P2SC-ROB-WR-213 - 20140421 Weekly report #113	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Apr 21, 2013 to Sun Apr 27, 2014 08 May 2014 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

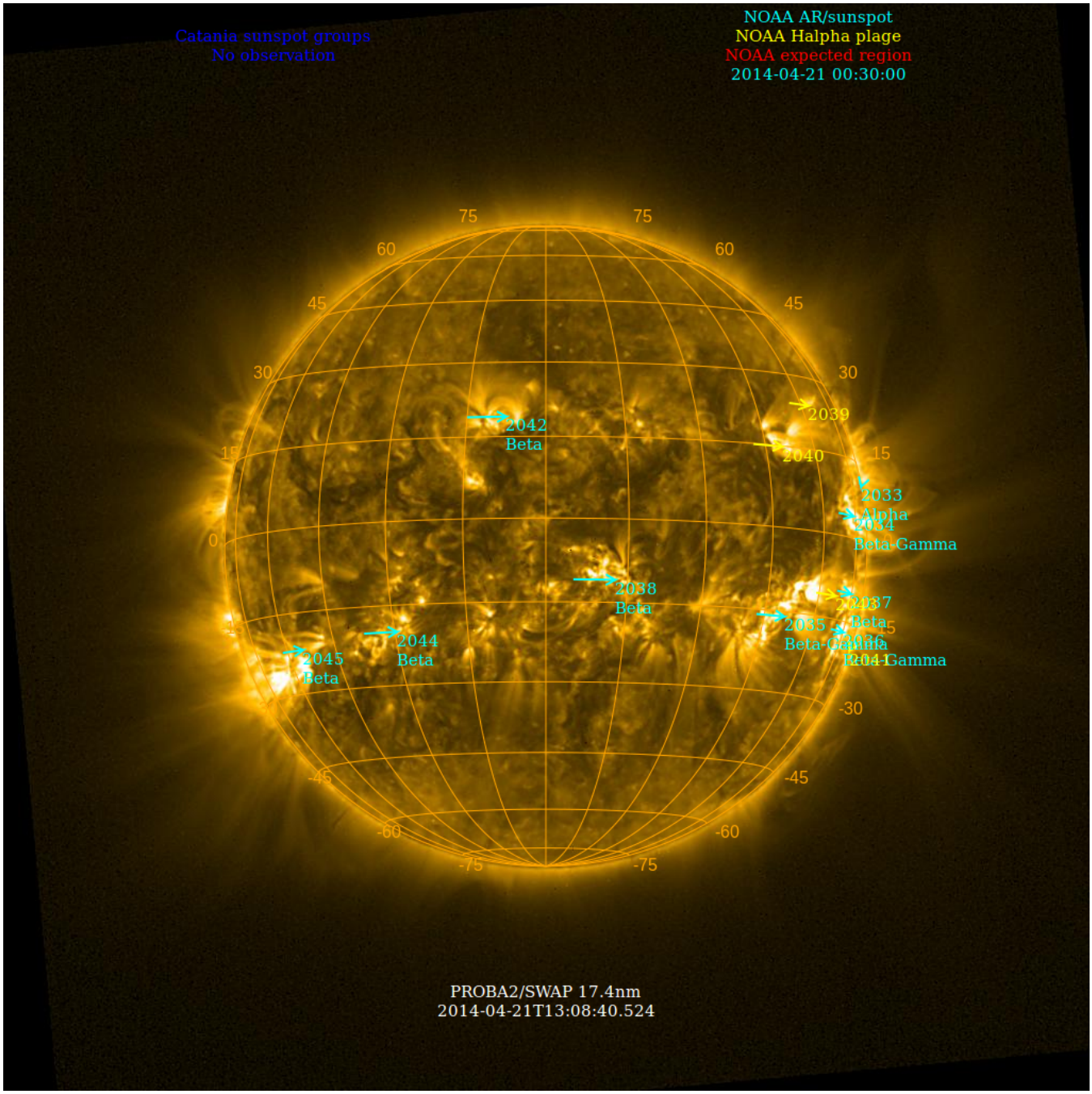
The level of solar activity[1] fluctuated between **very low** and **high** this week.

