


P2SC-ROB-WR-318 - 20160425 Weekly report #318	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Apr 25 to Sun May 01, 2016 25 May 2016 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

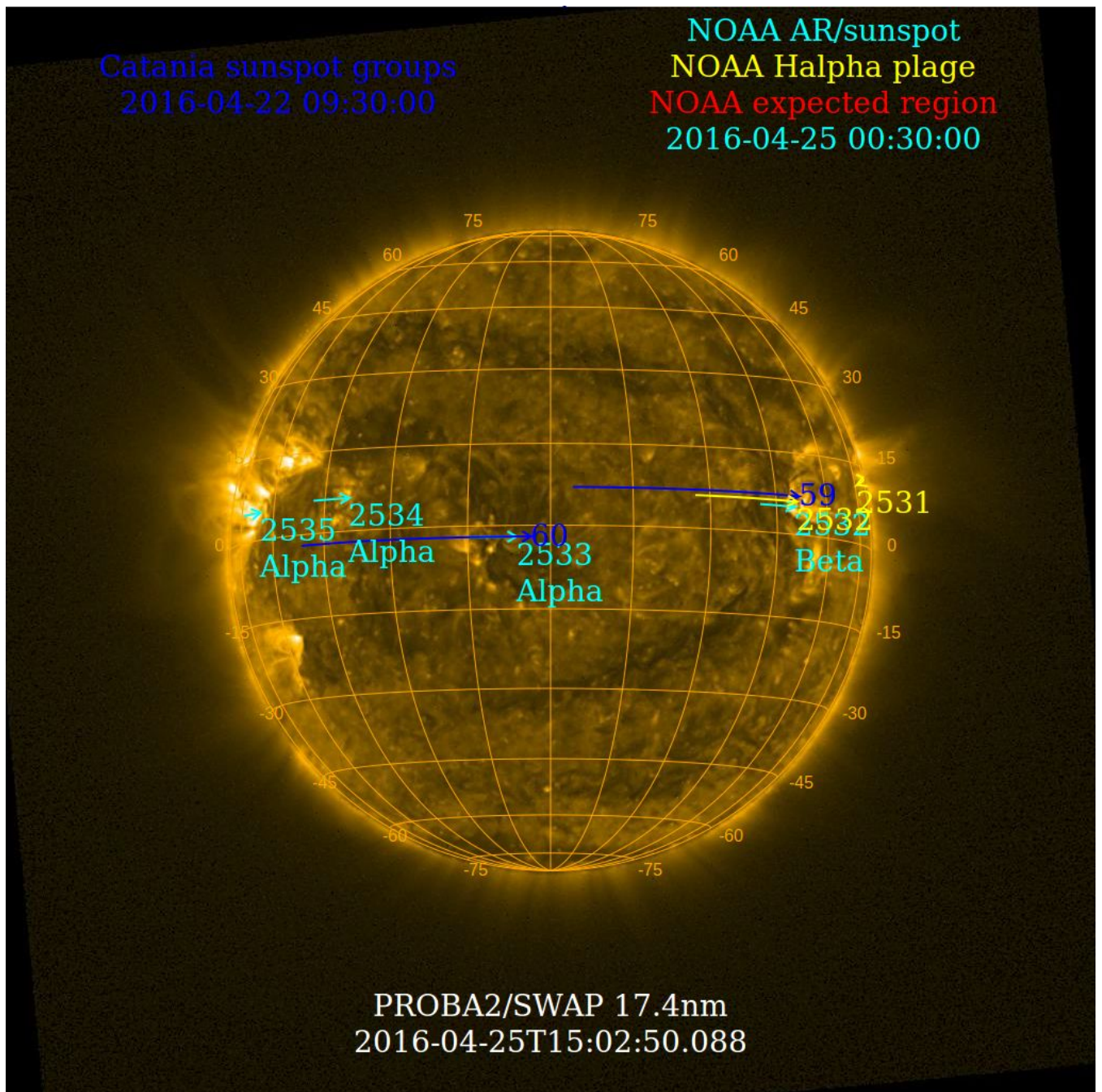
The level of solar activity¹ fluctuated between **very low** and **low** this week.

