P2SC-ROB-WR-266 20151027 Weekly report #266	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Mar 27 to Sun May 03, 2015 08 May 2015 Robbe Vansintjan D.B. Seaton	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

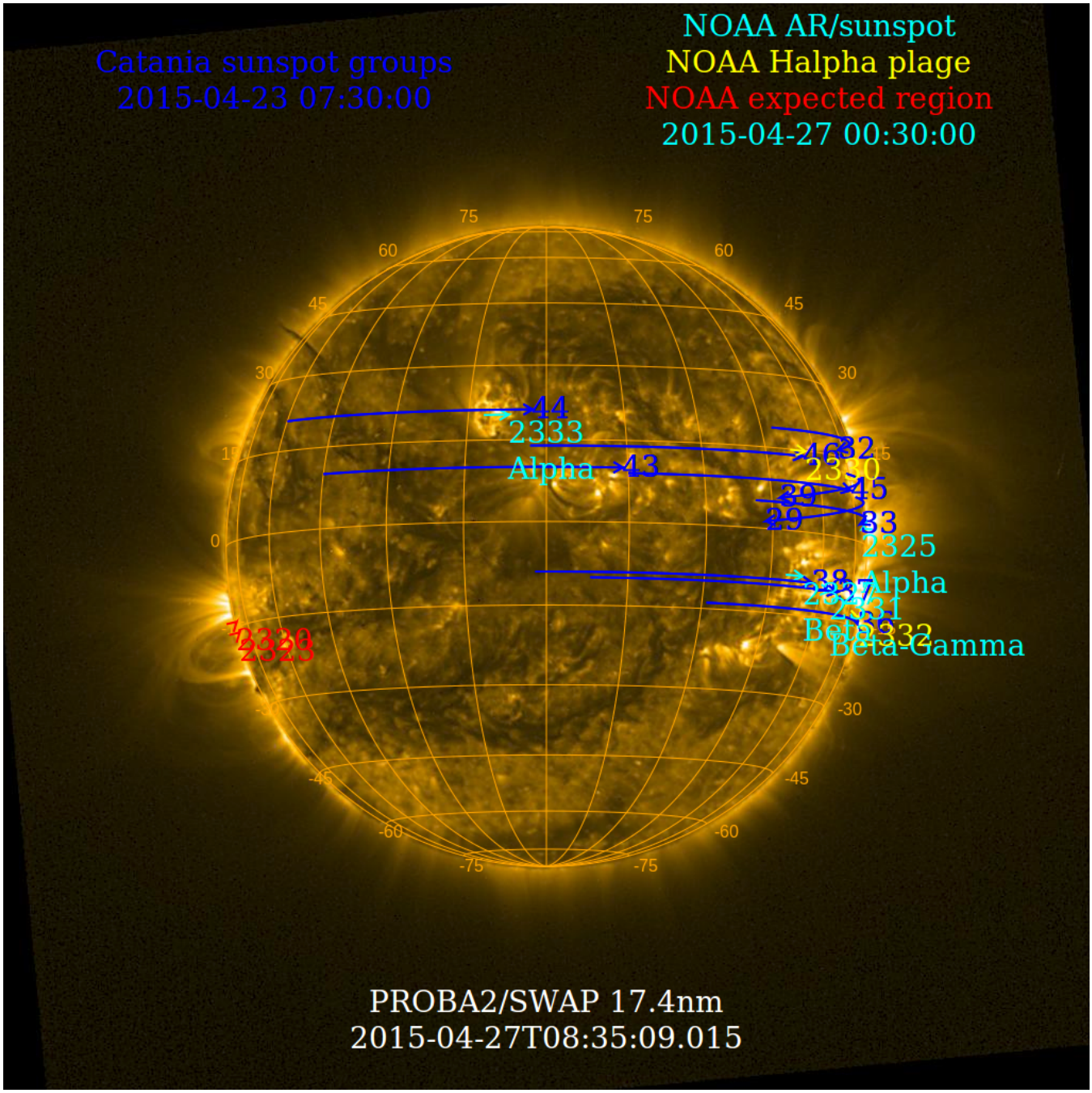
The level of solar activity[1] fluctuated between **very low** and **low** this week.

