


P2SC-ROB-WR-362 - 20170227 Weekly report #362	<b>P2SC Weekly report</b>	
Period covered: Date:  Written by: Approved by:	Mon Feb 27 to Sun Mar 05, 2017 6 Mar 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	<a href="http://proba2.sidc.be">http://proba2.sidc.be</a> ++ 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

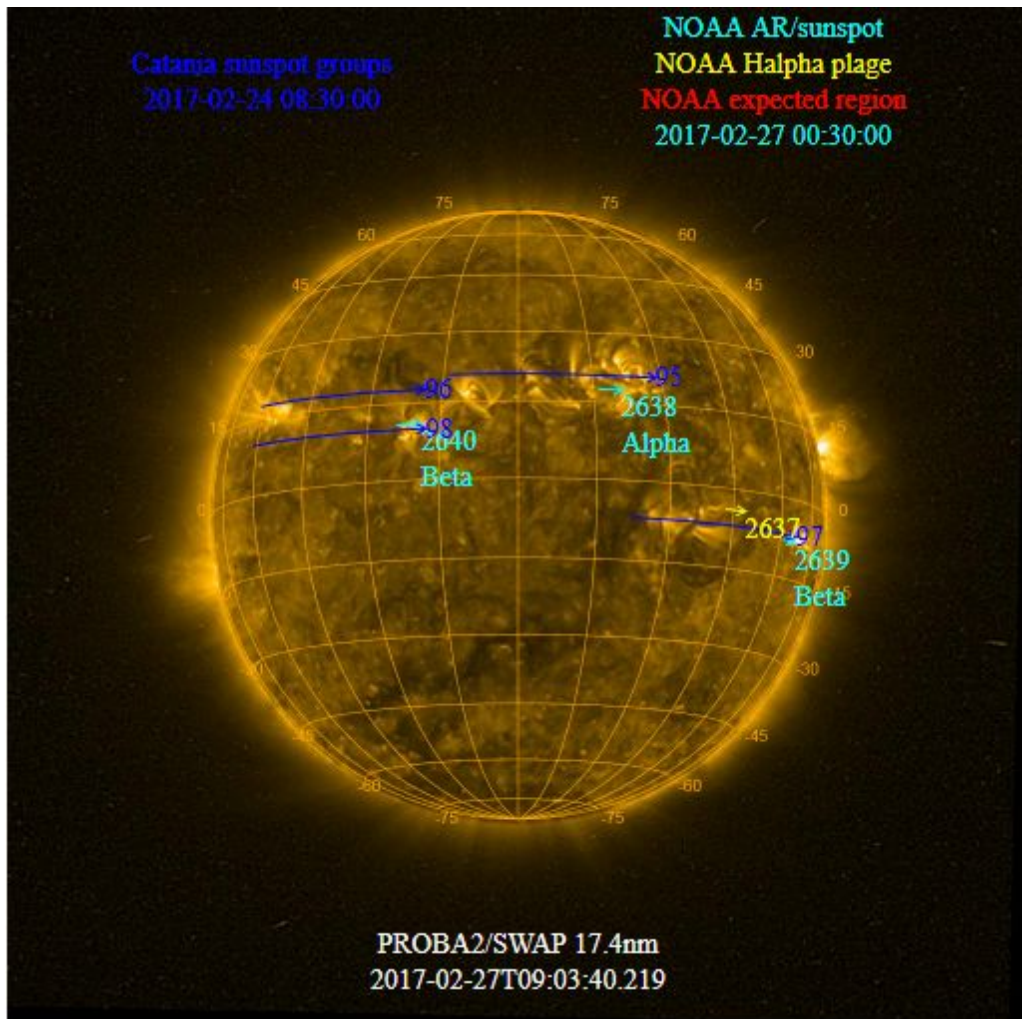
The level of solar activity<sup>1</sup> was **very low** this week.

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

	Monday 27 Feb	Tuesday 28 Feb	Wednesday 01 Mar	Thursday 02 Mar	Friday 03 Mar	Saturday 04 Mar	Sunday 05 Mar
Activity	very low	very low	very low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

<sup>1</sup> See appendix. All timings are given in UT.

