P2SC-ROB-WR-263 - 20150406 Weekly report #263	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Apr 06 to Sun Apr 12, 2015 15 Apr 2015 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

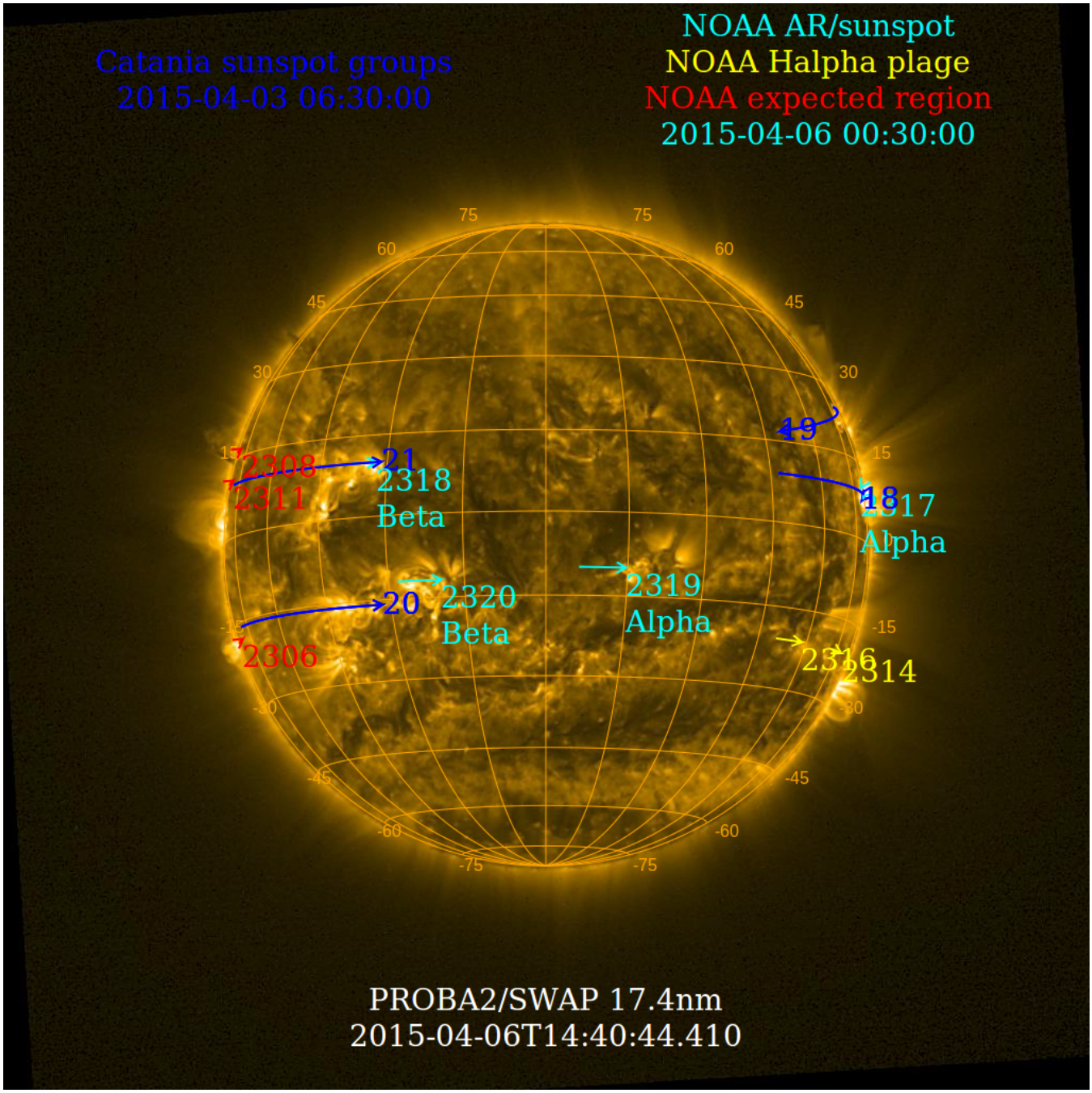
The level of solar activity[1] fluctuated between **low** and **moderate** this week.