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

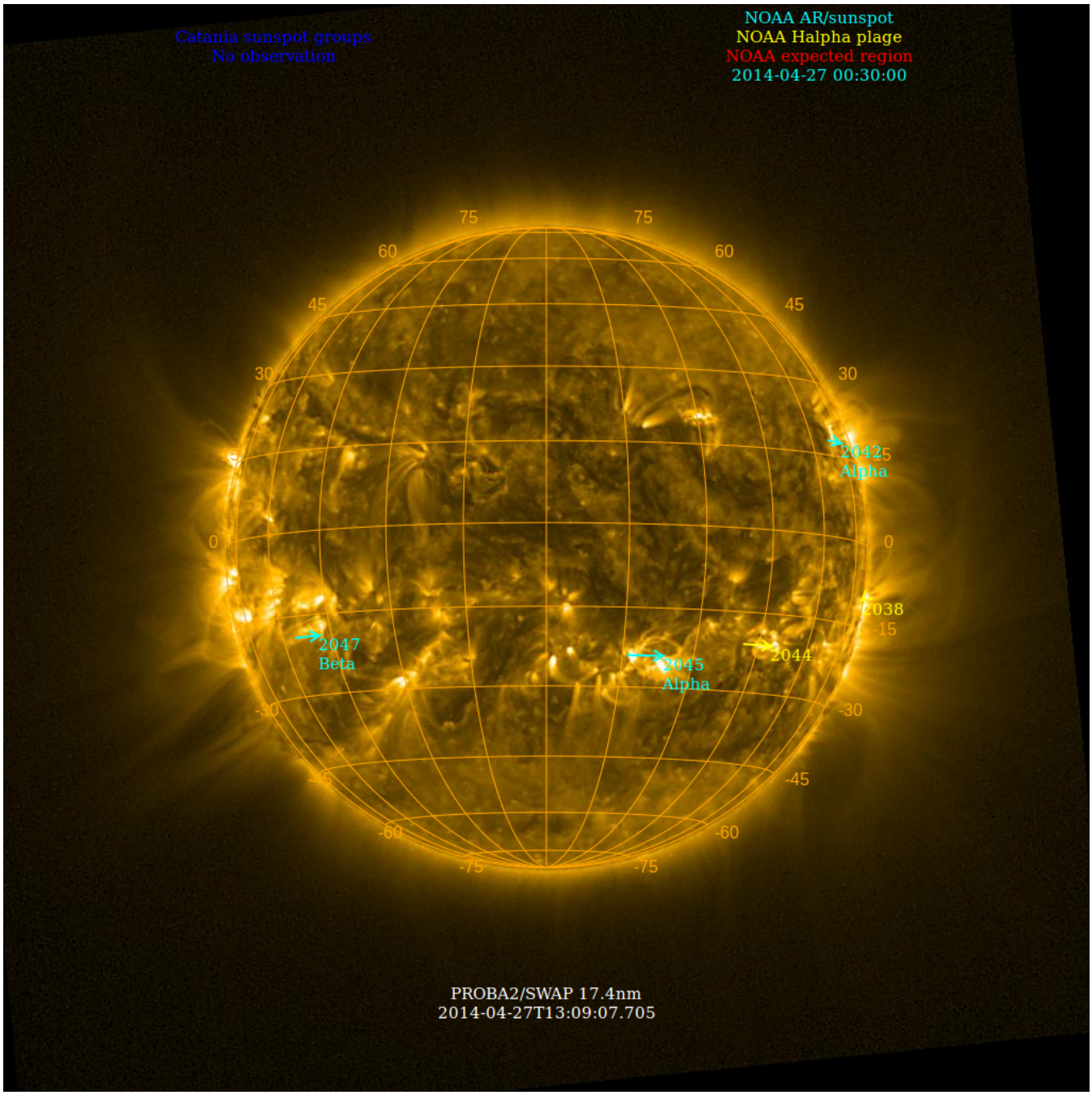
	Monday 21 Apr	Tuesday 22 Apr	Wednesday 23 Apr	Thursday 24 Apr	Friday 25 Apr	Saturday 26 Apr	Sunday 27 Apr
Activity	low	low	low	low	high	low	very low
Flares	-	-	-	-	**X1.3@00:27**	-	-

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

The SWAP images of Apr 21 and Apr 27 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
2014-04-27 00:30:00
75
75
60
60
45
45
30
30
0
0
-30
-30
-45
-45
-60
-60
-75
-75
2042
Alpha
2038
2047
Beta
2045
Alpha
2044
PROBA2/SWAP 17.4nm
2014-04-27T13:09:07.705

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.

