P2SC-ROB-WR-204- 20140217 Weekly report #204	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Feb 17 to Sun Feb 23, 2014 26 Feb 2014 Erik Pylyser 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

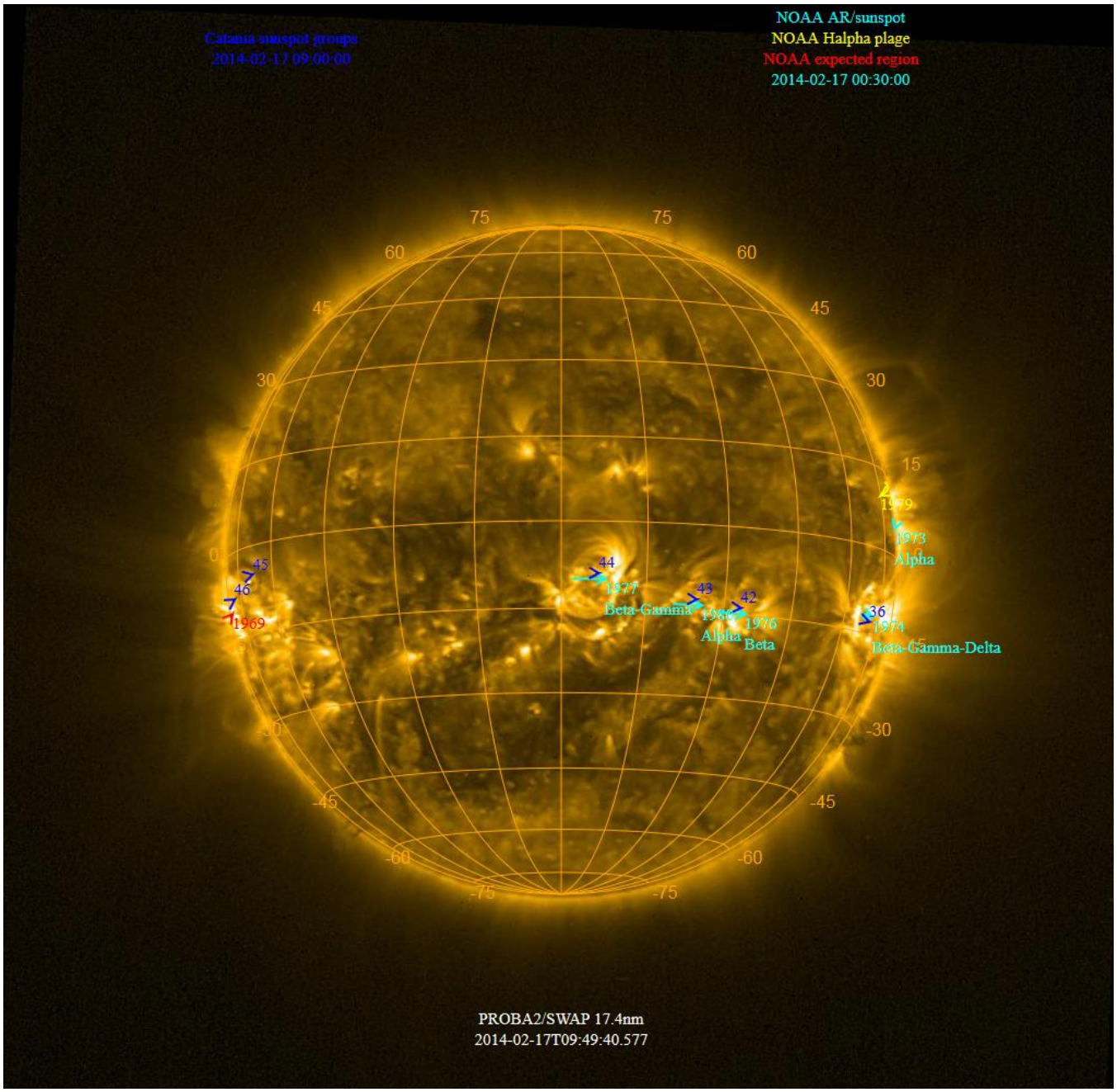
The level of solar activity[1] was **low** to **moderate** this week. Two M-flares occurred.

