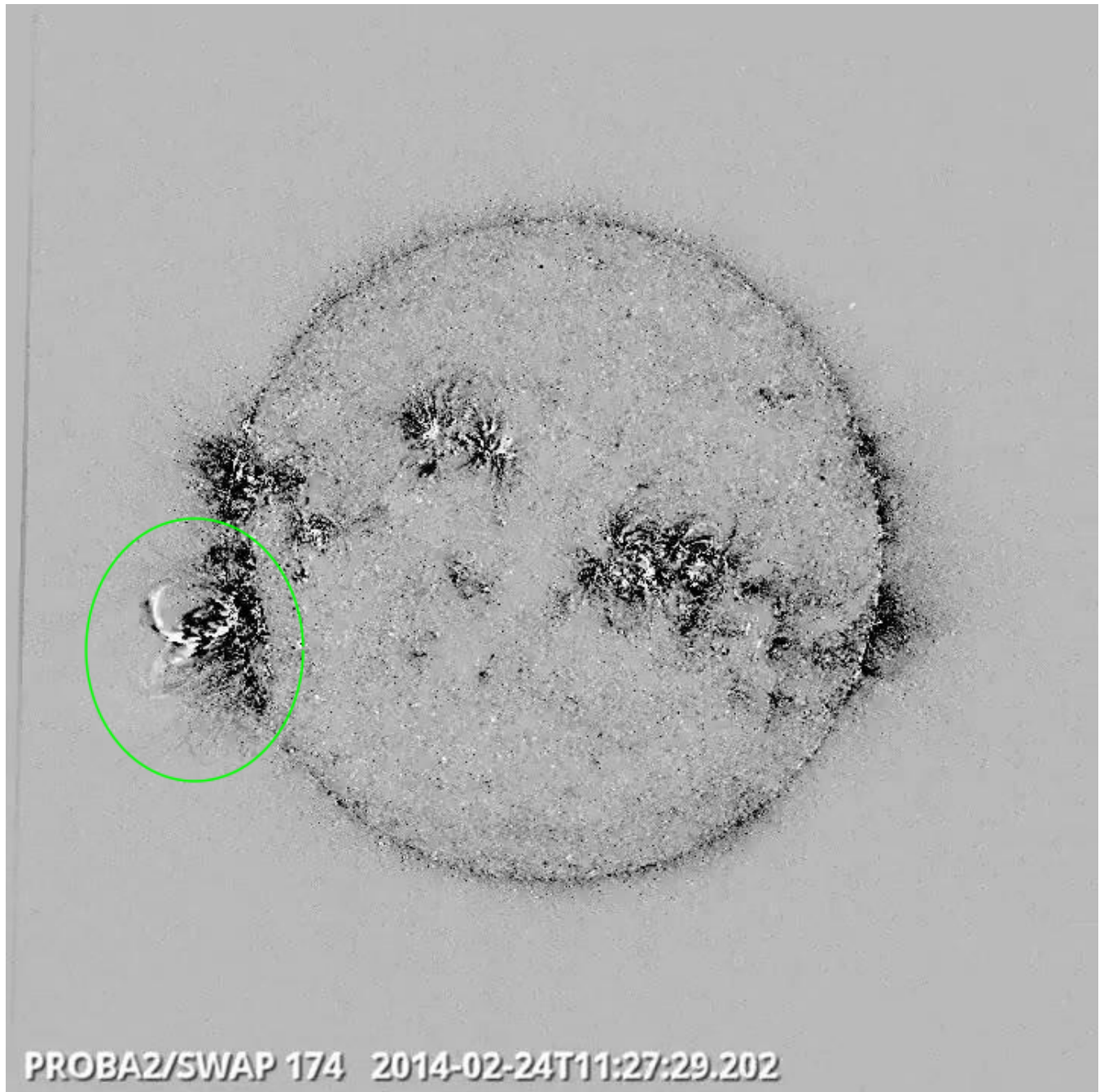
A weekly overview movie can be found [here](#) (SWAP week 205).

Because of a science campaign with proba2 a part of the weekly movie doesn't have the Sun centered.

