


P2SC-ROB-WR-370 - 20170424 Weekly report #370	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Apr 24 to Sun Apr 30, 2017 4 May 2017 Laurence Wauters Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
To:	LYRA PI, marie.dominique@sidc.be SWAP PI, david.berghmans@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

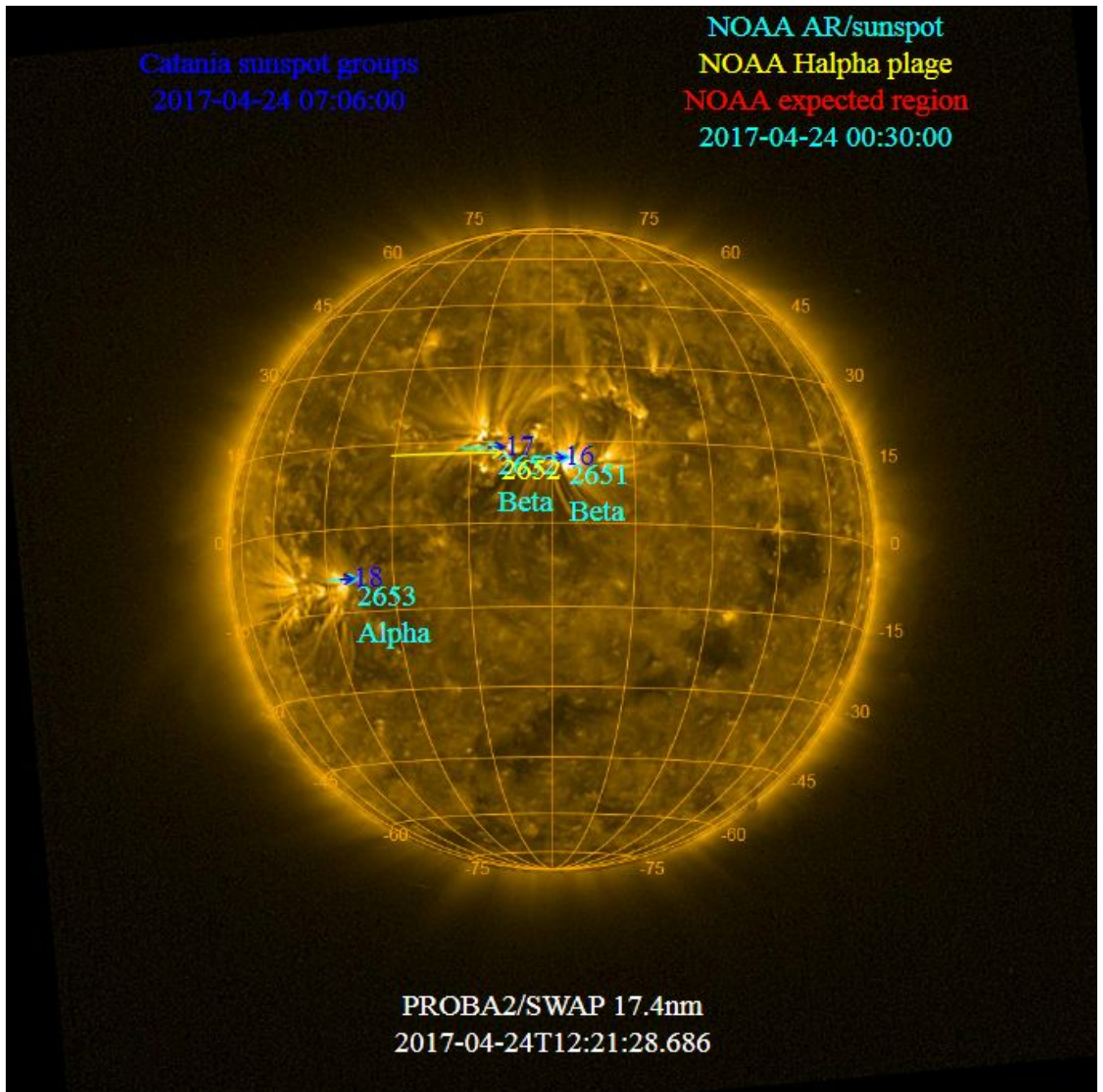
The level of solar activity¹ was **very low** during this week.