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

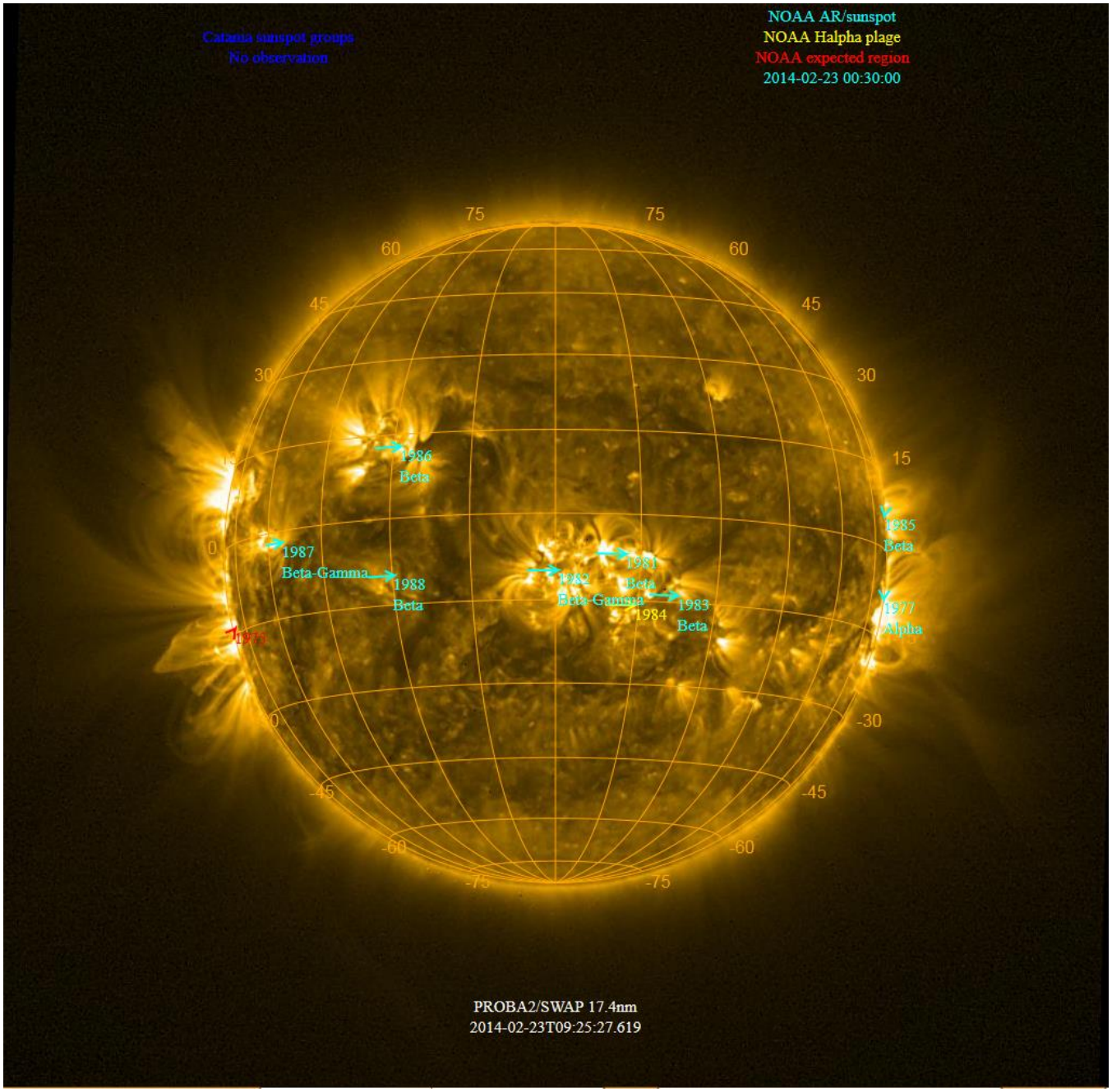
	Monday 17 Feb	Tuesday 18 Feb	Wednesday 19 Feb	Thursday 20 Feb	Friday 21 Feb	Saturday 22 Feb	Sunday 23 Feb
Activity	low	low	low	moderate	low	low	moderate
Flares	-	-	-	**M3.0 @07:26**	-	-	**M1.1 @06:36**