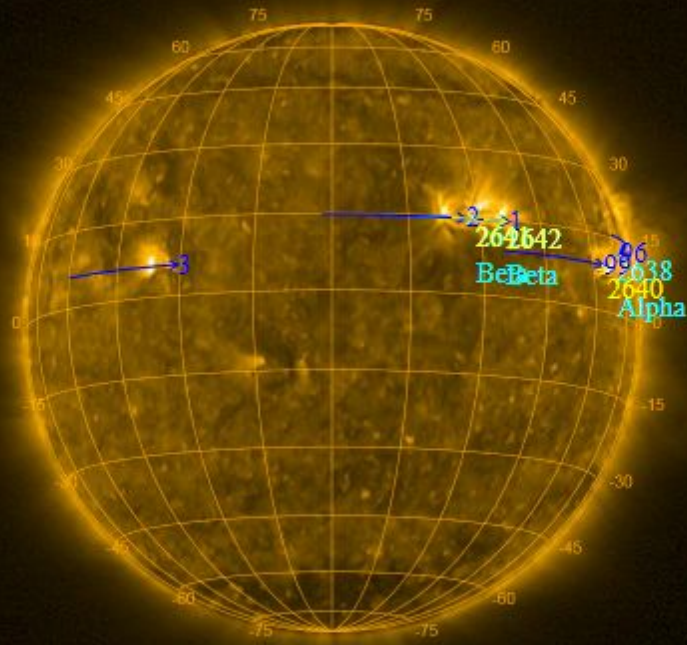
The SWAP images of Feb 27 and Mar 05 are shown below, with annotated active regions.



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

Catania sunspot groups  
2017-03-03 08:48:00

NOAA AR/sunspot  
NOAA Halpha plage  
NOAA expected region  
2017-03-04 00:30:00



PROBA2/SWAP 17.4nm  
2017-03-05T09:01:19.329

## **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>

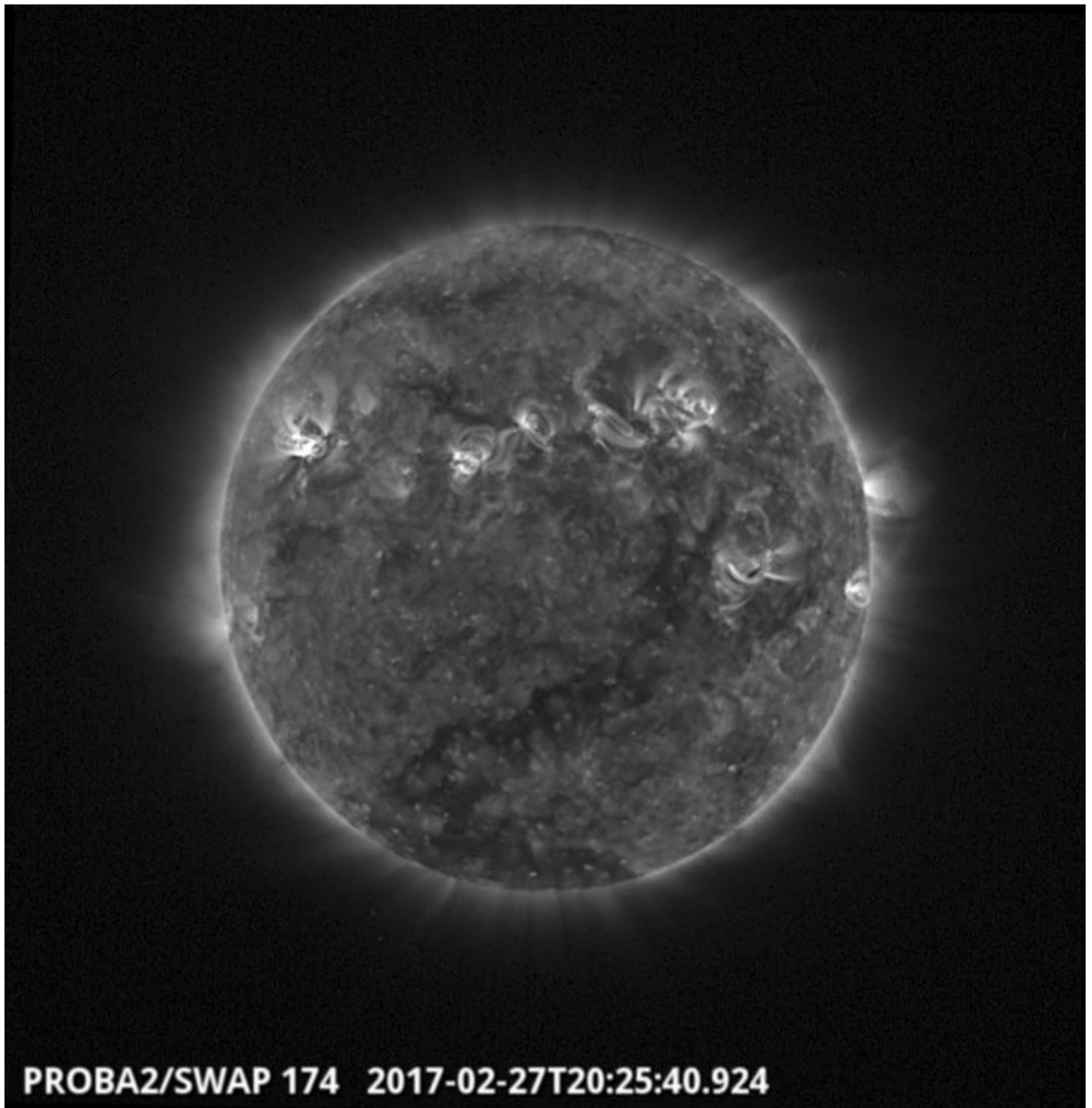
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 362).