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

	Monday 25 Mar	Tuesday 26 Mar	Wednesday 27 Mar	Thursday 28 Mar	Friday 29 Mar	Saturday 30 Mar	Sunday 01 May
Activity	Very low	Very low	Very low	low	Very low	low	low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

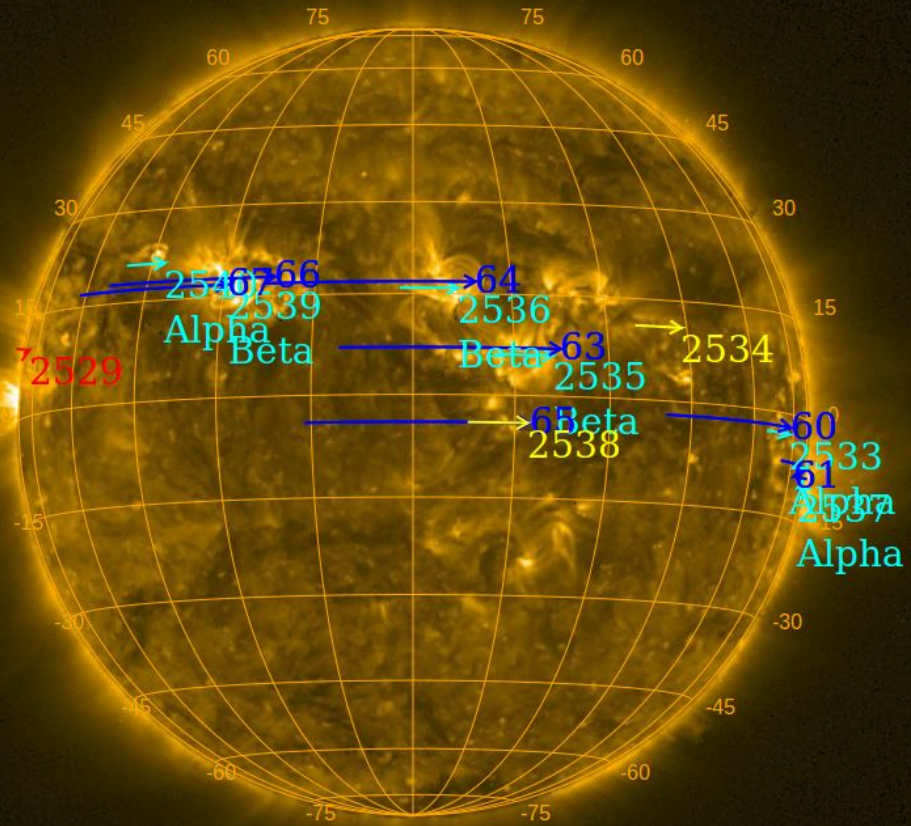
The SWAP images of Mar 25 and May 01 are shown below, with annotated active regions.



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

Catania sunspot groups
2016-04-29 08:48:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2016-05-01 00:30:00



PROBA2/SWAP 17.4nm
2016-05-01T15:08:58.962

Solar Activity

Solar flare activity fluctuated between very low and low during the week.