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

The SWAP images of Feb 17 and Feb 23 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
2014-02-23 00:30:00
75
75
60
60
45
45
30
30
15
0
-30
-45
-45
-60
-60
-75
-75
1986
Beta
1987
Beta-Gamma
1988
Beta
1981
Beta
1982
Beta-Gamma
1984
1983
Beta
1985
Beta
1977
Alpha
1976
PROBA2/SWAP 17.4nm
2014-02-23T09:25:27.619

Solar Activity

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 204).

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

Monday Feb 17:

Eruption on West Limb @ 05:10 - SWAP difference image

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

Eruption on West Limb @ 23:28 - SWAP difference image
(This eruption can be seen in the next movie, preceding a large prominence eruption)

Tuesday Feb 18:

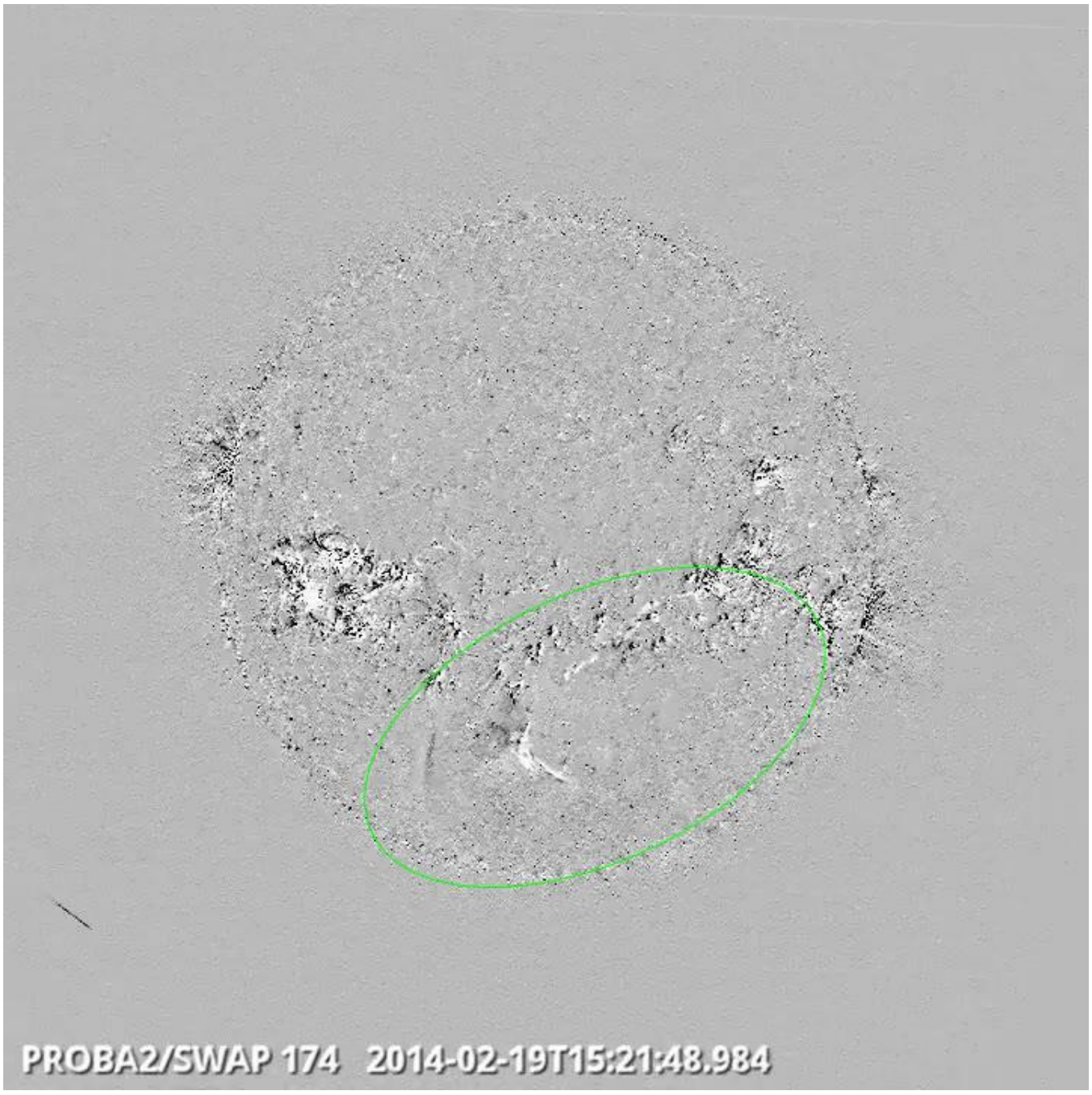
Prominence Eruption in Southeast Quadrant @ 01:06 - SWAP difference image