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

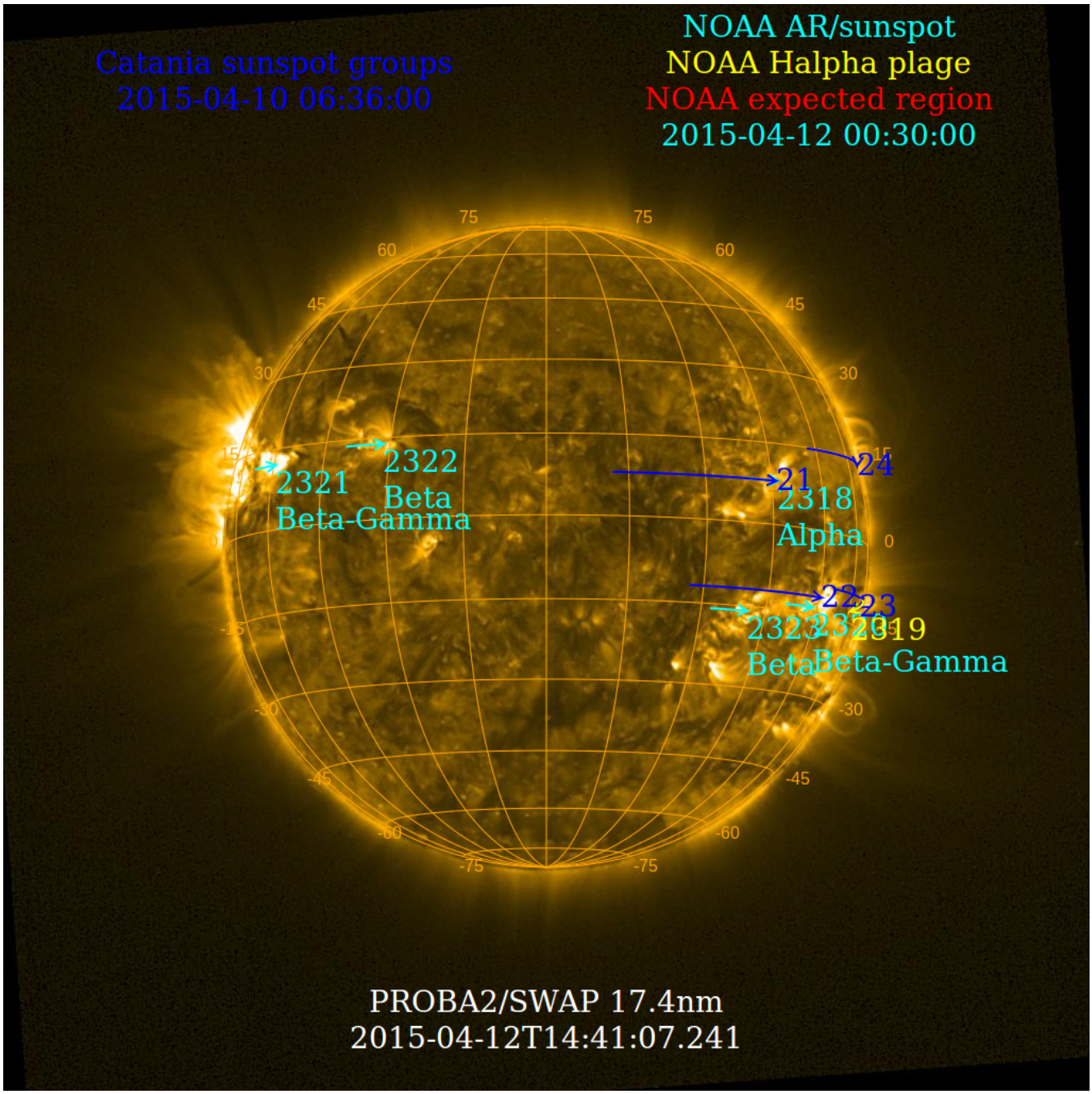
	Monday 06 Apr	Tuesday 07 Apr	Wednesday 08 Apr	Thursday 09 Apr	Friday 10 Apr	Saturday 11 Apr	Sunday 12 Apr
Activity	low	low	moderate	low	low	low	moderate
Flares	-	-	**M1.4@14:43**	-	-	-	**M1.1@09:50**