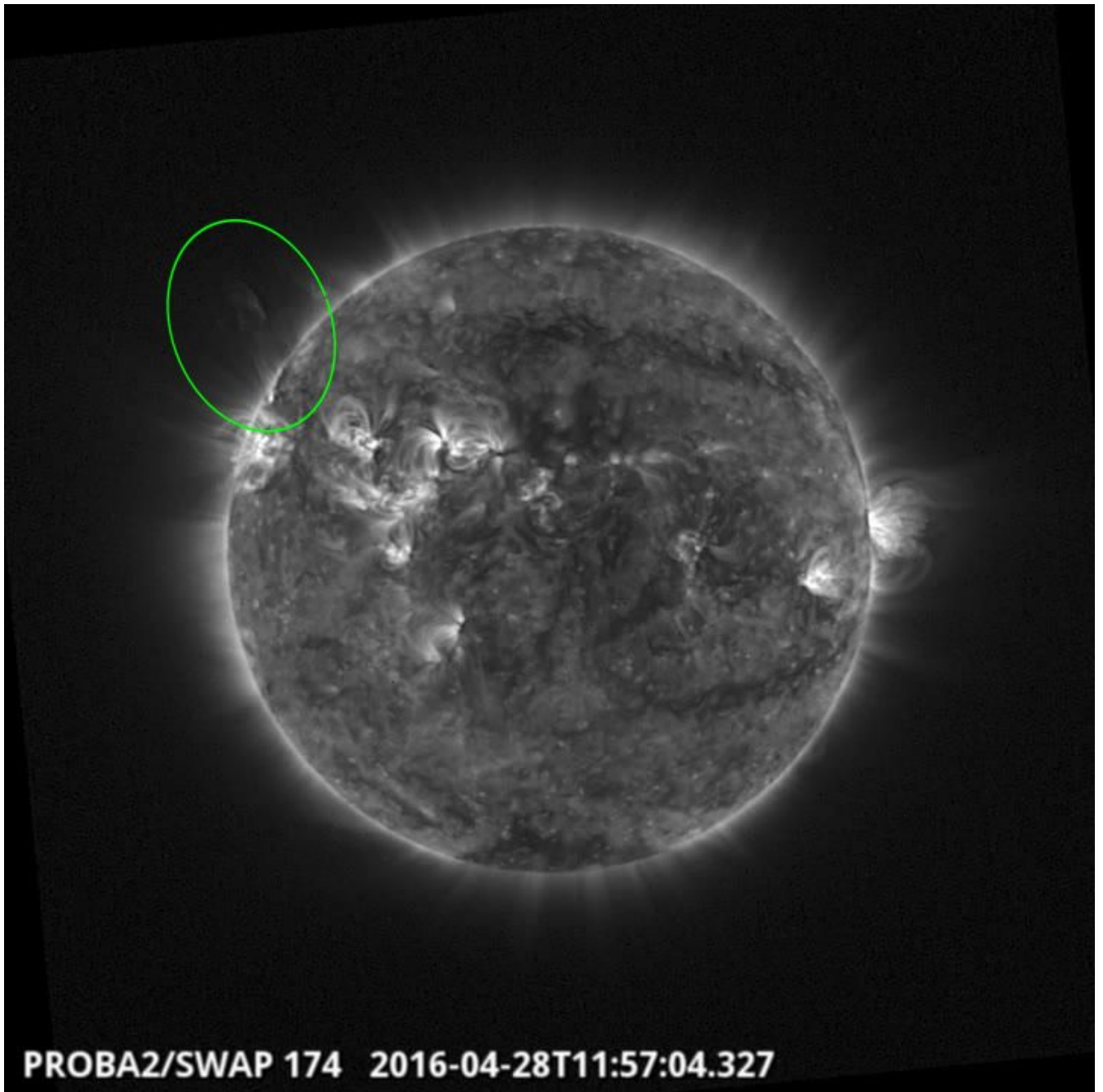
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: <http://proba2.oma.be/ssa>

This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 318).