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

Prominence Eruption in Northeast Quadrant @ 23:30 - SWAP difference image

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

Wednesday Feb 19:



Prominence Eruption in the Southwest Quadrant @ 15:21 - SWAP difference image

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

Thursday Feb 20:

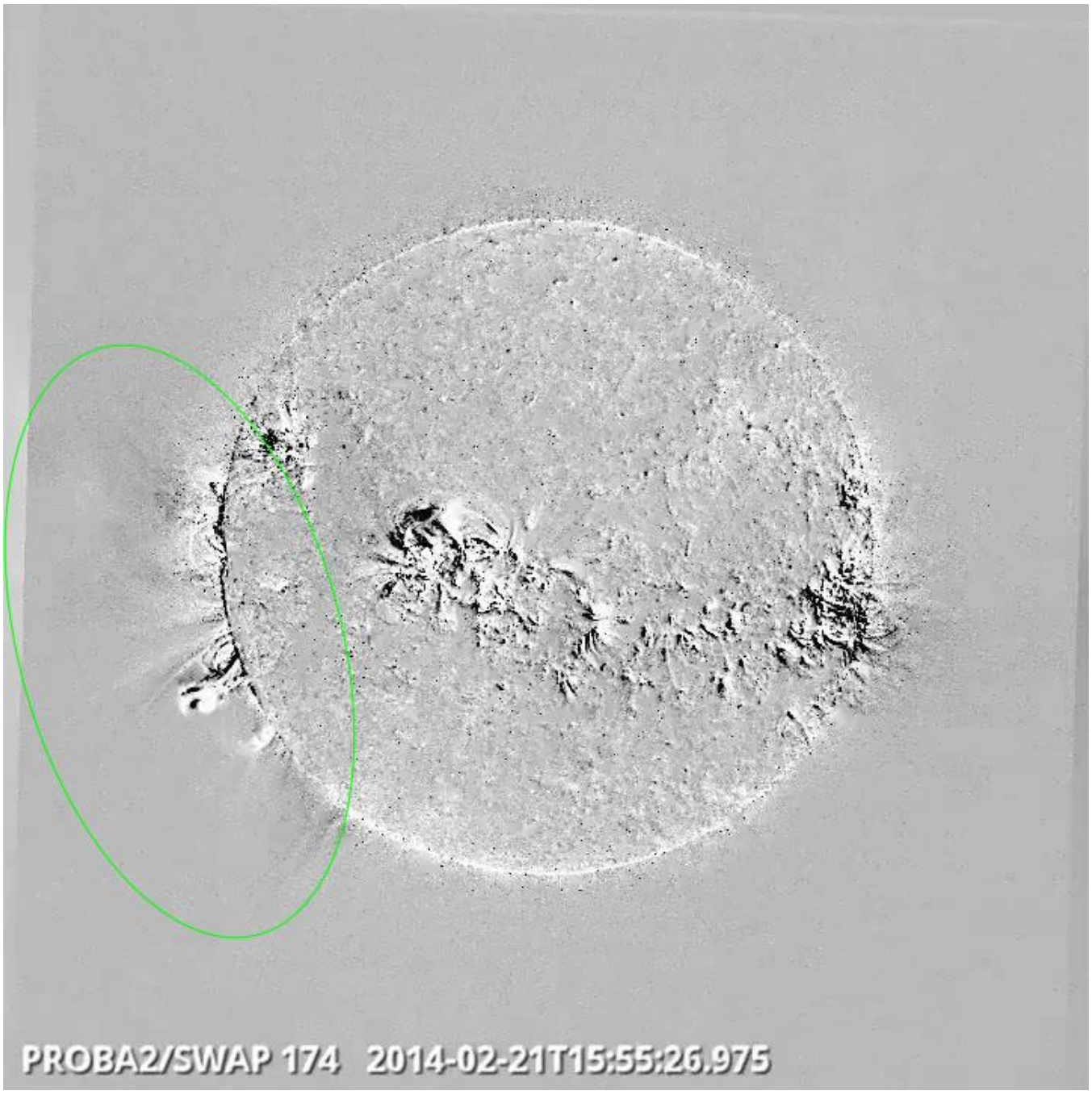
Flare Eruption on the West limb @ 07:50 - SWAP difference image