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

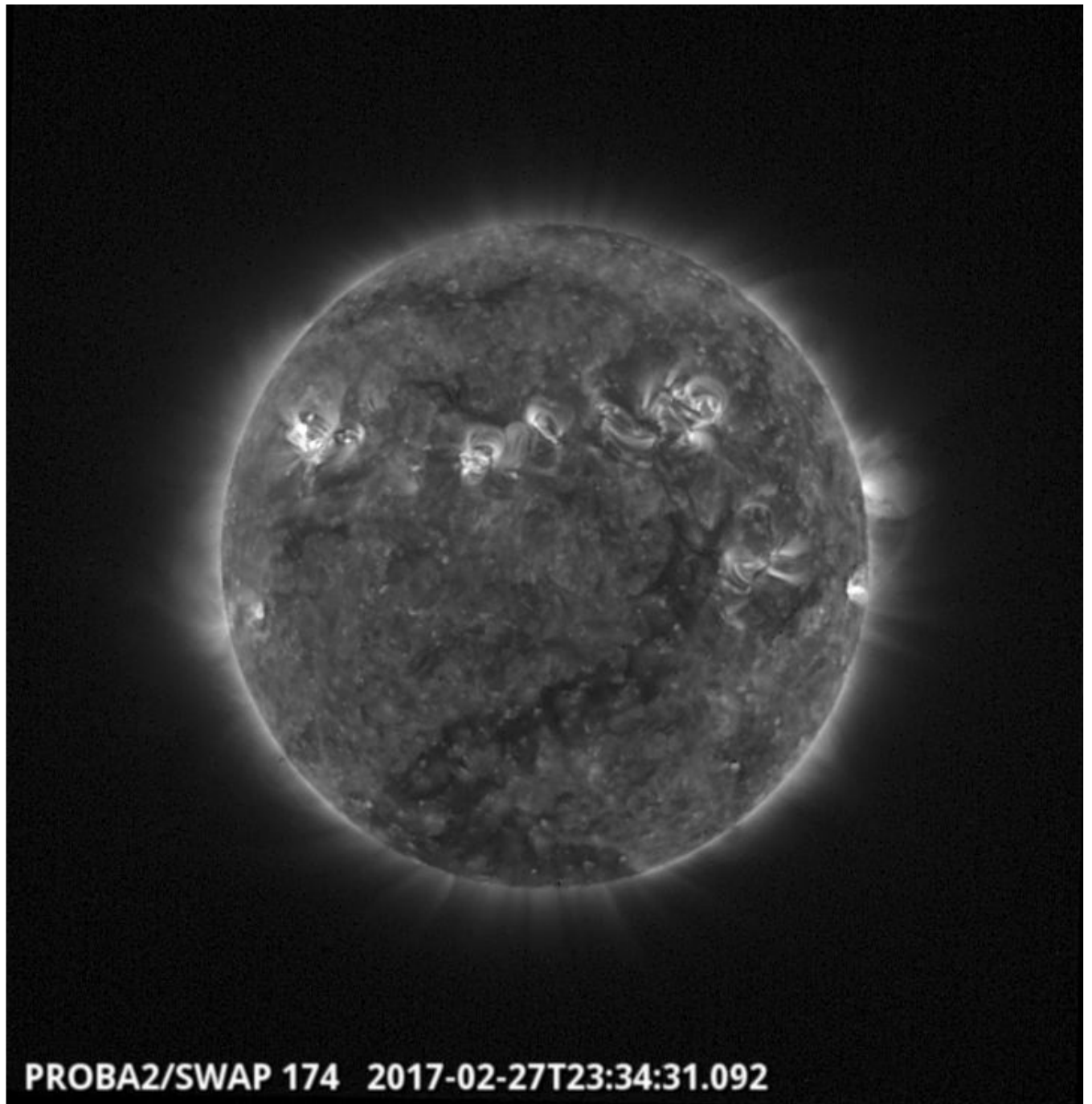
If any of the linked movies are unavailable they can be found in the P2SC movie repository [here](#)