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

	Monday 24 Apr	Tuesday 25 Apr	Wednesday 26 Apr	Thursday 27 Apr	Friday 28 Apr	Saturday 29 Apr	Sunday 30 Apr
Activity	very low	very low	very low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

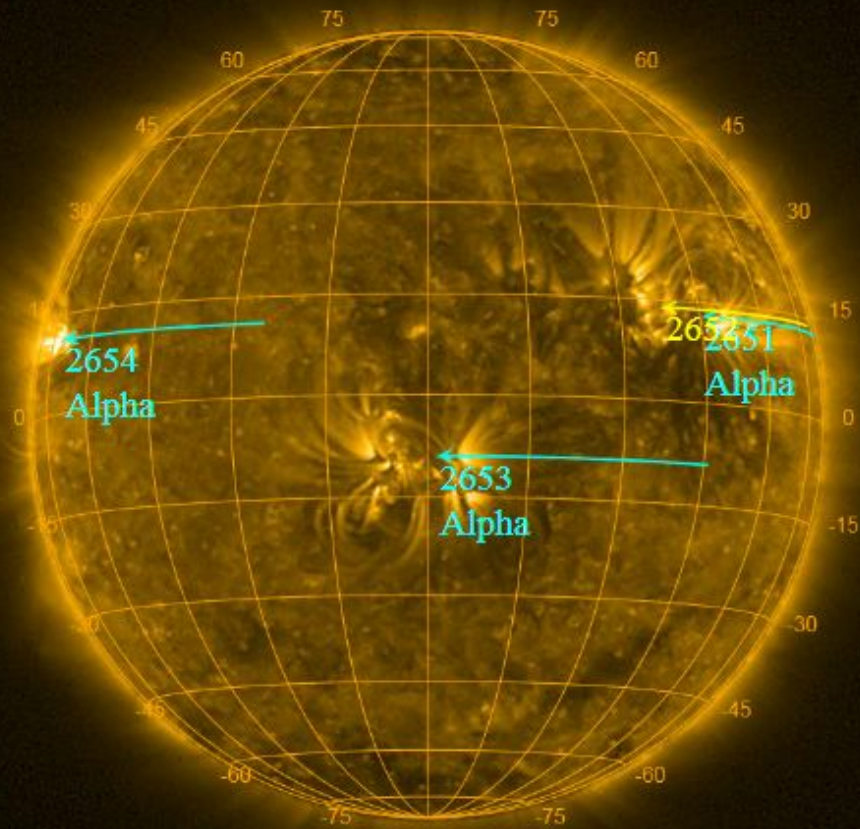
The SWAP images of Apr 24 to Apr 27 are shown below, with annotated active regions.



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

Catania sunspot groups
No observation

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2017-05-01 00:30:00



PROBA2/SWAP 17.4nm
2017-04-27T23:57:34.088

Solar Activity

Solar flare activity was very 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>