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

Eruption on the West limb @ 22:50 - SWAP difference image

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

Friday Feb 21:



Eruption on the Southeast Limb@ 15:55 - SWAP difference image

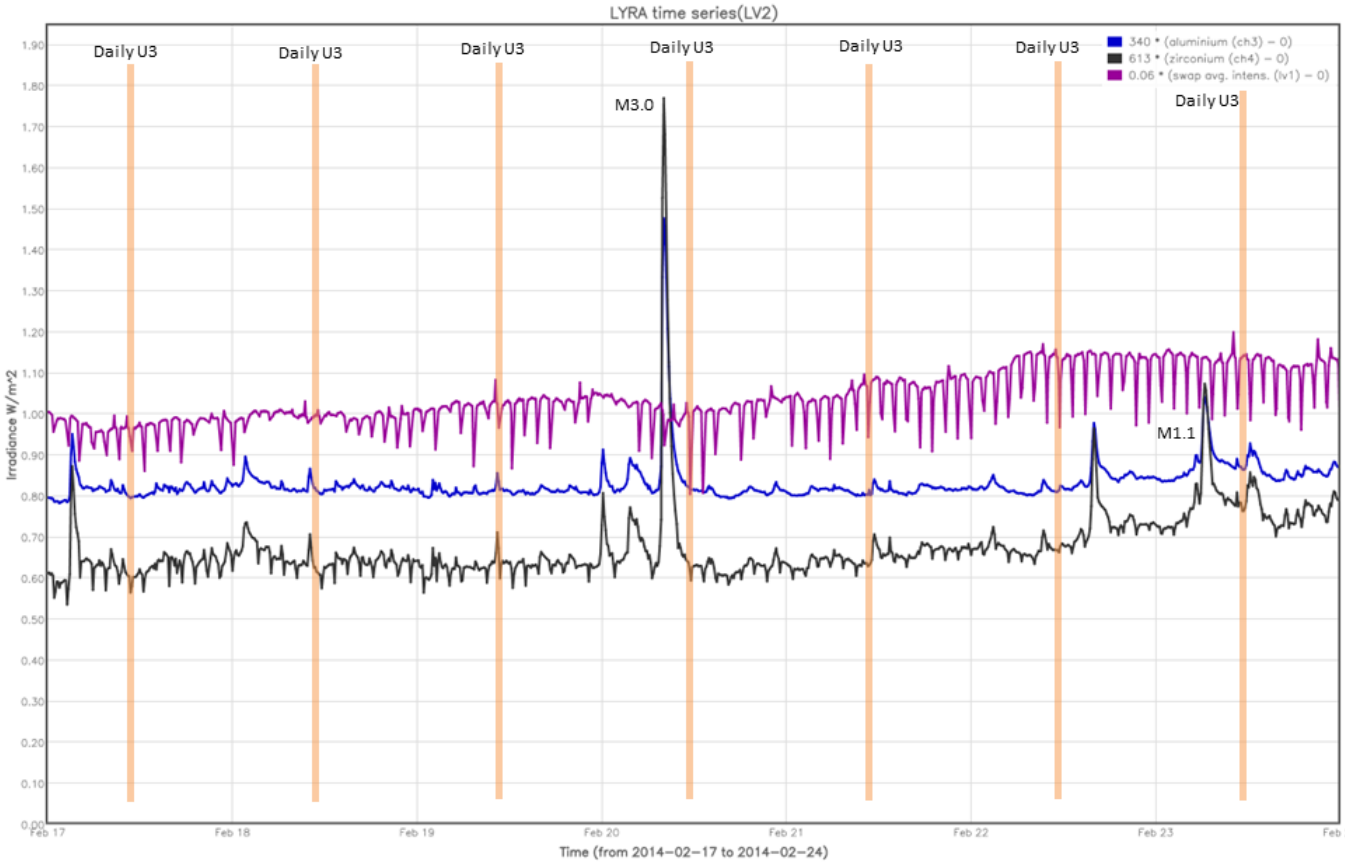
Find a movie of the event **here** (SWAP difference movie)