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



Monday Feb 24:



**Failed eruption on the east limb @ 11:27 - SWAP difference image**

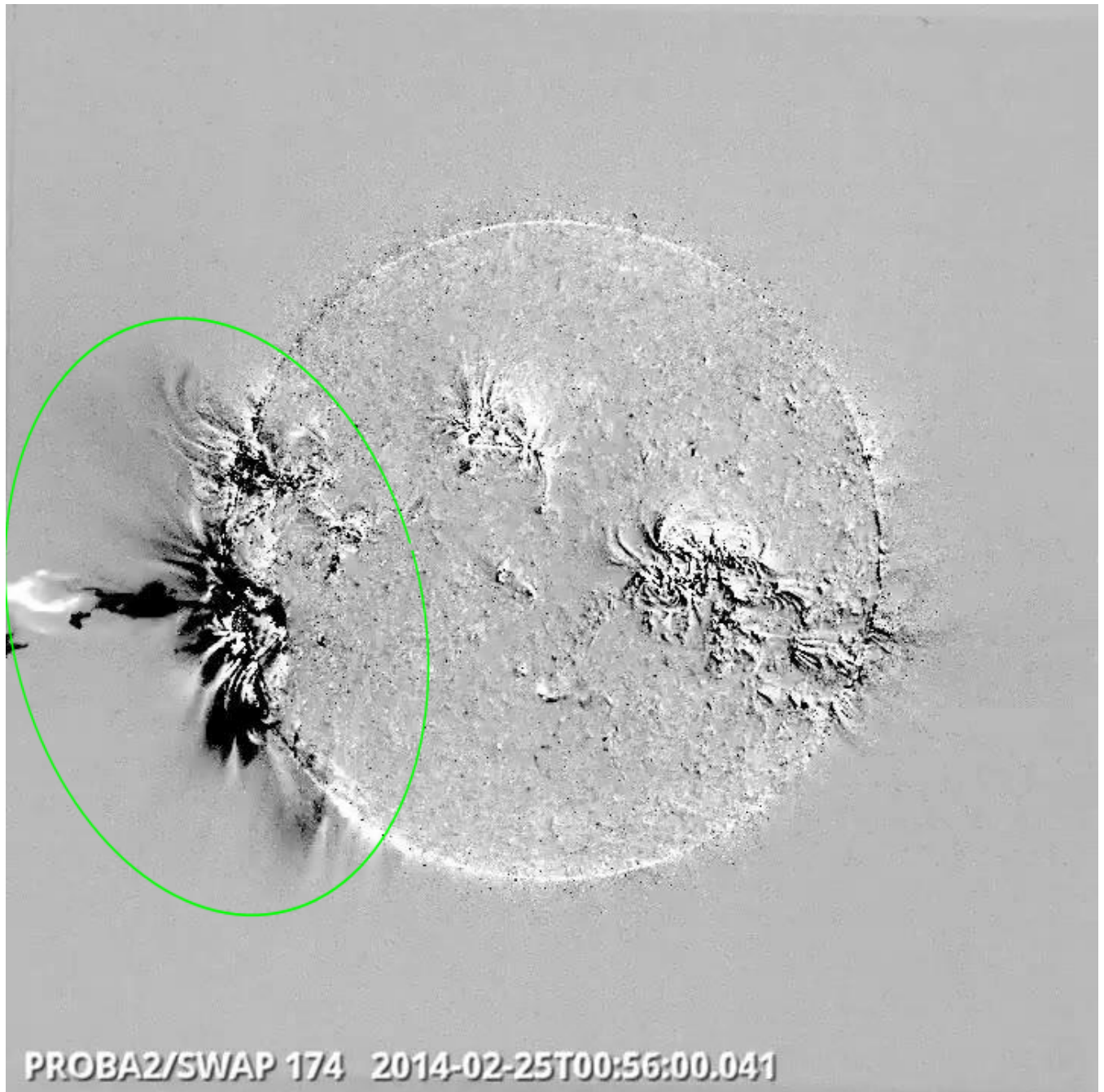
Find a movie of the events [here](#) (SWAP difference movie)

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



**Eruptions on the west limb @ 23:02 - SWAP difference image**  
Find a movie of the events [here](#) (SWAP difference movie)

Tuesday Feb 25:



**Eruptions and X flare on the west limb @ 00:56 - SWAP difference image**

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

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



Friday Feb 28:



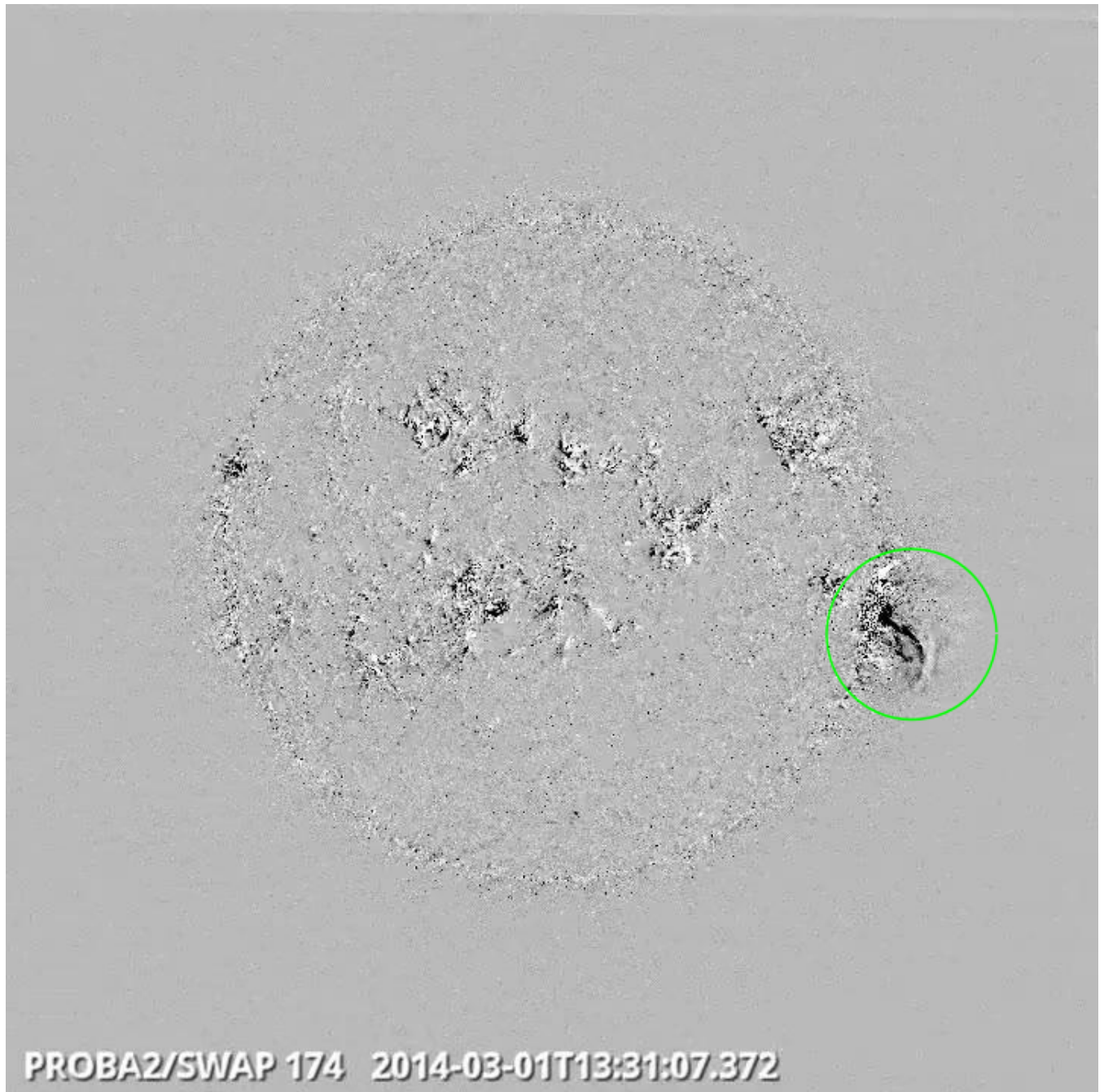
**Slow eruptions on the east limb @ 21:57 - SWAP difference image**

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

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



Saturday Feb 01:

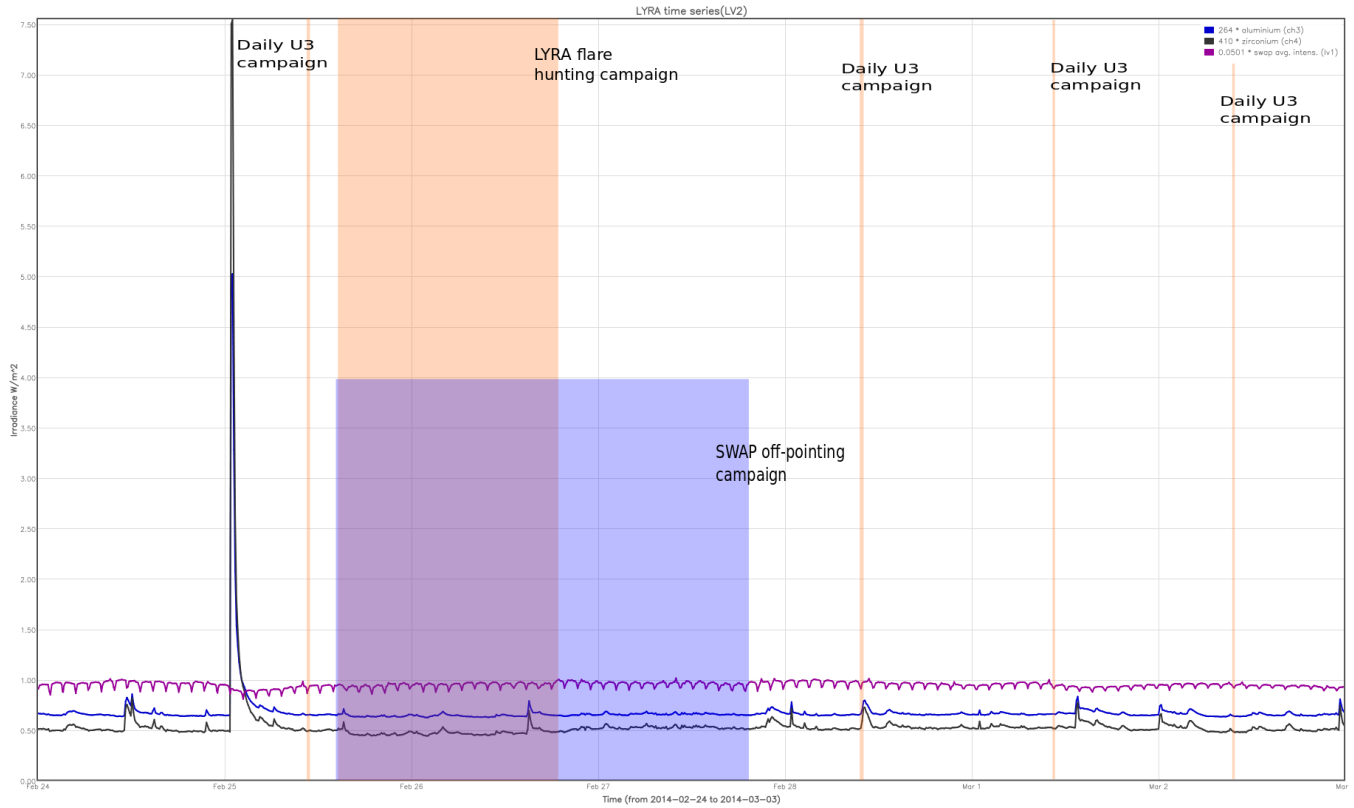


**Eruptions on the west limb @ 11:31 - SWAP difference image**  
Find a movie of the events [here](#) (SWAP difference movie)

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:

- Off pointing campaign

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

- Daily unit 3 campaign
- Flare hunting campaign
- Daily unit 3 campaign, three 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>).

- Goryaev, F.; Slemzin, V.; Vainshtein, L.; Williams, David R. 2014 "Study of Extreme-ultraviolet Emission and Properties of a Coronal Streamer from PROBA2/SWAP, Hinode/EIS and Mauna Loa Mk4 Observations"

## **Guest Investigator Program**

- None



## 2. LYRA instrument status

### Calibration

No calibration this week.

### IOS & operations

Monday 24 Feb	Tuesday 25 Feb	Wednesday 26 Feb	Thursday 27 Feb	Friday 28 Feb	Saturday 01 Mar	Sunday 02 Mar
Nominal acquisition	Nominal acquisition + daily U3 + flare hunting campaign	Nominal acquisition + flare hunting campaign	Nominal acquisition	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00378	LYIOS00379 -> LYIOS00380	LYIOS00380	LYIOS00381	LYIOS00381	LYIOS00381	LYIOS00381

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- flare hunting campaign

### LYRA detector temperature

LYRA detector 2 temperature globally varied between 50.5 and 52.9 °C, taking into account the daily U3 activation periods.

### To be explored

- None

### 3. SWAP instrument status

#### Calibration

No calibration this week.

#### MCPM errors

The number of MCPM recoverable errors increased from 16535 to 16659.

The number of MCPM unrecoverable errors remained at 1127.

#### IOS & operations

Monday 24 Feb	Tuesday 25 Feb	Wednesday 26 Feb	Thursday 27 Feb	Friday 28 Feb	Saturday 01 Mar	Sunday 02 Mar
Nominal acquisition	Nominal acquisition + off-pointing campaign	Nominal acquisition + off-pointing campaign	Nominal acquisition + off-pointing campaign	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00503 572 images	IOS00503 -> IOS00504 680 images	IOS00504 -> IOS00505 615 images	IOS00505 664 images	IOS00505 658 images	IOS00505 665 images	IOS00505 508 images

Special operations for SWAP, this week:

- Off pointing campaign to the Sun's east

#### SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 1.2 and 2.17 °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 13470 to 13529) 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 Feb 24 0UT and 2014 Mar 03 0UT: 4415

Highest cadence in this period: 110 seconds

Average cadence in this period: 136.99 seconds

Number of image gaps larger than 300 seconds: 0

Largest data gap: 6.50 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)