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

The SWAP images of Apr 06 and Apr 12 are shown below, with annotated active regions.



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


Catania sunspot groups
2015-04-10 06:36:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2015-04-12 00:30:00
2321
2322
Beta
Beta-Gamma
21
2318
Alpha
24
22
23
2323
Beta
2319
Beta-Gamma
PROBA2/SWAP 17.4nm
2015-04-12T14:41:07.241

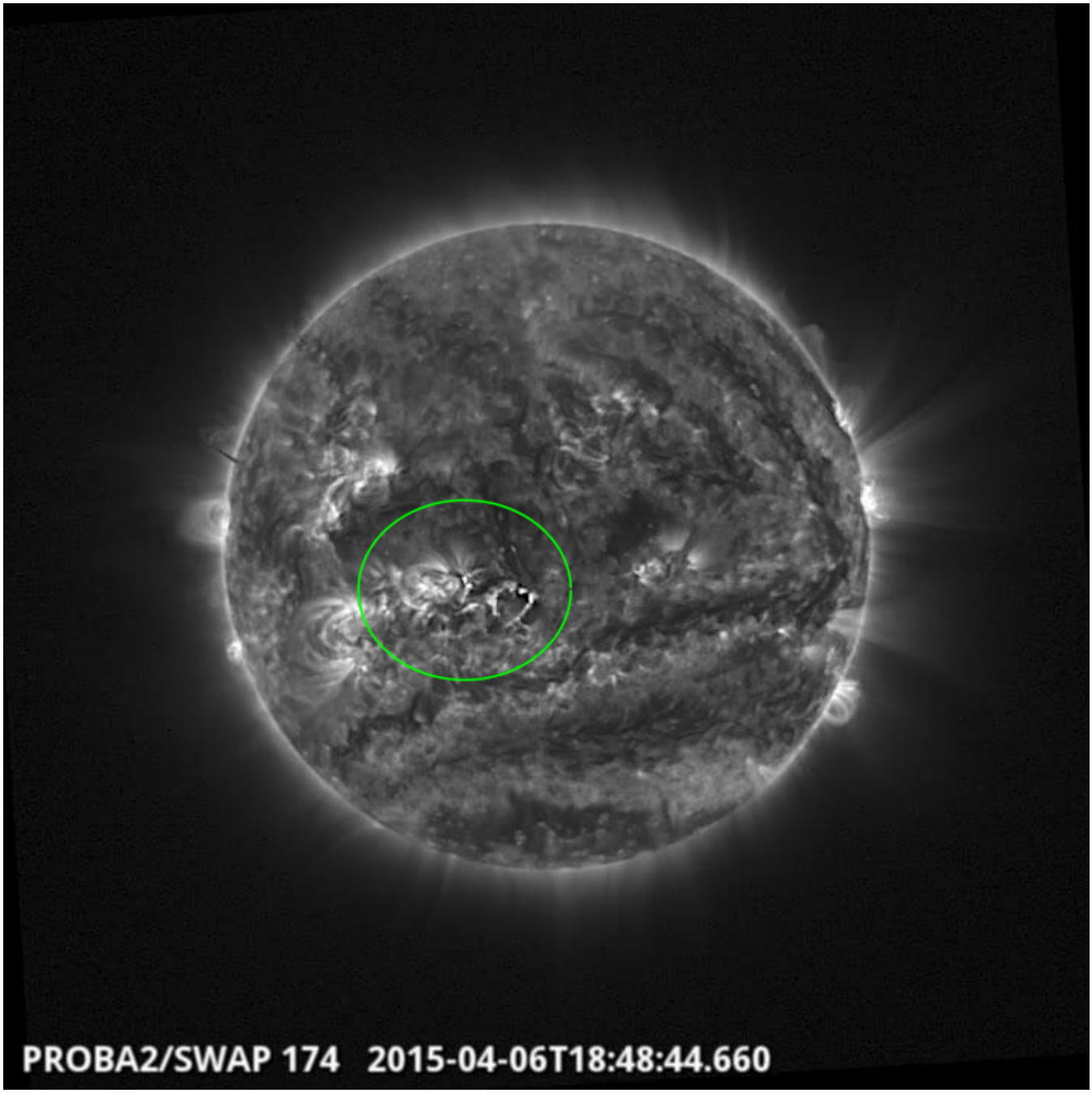
Solar Activity

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 263).

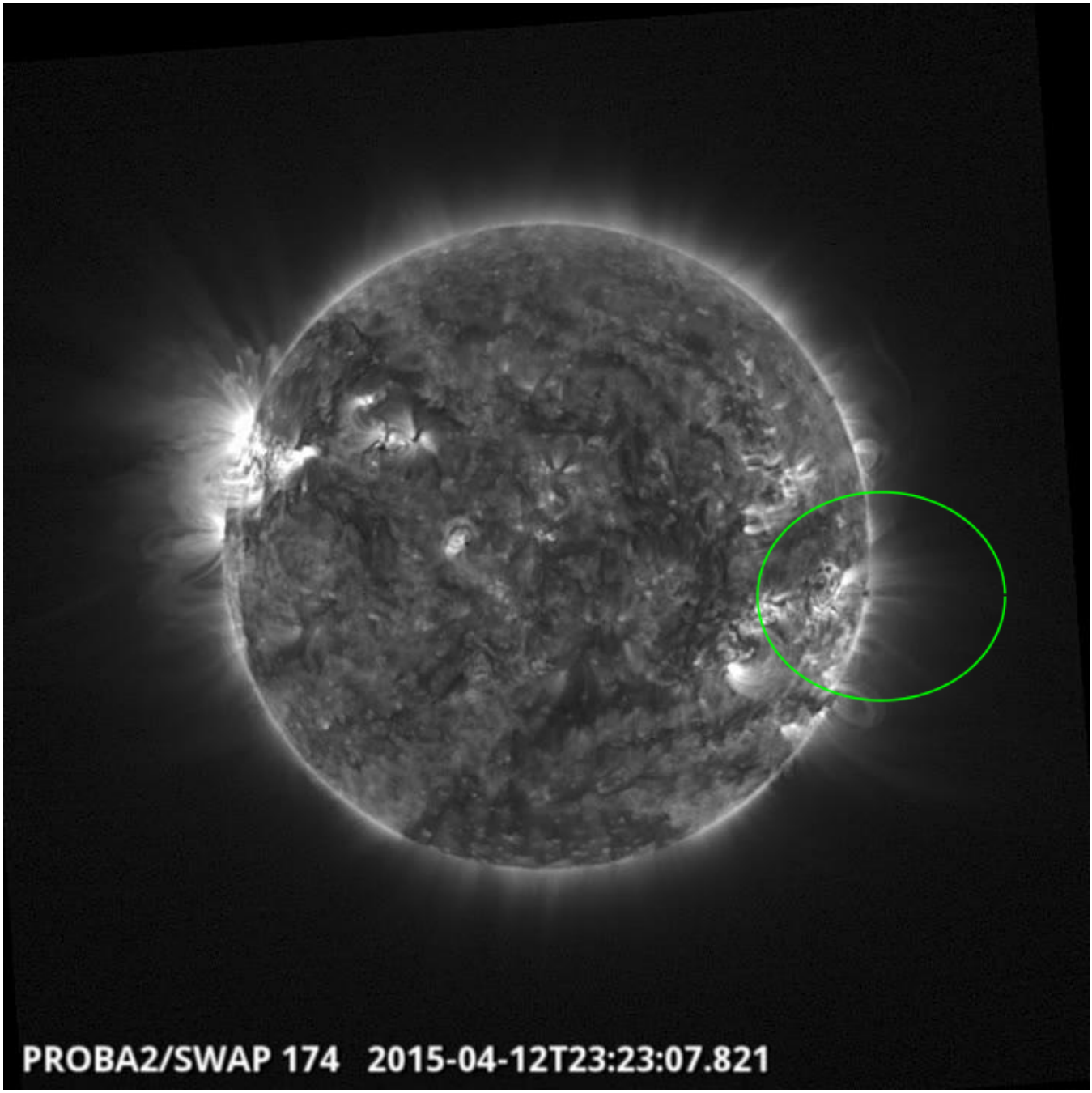
Details about some of this week's events, can be found further below.