Saturday Feb 22:

Prominence Eruption on the Southwest Limb@ 12:29 - 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: Aluminum Channel of LYRA Unit 2
- purple: SWAVINT (SWAP Average Intensity; integrated solar intensity per SWAP image pixel)



The (LYRA related) orange shaded periods correspond to, from left to right (see section 2):

- Daily LYRA unit 3 occultation campaign, 6 times
- Daily LYRA unit 3 campaign (after the end of occultations), 1 time.

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).

A SWAP image was issued on ESA's Technology webpage (http://www.esa.int/Our_Activities/Technology). The image can be seen here: http://www.esa.int/spaceinimages/Images/2014/02/Proba-2_view_of_post-eruptive_loops_on_Sun.

Guest Investigator Program

- None

Other Visitors

- Paul Bryan (NASA Goddard Space Flight Center) arrived at SIDC for a 2 week stay, analyzing PROBA images of comet Lovejoy's perihelion passage in December 2011.
  His study subject is: 'Comets as Solar Probes'.
  He will present his work at a seminar at ROB (Meridian room), Thu 27th, 11:00.

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 17 Feb	Tuesday 18 Feb	Wednesday 19 Feb	Thursday 20 Feb	Friday 21 Feb	Saturday 22 Feb	Sunday 23 Feb
Nominal acquisition + daily U3 LYIOS00376	Nominal acquisition + daily U3 LYIOS00377	Nominal acquisition + daily U3 LYIOS00377	Nominal acquisition + daily U3 LYIOS00377	Nominal acquisition + daily U3 LYIOS00377	Nominal acquisition + daily U3 LYIOS00377	Nominal acquisition + daily U3 LYIOS00377

The following science campaigns were performed by LYRA:

- daily U3 occultation campaign (until Feb 22nd, end of occultations)
- daily U3 observation campaign (from Feb 23rd on)

LYRA detector temperature

LYRA detector 2 temperature globally decreased from 51.8 °C and 50.45 °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 16312 to 16535.
The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 17 Feb	Tuesday 18 Feb	Wednesday 19 Feb	Thursday 20 Feb	Friday 21 Feb	Saturday 22 Feb	Sunday 23 Feb
Nominal acquisition IOS00501 645 images	Nominal acquisition IOS00502 671 images	Nominal acquisition IOS00502 590 images	Nominal acquisition IOS00502 608 images	Nominal acquisition IOS00502 669 images	Nominal acquisition IOS00503 587 images	Nominal acquisition IOS00503 547 images

Special operations for SWAP, this week:

- None.

SWAP detector temperature

The SWAP Cold Finger Temperature globally decreased from 2.54 and 1.60 °C.

To be explored

- None

4. PROBA2 Science Center Status

The main operators were Robbe Vansintjan and Erik Pylyser

The following changes were made to the P2SC:

DCVC

- 18/02/2014: r5049
  Increased LYRA allowed temperature ranges in DCVC

5. Data reception & discussions with MOC

Passes

The delivery of the passes for this week (passes 13408 to 13469) was nominal.

Data coverage HK

All HK data files (LYRA_AD) have been received.

Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received.

Total number of images between 2014 Feb 17 0UT and 2014 Feb 24 0UT: 4314
Highest cadence in this period: 90 seconds
Average cadence in this period: 140.14 seconds
Number of image gaps larger than 300 seconds: 73
Largest data gap: 17.70 minutes

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received.

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)