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

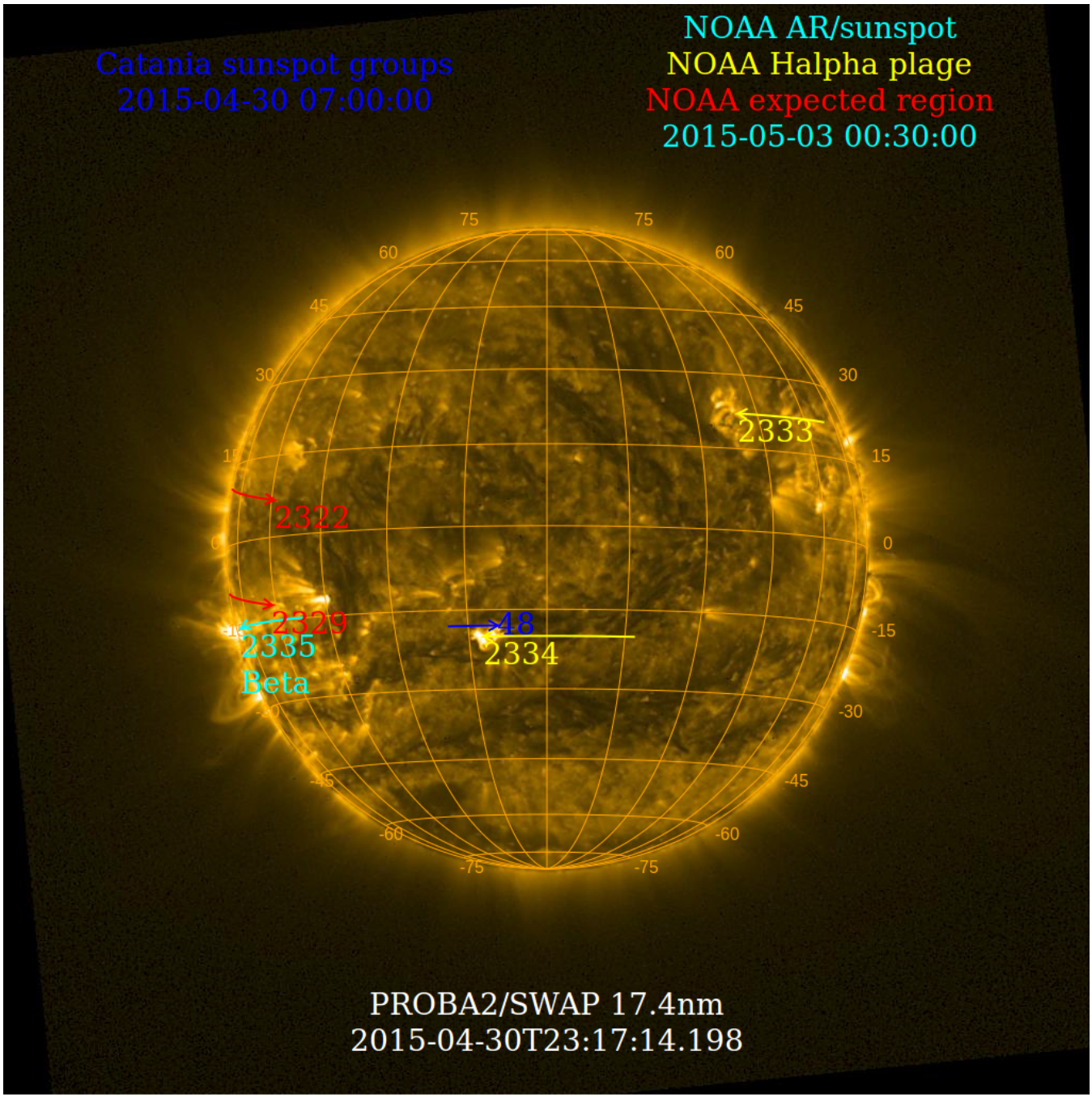
	Monday 27 Mar	Tuesday 28 Mar	Wednesday 29 Mar	Thursday 30 Mar	Friday 01 May	Saturday 02 May	Sunday 03 May
Activity	very low	low	low	low	low	very low	low
Flares	-	-	-	-	-	-	-

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

The SWAP images of Mar 27 and May 03 are shown below, with annotated active regions.