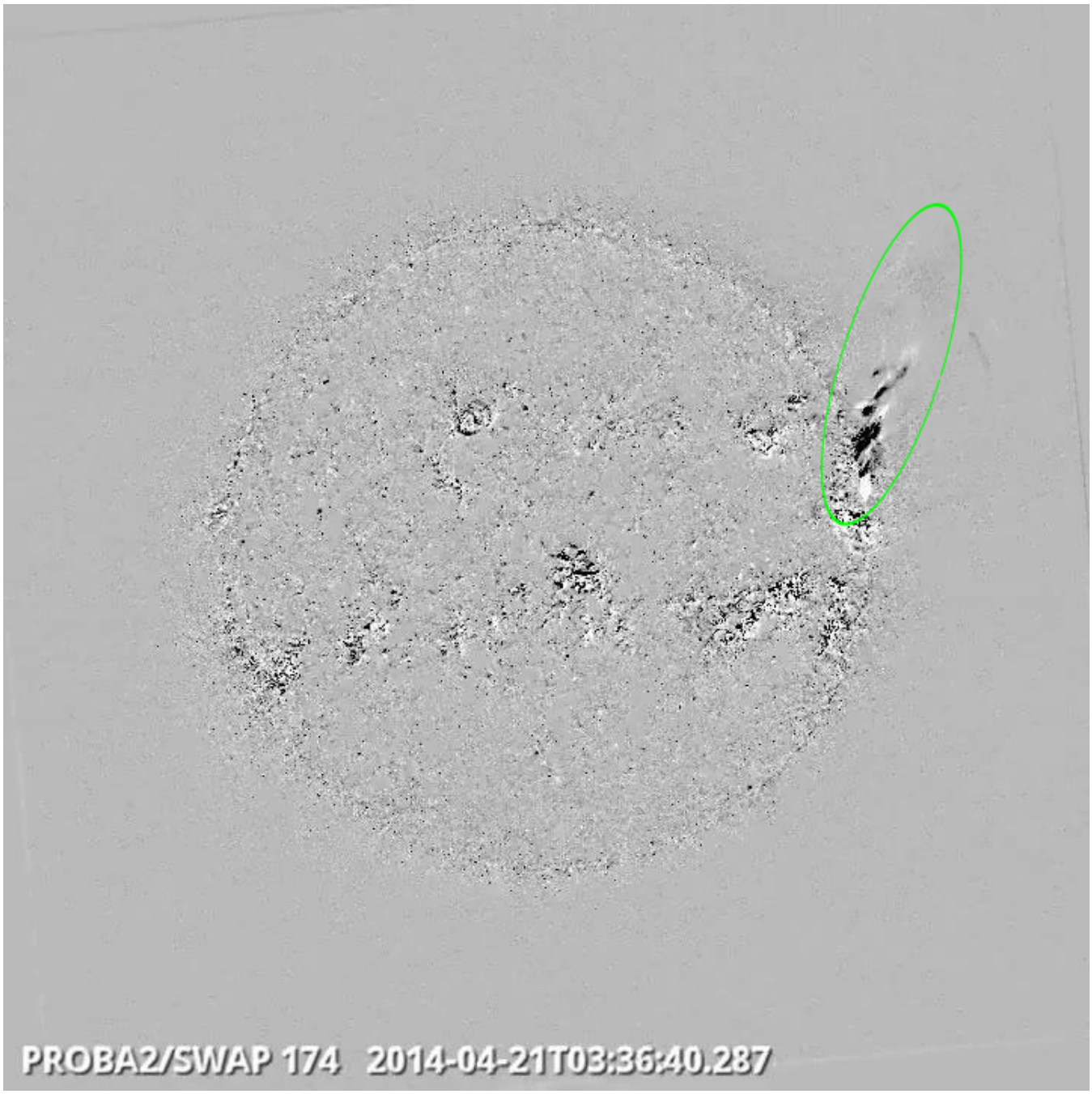
A weekly overview movie can be found here (SWAP week 213).