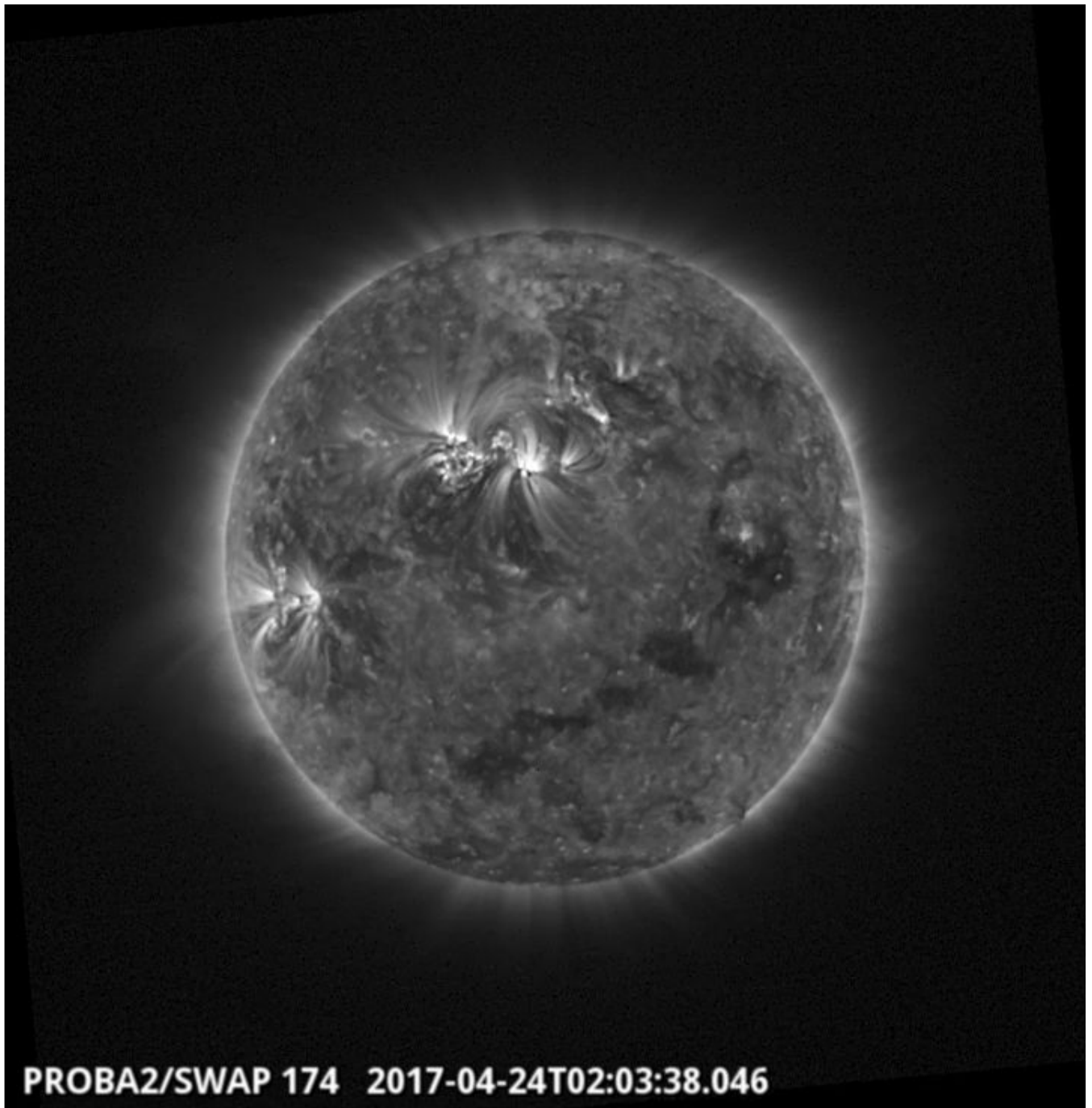
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 370).

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

If any of the linked movies are unavailable they can be found in the P2SC movie repository [here](#)