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


Catania sunspot groups
2015-04-30 07:00:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2015-05-03 00:30:00
2333
2322
2329
2335
Beta
48
2334
PROBA2/SWAP 17.4nm
2015-04-30T23:17:14.198

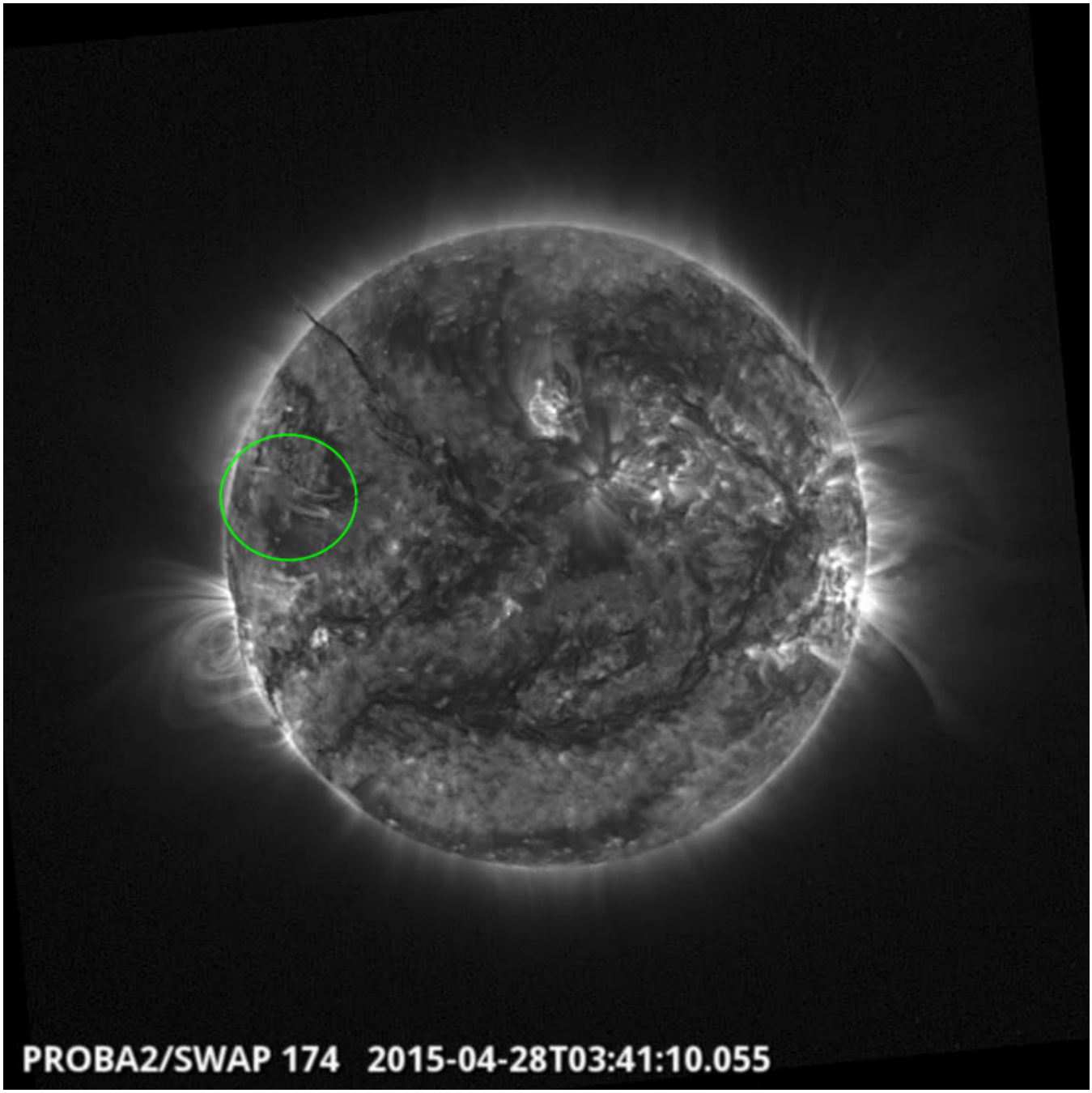
Solar Activity

Solar flare activity fluctuated between very low and low 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 266).

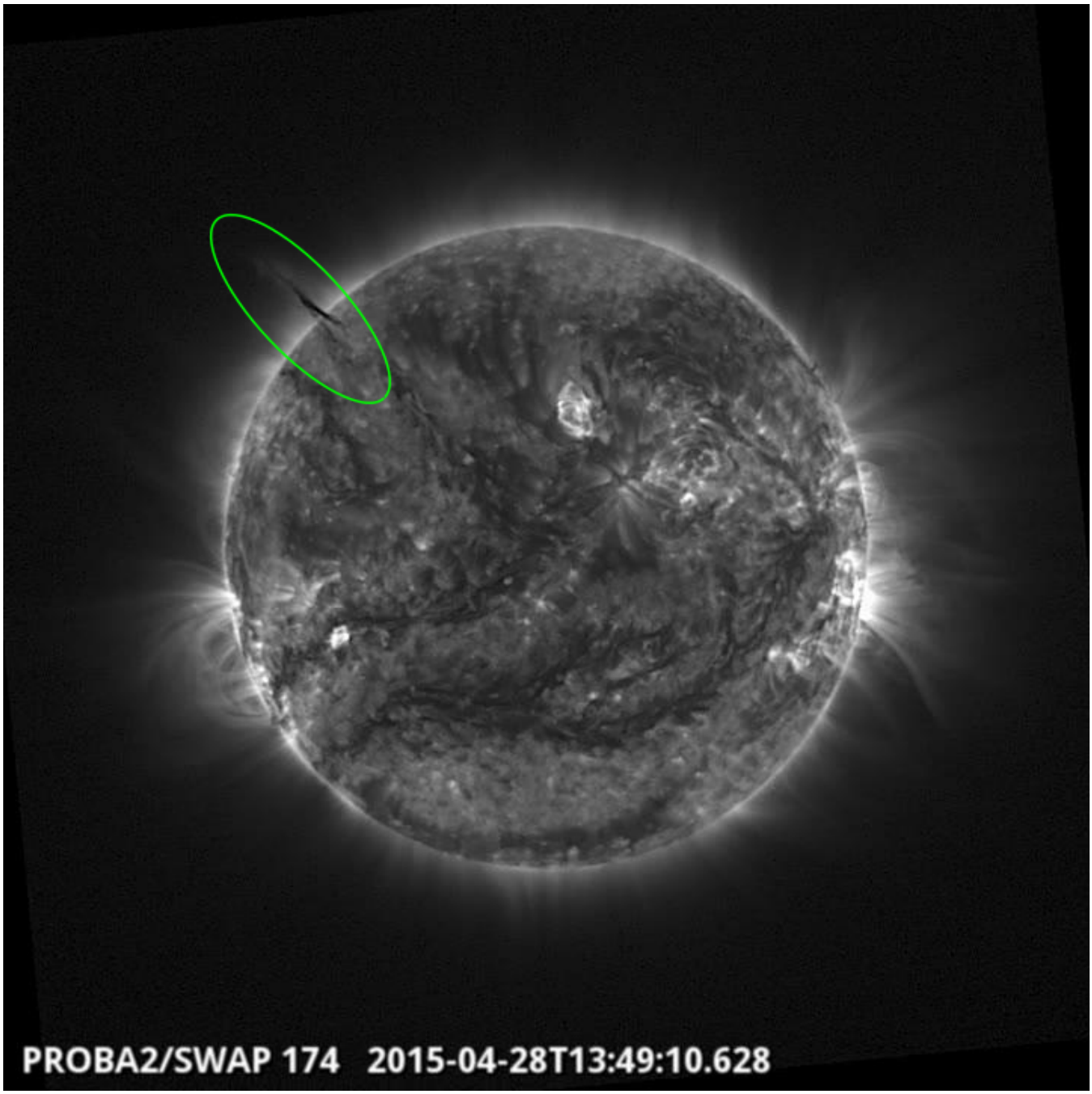
Details about some of this week's events, can be found further below.