Monday Feb 27



**AR 2641 produced the strongest flare of the week on 2017-Feb-27 at 20:25 UT (a B9.3). This active region is visible above in the North-East part of the Sun.**

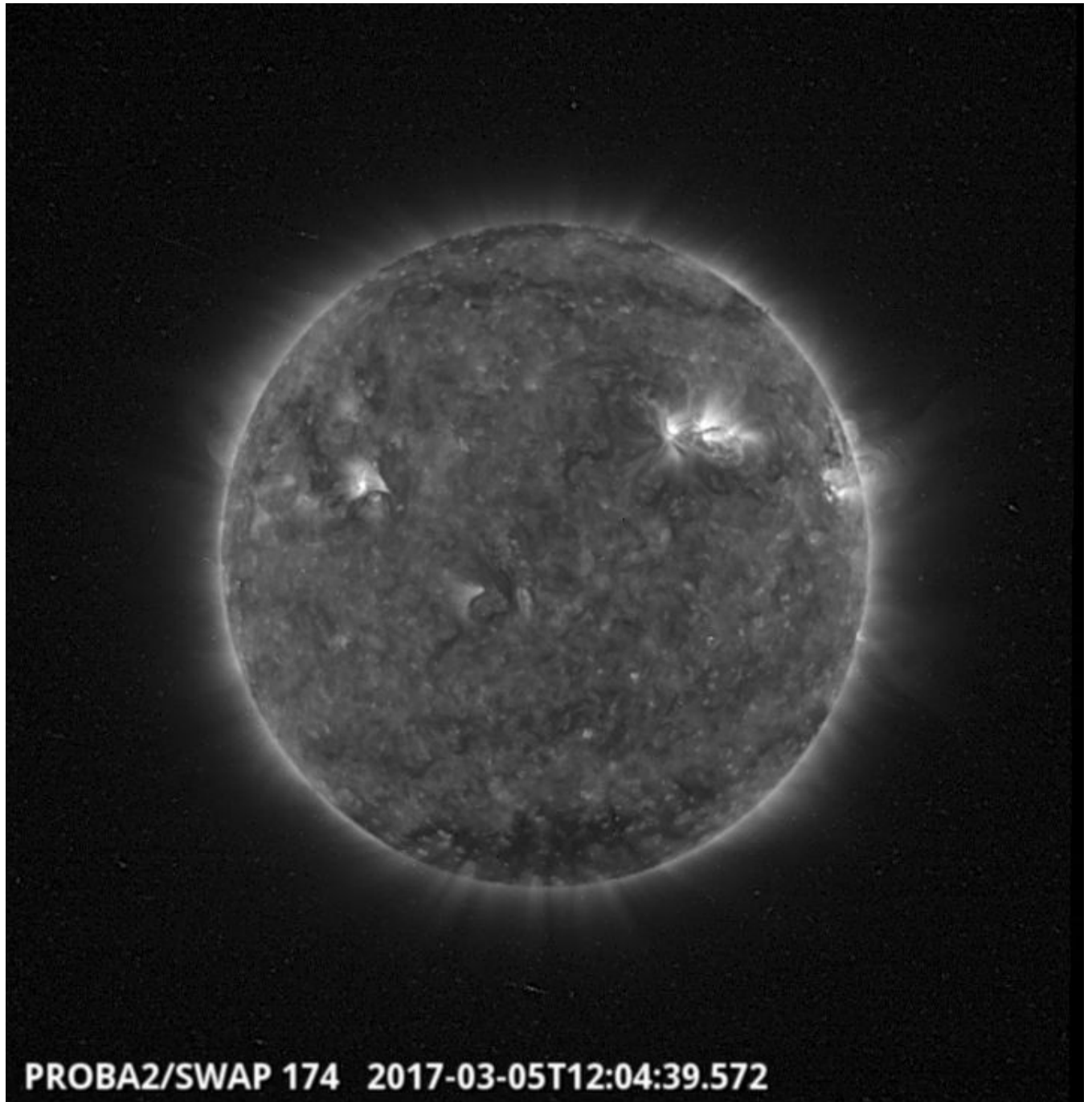
Find a movie of the events [here](#) (SWAP movie)



**A trans-equatorial coronal hole, which produced enhanced geomagnetic conditions at the Earth, was seen on the solar disk at the beginning of the week. This can be seen in the above SWAP image.**