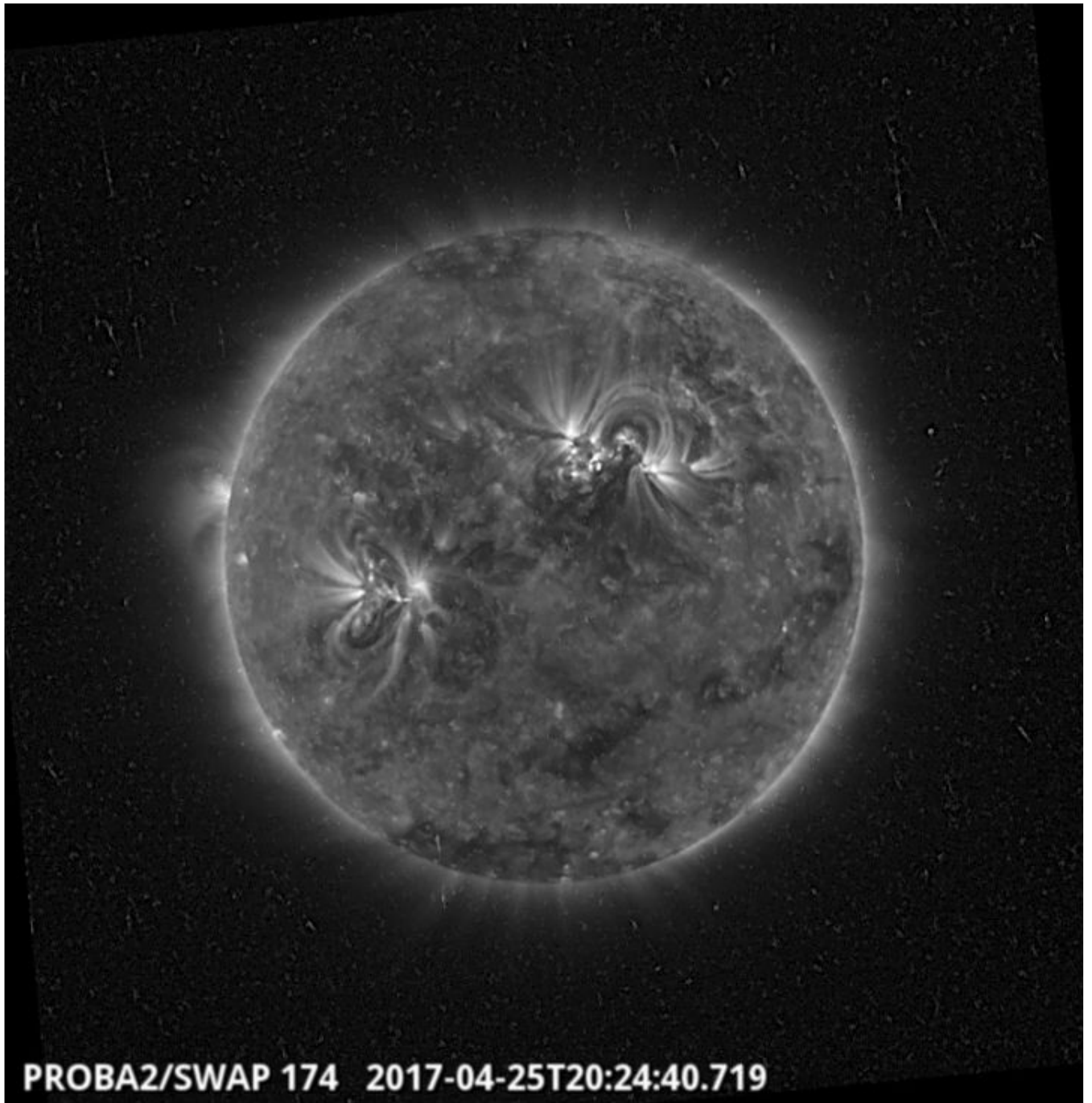
Monday Apr 24



A filament eruption, from the north-east quadrant of the Sun, observed at about 02:00 UT on 24-April-2017 was associated with a narrow CME