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

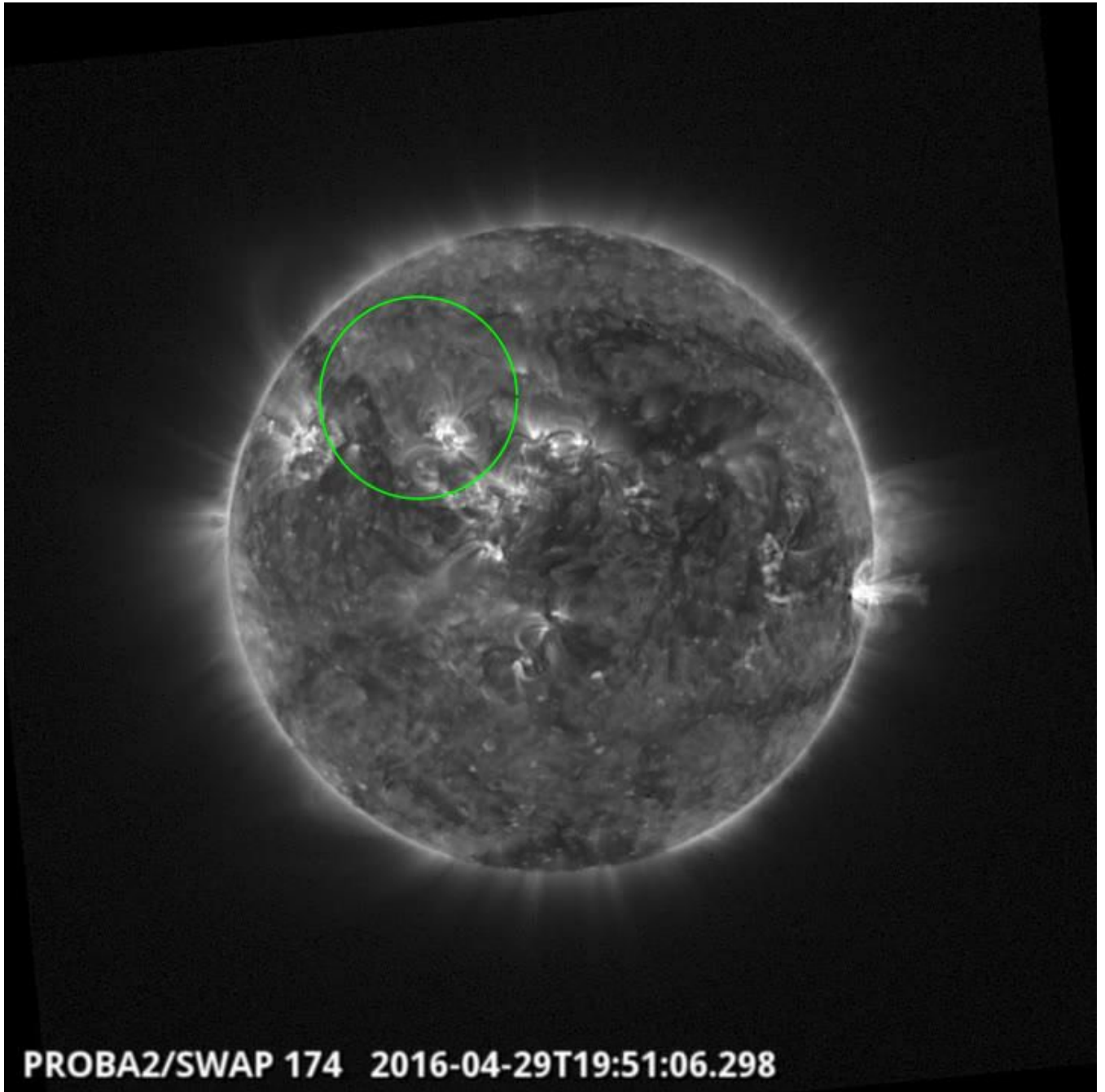
Thursday Apr 28



A slow eruption was observed by SWAP on the northwest limb of the Sun at 11:57 UT on
2016 Apr 28