Tuesday Apr 28



Failed eruption on the north east quad @ 03:41 - SWAP image

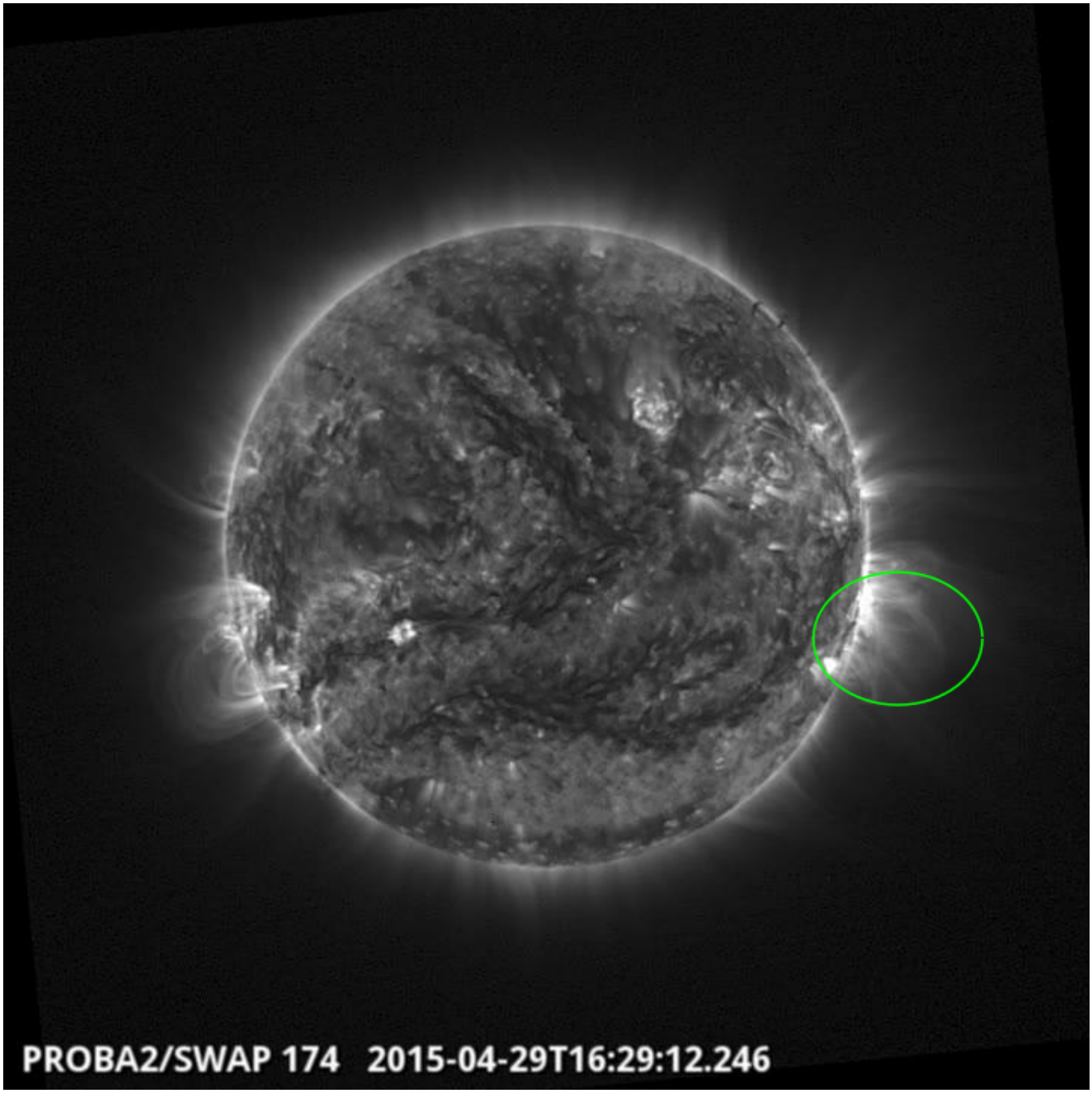
Find a movie of the event **here** (SWAP movie)