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

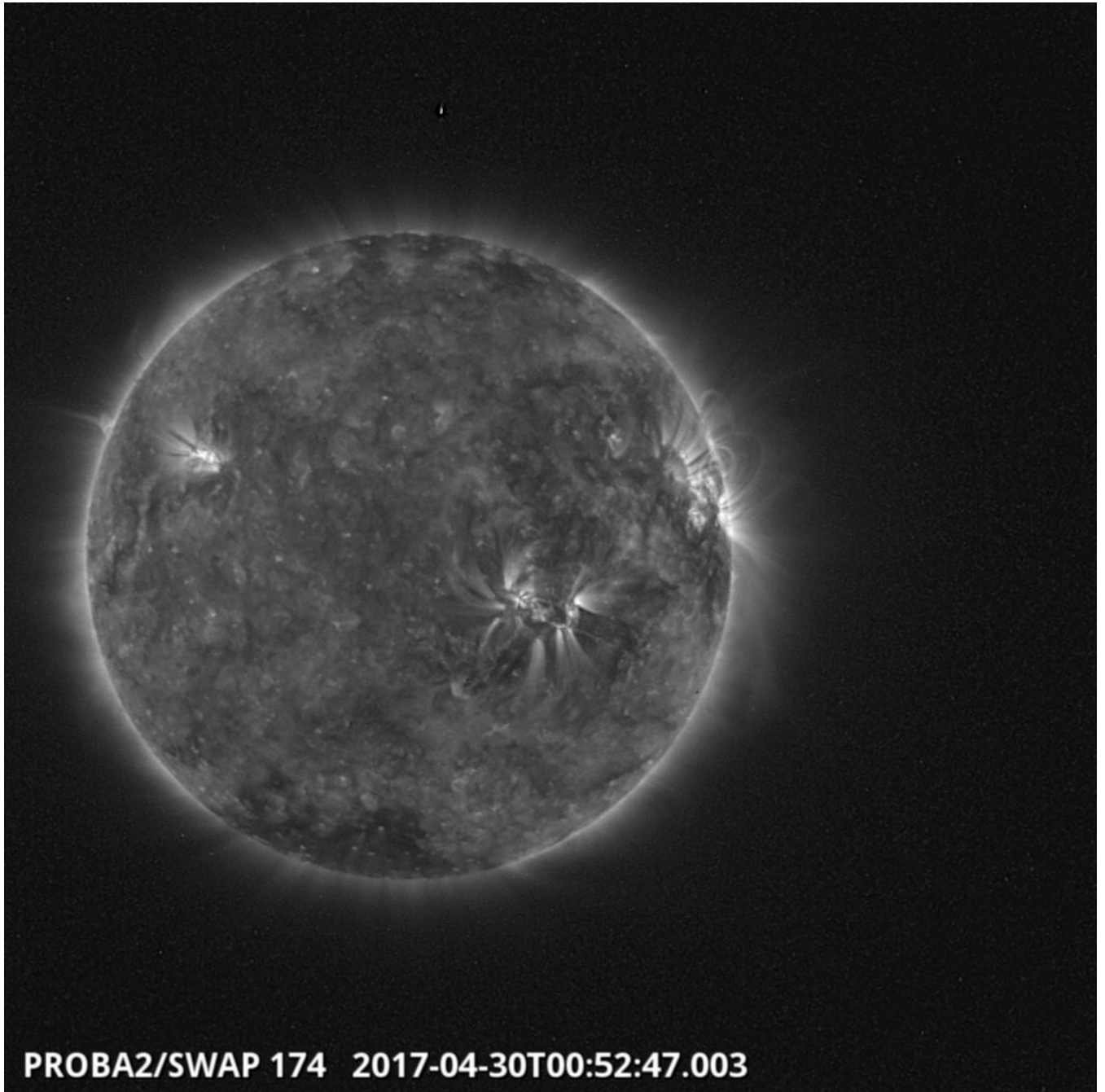
Tuesday Apr 25



The largest flare of the week was a B7.2 class flare, peaking at 20:25 UT on 2017-Apr-25 produced by the NOAA region 2651, which is visible in the North hemisphere of the above SWAP image

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

Sunday Apr 30



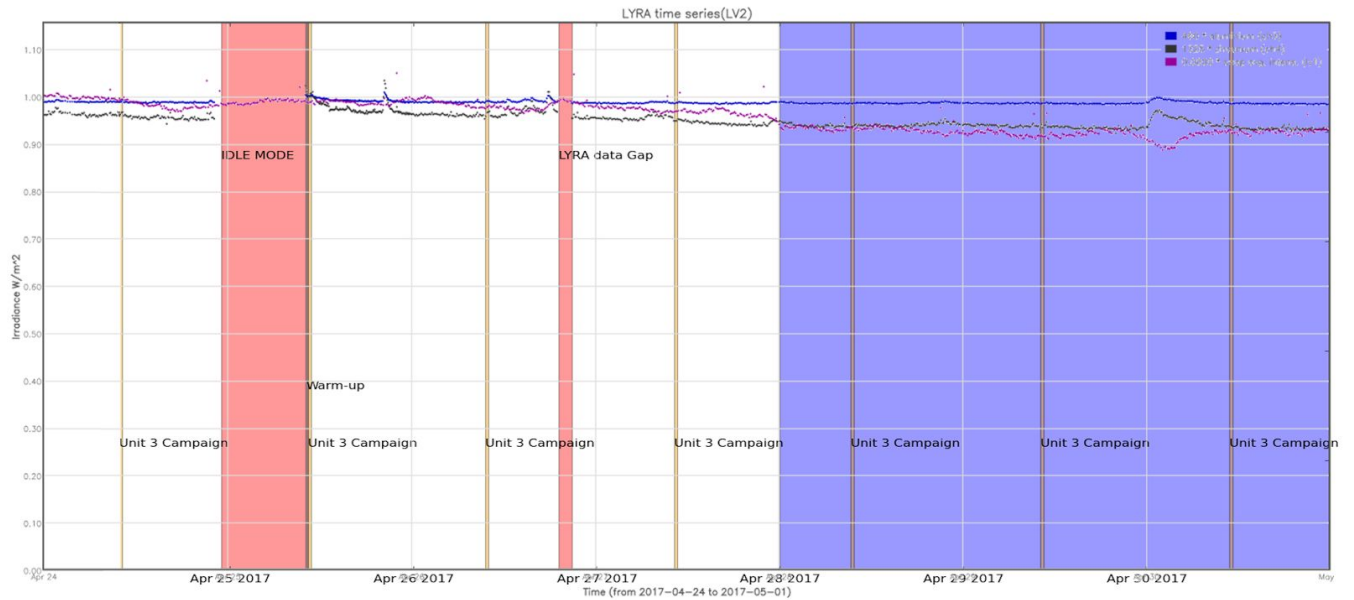
A long duration B3.0 class flare peaking at 00:57 UT on 30-April-2017 originated from the NOAA AR 2653, which is visible in the South West hemisphere of the above SWAP image. The flare was associated with an EIT wave, coronal dimming and CME.