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

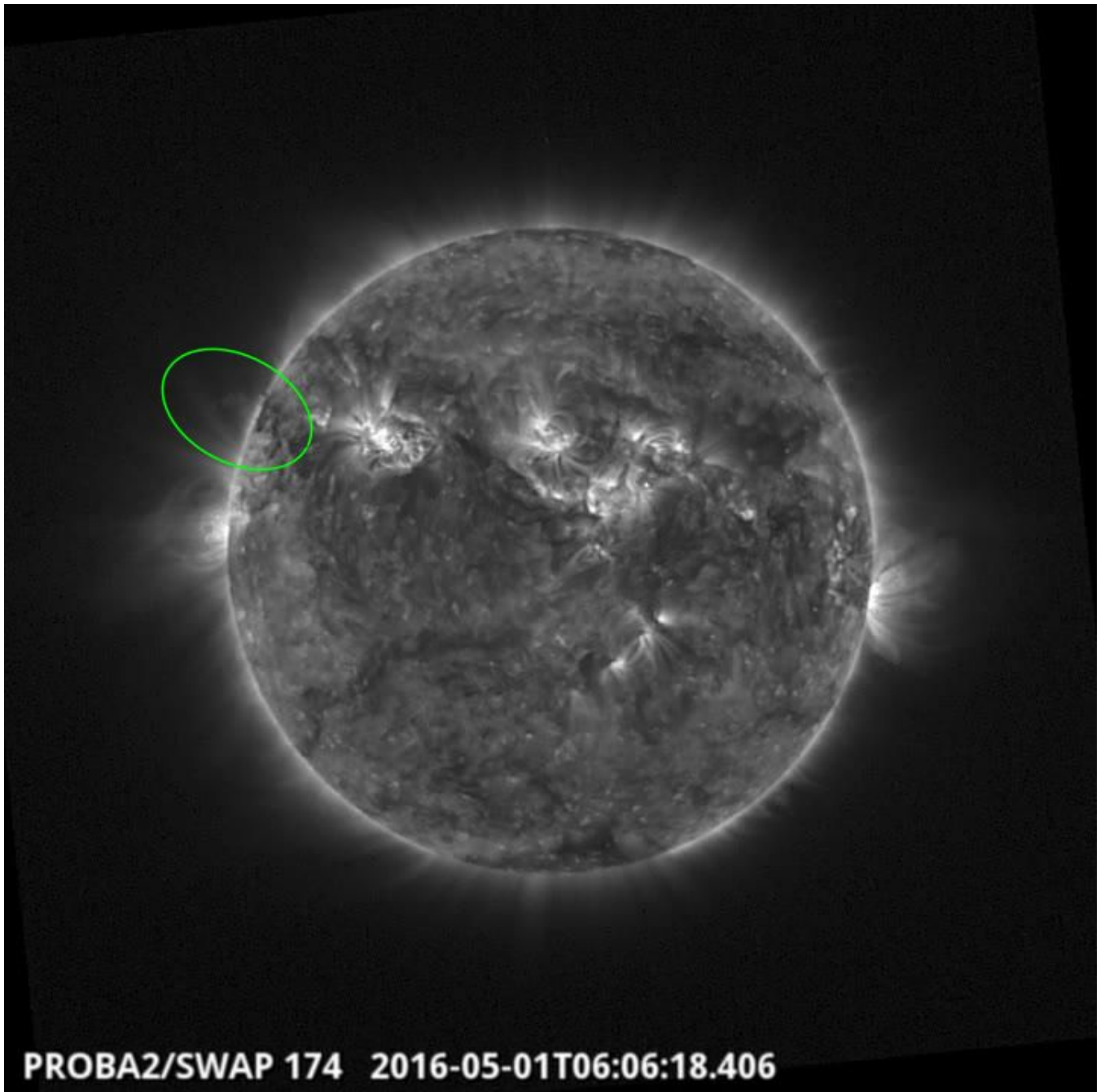
Friday Apr 29



**An eruption was observed by SWAP on the northwest quadrant of the Sun at 19:51 UT on
2016 Apr 29**

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

Sunday May 01



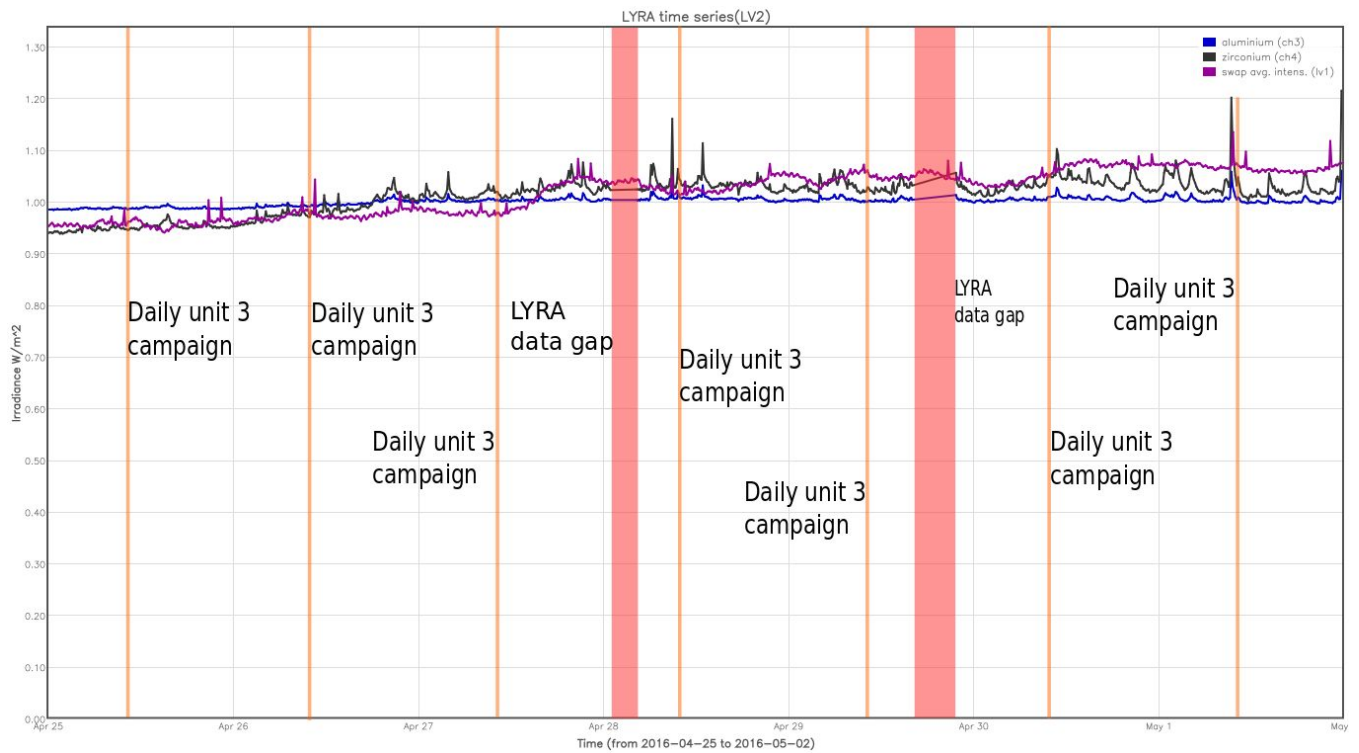
**A small back sided eruption was observed by SWAP near the the northeast limb of the Sun at
06:06 UT on 2016 May 01**

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, 2016-Apr-25
- Daily unit 3 campaign, 2016-Apr-26
- Daily unit 3 campaign, 2016-Apr-27
- Daily unit 3 campaign, 2016-Apr-28
- Daily unit 3 campaign, 2016-Apr-29
- Daily unit 3 campaign, 2016-Apr-30
- Daily unit 3 campaign, 2016-May-01

The red shaded period corresponds to:

- A data gap in the LYRA data, 2016-Apr-28
- A data gap in the LYRA data, 2016-Apr-29

The data gaps were created due to BINLYRA packet corruption during the downlink between the satellite and the antenna. A software update is planned in the future so this data should become available after this update.

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>).

- On 2016-May-27 two classes of the Ingenium elementary school visited the P2SC. R. Vansintjan gave a presentation on PROBA2 and Space weather.
- On 2016-May-28 different schools visited the P2SC in the framework of ASGARD. E. D' Huys gave a talk on PROBA2 for each visiting group.

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 25 Mar	Tuesday 26 Mar	Wednesday 27 Mar	Thursday 28 Mar	Friday 29 Mar	Saturday 30 Mar	Sunday 01 May
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00543	LYIOS00543	LYIOS00543	LYIOS00543	LYIOS00544	LYIOS00544	LYIOS00544

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 48.2 and 49.4 °C.

3. SWAP instrument status

Calibration

No calibration this week.

MCPM errors

The number of MCPM recoverable errors increased from 3204 to 3371.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 25 Mar	Tuesday 26 Mar	Wednesday 27 Mar	Thursday 28 Mar	Friday 29 Mar	Saturday 30 Mar	Sunday 01 May
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00643 635 images	IOS00643 658 images	IOS00643 653 images	IOS00643 652 images	IOS00644 633 images	IOS00644 667 images	IOS00644 621 images

Special operations for SWAP, this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.9 and 0.3 °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 20488 to 20549) 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 2016 Apr 25 00:00 UT and 2016 May 02 00:00 UT: 4600

Highest cadence in this period: 0 seconds

Average cadence in this period: 131.45 seconds

Number of image gaps larger than 300 seconds: 392

Largest data gap: 9.17 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)