Monday Apr 06



There was an eruption located close to disk centre @ 18:48 UT - See the above SWAP image.
Find a movie of the events **here** (SWAP movie)

Sunday Apr 12

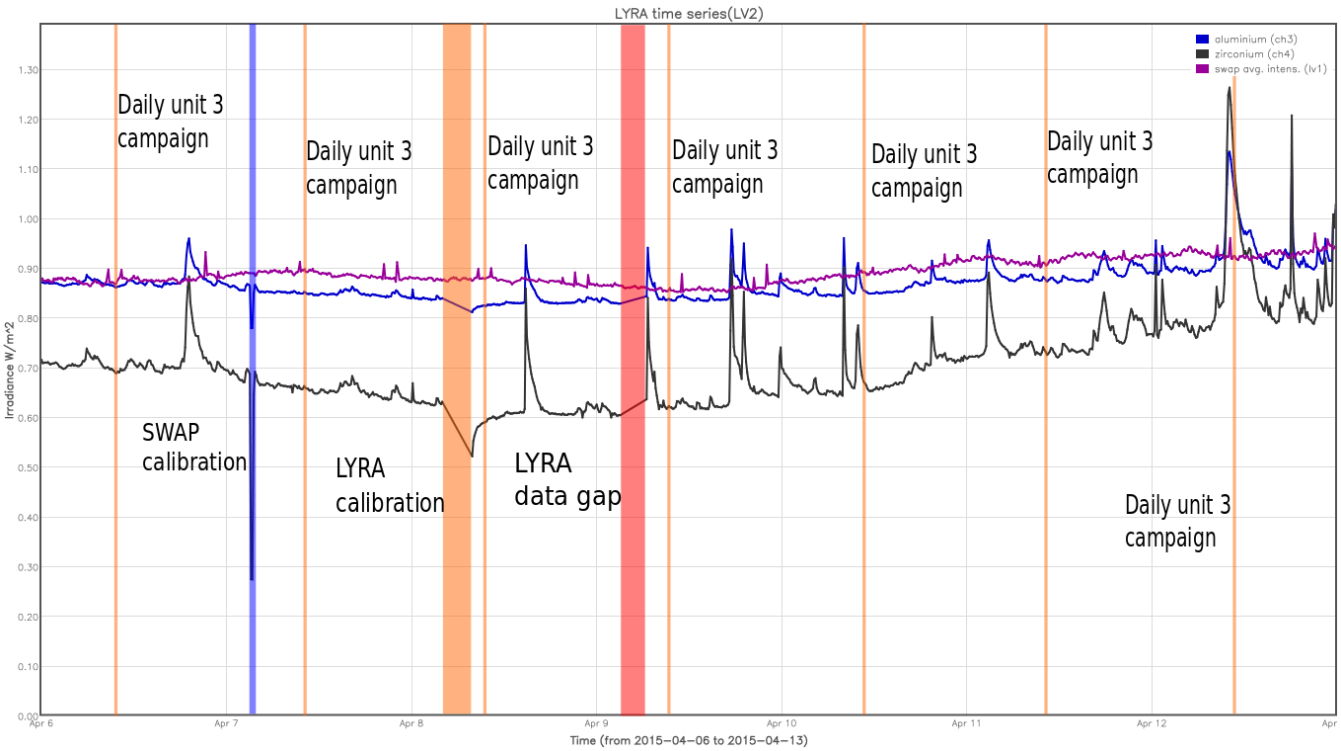


There was an eruption on the West limb @ 23:23 - See the above SWAP image.