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

Monday Apr 21

Eruption on the south west quadrant @ 00:45 - SWAP difference image

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



Eruption on the north west quadrant @ 03:36 - SWAP difference image

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

Wednesday April 23

Jet on the west limb @ 13:25 - SWAP difference image

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

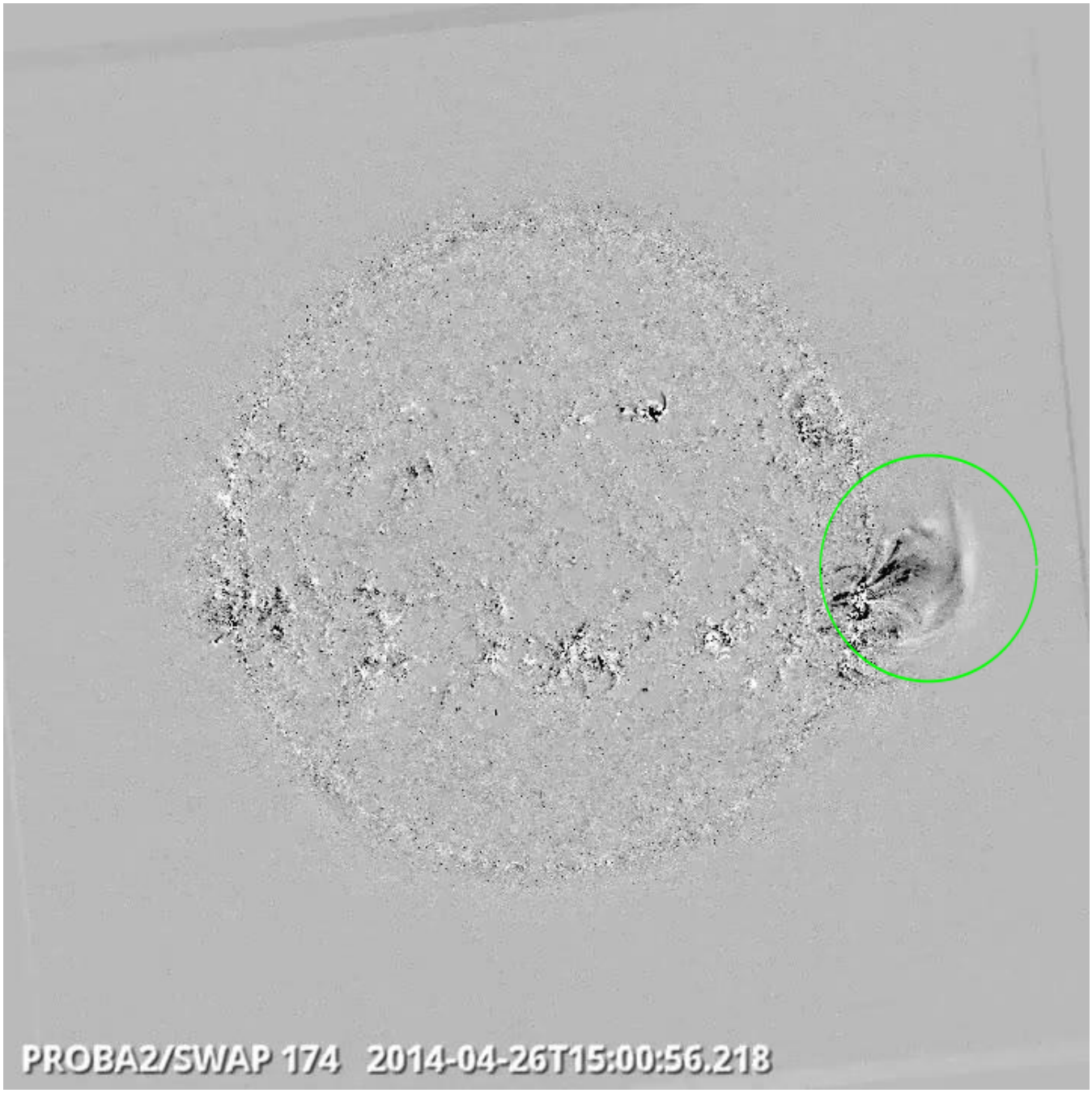
Friday April 25:

Eruption on the west limb @ 00:33 - SWAP difference image
Find a movie of the event **here** (SWAP difference movie)