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 OFF point from 28-Apr-2017, 00:00 UT

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

- Daily Unit 3 Campaign, 24-Apr-2017
- Daily Unit 3 Campaign, 25-Apr-2017
- Daily Unit 3 Campaign, 26-Apr-2017
- Daily Unit 3 Campaign, 27-Apr-2017
- Daily Unit 3 Campaign, 28-Apr-2017
- Daily Unit 3 Campaign, 29-Apr-2017
- Daily Unit 3 Campaign, 30-Apr-2017

The red shaded periods correspond to:

- LYRA switched to IDLE mode due to voltage drop, 24-Apr-2017 at 22:52 UT, and was restarted on 25-Apr-2017 at 10:02 UT
- LYRA data Gap, 26-Apr-2017 between 19:05 UT and 20:45 UT.

Outreach, papers, presentations, etc.

Please consult <http://proba2.oma.be/science/publications> for a list of interesting articles using 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

- Guest Investigator, Michael Kirk visited the P2SC from 18-Apr- to 01-May-2017, to work on his GI project entitled “A Targeted Analysis of the Link Between Filament Eruptions, Lower Coronal EUV Features, and CMEs With PROBA2 SWAP.”

2. LYRA instrument status

Calibration

None.

IOS & operations

Monday 24 Apr	Tuesday 25 Apr	Wednesday 26 Apr	Thursday 27 Apr	Friday 28 Apr	Saturday 29 Apr	Sunday 30 Apr
Nominal acquisition + daily U3	Nominal acquisition + Switch off + warm up+daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00615	LYIOS00616	LYIOS00617	LYIOS00617	LYIOS00617	LYIOS00617	LYIOS00617

The following science campaigns were performed by LYRA:

- Daily U3 observation campaigns
- On 26-Apr-2017, the daily U3 observations were corrupted due to the cover being in an intermediate state.

LYRA detector temperature

LYRA detector 2 temperature globally varied between 44.65 and 49.26 °C.

3. SWAP instrument status

Calibration

None

MCPM errors

The number of MCPM recoverable errors increased from 8724 to 8917 .

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 24 Apr	Tuesday 25 Apr	Wednesday 26 Apr	Thursday 27 Apr	Friday 28 Apr	Saturday 29 Apr	Sunday 30 Apr
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition with off-point	Nominal acquisition with off-point	Nominal acquisition with off-point
IOS00700 688 images	IOS00700 758 images	IOS00700 763 images	IOS00700 729 images	IOS00702 701 images	IOS00702 636 images	IOS00702 584 images

Special operations for SWAP, this week:

- Off-point campaign from 28-Apr-2017, 00:00 UT to 03-May-2017, 23:50 UT

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.37 and -0.09 °C.

4. PROBA2 Science Center Status

The main operator is Laurence Wauters.

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 23839 to 23904) was nominal, except for:

- 23848, 23849, 23850, 23551 and 23852 (LYRA switched to IDLE mode due to voltage drop)
- 23840 (has been re-extracted with pass 23845)

Data coverage HK

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

- 23848, 23849, 23850, 23551 and 23852

Data coverage SWAP

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

- None.

Total number of images between 2017 Apr 24 00:00 UT and 2017 May 01 00:00 UT: 4888

Highest cadence in this period: 110 seconds

Average cadence in this period: 123.73 seconds

Number of image gaps larger than 300 seconds: 104

Largest data gap: 11.00 minutes

Data coverage LYRA

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

- 23849, 23850, 23551 and 23852
- Pass 23840: BINLYRA_23840_..._2017.04.24T....tar has been re-extracted with pass 23845.
(Data missing from 02:25 to 02:26 UT and for 03:59 to 04:01 UT on 2017 Apr 24)

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
DAC	Data Acquisition Controller
DBR	Deployment, backup & recovery
DDA	Decommutated data archive
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)