Find a movie of the events **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:

- SWAP bi-weekly calibration campaign, 2015-Apr-07

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

- Daily unit 3 campaign, 2015-Apr-06
- Daily unit 3 campaign, 2015-Apr-07
- LYRA bi-weekly calibration campaign, 2015-Apr-08
- Daily unit 3 campaign, 2015-Apr-08
- Daily unit 3 campaign, 2015-Apr-09
- Daily unit 3 campaign, 2015-Apr-10
- Daily unit 3 campaign, 2015-Apr-11
- Daily unit 3 campaign, 2015-Apr-12

The red shaded period corresponds to:

- There was a gap in the LYRA data because BINLYRA_17059 was corrupted and could not be uncompressed, 2015-Apr-09. There is an active ticket to update the software to deal with this issue and these gaps are catalogued. Once the software is updated the data will be re-processed and become available.

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).

B. J Thompson from NASA GSFC worked with the PROBA2 team, combining PROBA2/SWAP and SDO/AIA data to look at coronal dimmings and CMEs.

B. J Thompson gave an STCE seminar: “What Do EUV Dimmings Tell Us About CMEs”.

Guest Investigator Program

- C. Guennou used SWAP to investigate “Performing tomographic reconstruction, in order to study the geometrical properties of coronal streamers”.
- L. Hayes used LYRA to Nature of red noise processes in solar flares and effect on observations of QPP.

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 06 Apr	Tuesday 07 Apr	Wednesday 08 Apr	Thursday 09 Apr	Friday 10 Apr	Saturday 11 Apr	Sunday 12 Apr
Nominal acquisition + daily U3 LYIOS00461	Nominal acquisition + daily U3 LYIOS00461	Nominal acquisition + daily U3 + calibration campaign LYIOS00461	Nominal acquisition + daily U3 LYIOS00461	Nominal acquisition + daily U3 LYIOS00462	Nominal acquisition + daily U3 LYIOS00462	Nominal acquisition + daily U3 LYIOS00462

The following science campaigns were performed by LYRA:

- LYRA performed daily U3 observation campaigns
- LYRA performed a bi-weekly calibration campaign

LYRA detector temperature

The LYRA detector-2 temperature globally varied between 46.8 and 49.2 °C, taking into account the daily U3 activation periods.

3. SWAP instrument status

Calibration

SWAP performed a calibration campaign on 2015-Apr-07.

MCPM errors

The number of MCPM recoverable errors increased from 26552 to 26553.
The number of MCPM unrecoverable errors increased from 5765 to 5933.

IOS & operations

Monday 06 Apr	Tuesday 07 Apr	Wednesday 08 Apr	Thursday 09 Apr	Friday 10 Apr	Saturday 11 Apr	Sunday 12 Apr
Nominal acquisition IOS00572 526 images	Nominal acquisition + calibration IOS00572 690 images	Nominal acquisition IOS00572 622 images	Nominal acquisition IOS00572 720 images	Nominal acquisition IOS00572 671 images	Nominal acquisition IOS00572 588 images	Nominal acquisition IOS00572 627 images

Special operations for SWAP, this week:

- SWAP performed a bi-weekly calibration campaign

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.72 and -0.16 °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 17031 to 17094) 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 2015-Apr-06 0UT and 2015-Apr-13 00:00 UT: 4444
Highest cadence in this period: 30 seconds
Average cadence in this period: 136.10 seconds
Number of image gaps larger than 300 seconds: 4
Largest data gap: 6.00 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
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)