Loop expansion on the north west limb @ 09:02 - SWAP difference image

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

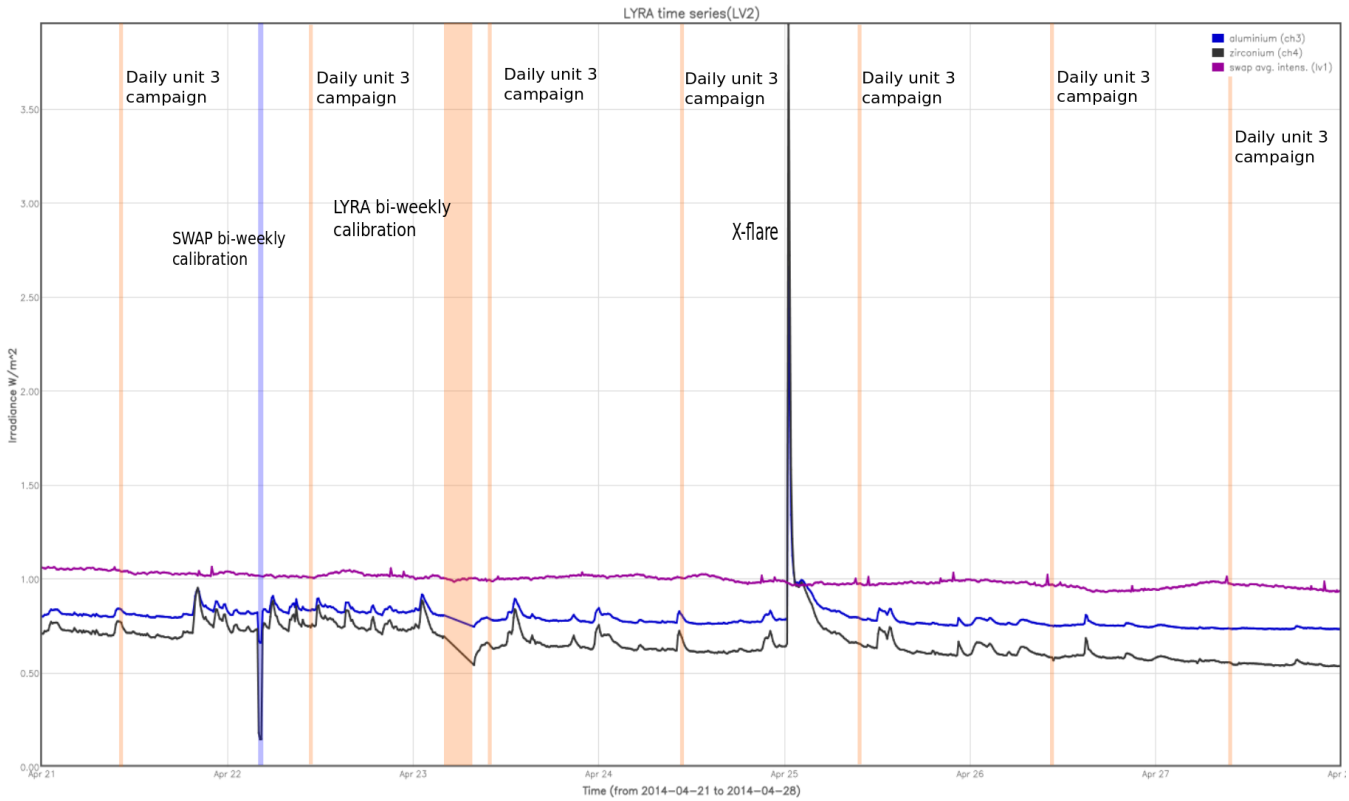
Saturday April 26



Eruption on the west limb @ 15:00 - 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:

- Daily unit 3 campaign, two times
- LYRA bi-weekly calibration
- Daily unit 3 campaign, five times

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

- SWAP bi-weekly calibration

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 21 Apr	Tuesday 22 Apr	Wednesday 23 Apr	Thursday 24 Apr	Friday 25 Apr	Saturday 26 Apr	Sunday 27 Apr
Nominal acquisition + daily U3 LYIOS00393	Nominal acquisition + daily U3 LYIOS00393	Nominal acquisition + daily U3 + bi-weekly calibration LYIOS00393	Nominal acquisition + daily U3 LYIOS00393	Nominal acquisition + daily U3 LYIOS00393	Nominal acquisition + daily U3 LYIOS00394	Nominal acquisition + daily U3 LYIOS00394

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- bi-weekly calibration

LYRA detector temperature

LYRA detector 2 temperature globally varied between 46.2 and 48.3 °C, taking into account the daily U3 activation periods.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 18009 to 18205.
The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 21 Apr	Tuesday 22 Apr	Wednesday 23 Apr	Thursday 24 Apr	Friday 25 Apr	Saturday 26 Apr	Sunday 27 Apr
Nominal acquisition IOS00518 614 images	Nominal acquisition + bi-weekly calibration IOS00518 689 images	Nominal acquisition IOS00518 664 images	Nominal acquisition IOS00518 665 images	Nominal acquisition IOS00518 665 images	Nominal acquisition IOS00518 664 images	Nominal acquisition IOS00518 561 images

Special operations for SWAP, this week:

- bi-weekly calibration

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.2 and -0.54 °C.

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 13955 to 14016) 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 Apr 21 0UT and 2014 Apr 28 0UT: 4522
Highest cadence in this period: 30 seconds
Average cadence in this period: 133.76 seconds
Number of image gaps larger than 300 seconds: 0

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)