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

Sunday Mar 05



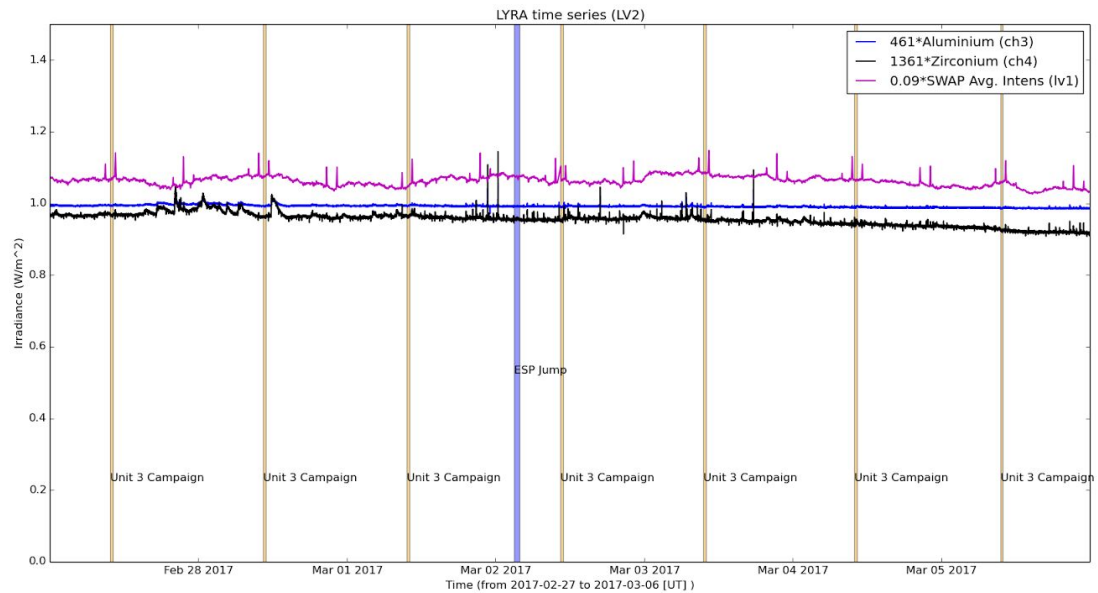
**A transient coronal dimming produced from a bipolar, spotless region near N05E30 occurred around 2017-Mar-5 at 12:00UT and can be seen in the above SWAP image and the linked [SWAP movie](#) below.**

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 blue shaded periods correspond to, from left to right:

- SWAP ESP jump, 2017-Mar 2

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

- LYRA Daily unit 3 campaign, 2017-Feb-27
- LYRA Daily unit 3 campaign, 2017-Feb-28
- LYRA Daily unit 3 campaign, 2017-Mar-01
- LYRA Daily unit 3 campaign, 2017-Mar-02
- LYRA Daily unit 3 campaign, 2017-Mar-03
- LYRA Daily unit 3 campaign, 2017-Mar-04
- LYRA Daily unit 3 campaign, 2017-Mar-05

The red shaded period corresponds to:

- None



### **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

None

### IOS & operations

Monday 27 Feb	Tuesday 28 Feb	Wednesday 01 Mar	Thursday 02 Mar	Friday 03 Mar	Saturday 04 Mar	Sunday 05 Mar
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
LYIOS00602	LYIOS00602	LYIOS00602	LYIOS00602	LYIOS00603	LYIOS00603	LYIOS00603

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

### LYRA detector temperature

LYRA detector 2 temperature globally varied between 51.19 and 52.10 °C.

### 3. SWAP instrument status

#### Calibration

None

#### MCPM errors

The number of MCPM recoverable errors increased from 6973 to 7360 .

The number of MCPM unrecoverable errors remained at 0.

#### IOS & operations

Monday 27 Feb	Tuesday 28 Feb	Wednesday 01 Mar	Thursday 02 Mar	Friday 03 Mar	Saturday 04 Mar	Sunday 05 Mar
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition+ ESP jump	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00691 674 images	IOS00691 648 images	IOS00691 679 images	IOS00692 657 images	IOS00692 734 images	IOS00692 697 images	IOS00692 560 images

Special operations for SWAP, this week:

- ESP jump on March 02

#### SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 1.19 and 2.31 °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 23318 to 23382) 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 2017 Feb 27 0UT and 2017 Mar 06 0UT: 4784

Highest cadence in this period: 110 seconds

Average cadence in this period: 126.43 seconds

Number of image gaps larger than 300 seconds: 126

Largest data gap: 33.67 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
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)