Filament eruption on the north east quad @ 13:49 - SWAP image

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

Wednesday Apr 29

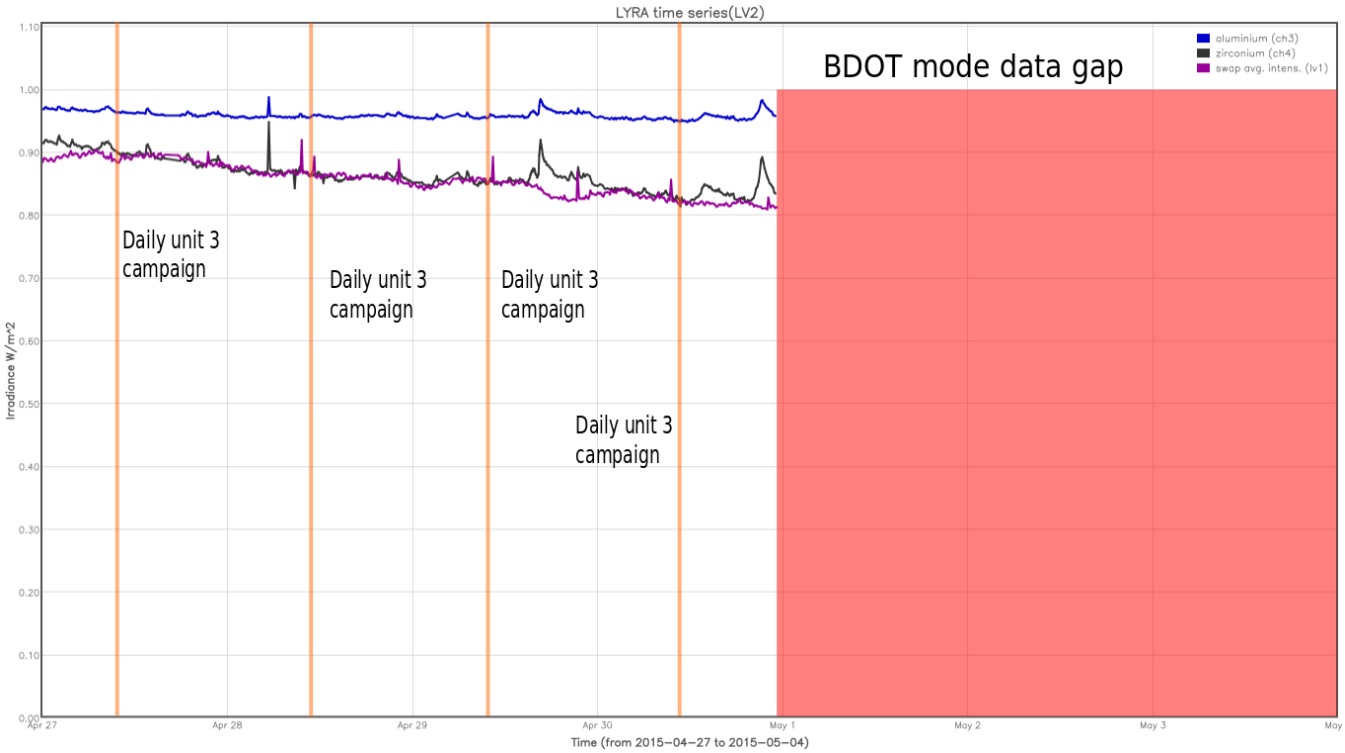


Eruption on the west limb @ 16:29 - SWAP image

Find a movie of the event **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 orange shaded periods correspond to, from left to right:

- Daily unit 3 campaign, 2015-04-27
- Daily unit 3 campaign, 2015-04-28
- Daily unit 3 campaign, 2015-04-29
- Daily unit 3 campaign, 2015-04-30

The red shaded period corresponds to:

- A data gap due to the satellite entering Bdot mode, 2015-05-01

The satellite went into BDOT mode due to a double CDMS EDAC error which occurred on May 1 at 02:09:40z. In BDOT mode the spacecraft is not sun-pointed, and thus no SWAP or LYRA data can be recorded.

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).

- "Lessons Learned in Five Years of Observations with the EUV Solar Telescope SWAP onboard PROBA2"D.B. Seaton & the SWAP Team Measurements Techniques in Solar and Space Physics Workshop, Boulder, CO, USA
  April 21

- "PROBA2/SWAP Observations of the Unusual Activity of AR12192"
  D.B. Seaton & M.J. West
  Triennial Earth-Sun Summit, Indianapolis, Indiana, USA
  April 30

- "PROBA2/SWAP EUV images of the large-scale EUV corona up to 3 solar radii: Can we close the gap in coronal magnetic field structure between 1.3 and 2.5 solar radii?"
  A. De Groof, D.B. Seaton, L. Rachmeler, D. Berghmans
  Triennial Earth-Sun Summit, Indianapolis, Indiana, USA
  April 30

- And, finally, a press release (which may or may not generate additional media attention; if it does I'll follow up next week): "Sun's Tenuous Outer Tendrils Reveal By European Solar Telescope"
  American Astronomical Society Press Release
  April 30

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 27 Mar	Tuesday 28 Mar	Wednesday 29 Mar	Thursday 30 Mar	Friday 01 May	Saturday 02 May	Sunday 03 May
Nominal acquisition + daily U3 LYIOS00464	Nominal acquisition + daily U3 LYIOS00464	Nominal acquisition + daily U3 LYIOS00465	Nominal acquisition + daily U3 LYIOS00466	BDOT mode	BDOT mode	BDOT mode

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 48 and 48.6 °C, taking into account the daily U3 activation periods.

3. SWAP instrument status

Calibration

No calibration this week.

MCPM errors

The number of MCPM recoverable errors remained at 26555.
The number of MCPM unrecoverable errors remained at 6269.

IOS & operations

Monday 27 Mar	Tuesday 28 Mar	Wednesday 29 Mar	Thursday 30 Mar	Friday 01 May	Saturday 02 May	Sunday 03 May
Nominal acquisition IOS00573 657 images	Nominal acquisition IOS00573 689 images	Nominal acquisition IOS00573 652 images	Nominal acquisition IOS00573 513 images	BDOT mode 0 images	BDOT mode 0 images	BDOT mode 0 images

Special operations for SWAP, this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.88 and -0.18 °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 17223 to 17284) was nominal, except for:

- 17251, from 17260 until 17284 .

There was no data sent from 17260 until 17284 because PROBA2 entered BDOT mode.

Data coverage HK

All HK data files (LYRA_AD) have been received, except:

- from 17260 until 17284.

Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received, except:

- 17251, from 17260 until 17284.

Total number of images between 2015 Apr 27 0 UT and 2015 May 01 0 UT: 2511
Highest cadence in this period: 120 seconds
Average cadence in this period: 136.69 seconds
Number of image gaps larger than 300 seconds: 21
Largest data gap: 6.00 minutes

In the paragraph above we only looked at the number of images between the twenty seventh and the first of May because SWAP was not taking data from the first, second and third of May this week.

Data coverage LYRA

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

- 17251, from 17260 until 17284

The LYRA instrument did not take data during the the first, second and third of May this week

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)