


P2SC-ROB-WR-264 - 20150413 Weekly report #264	<b>P2SC Weekly report</b>	
Period covered: Date:  Written by: Approved by:	Mon Apr 13 to Sun Apr 19, 2015 22 Apr 2015  Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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## 1. Science

### Solar & Space weather events

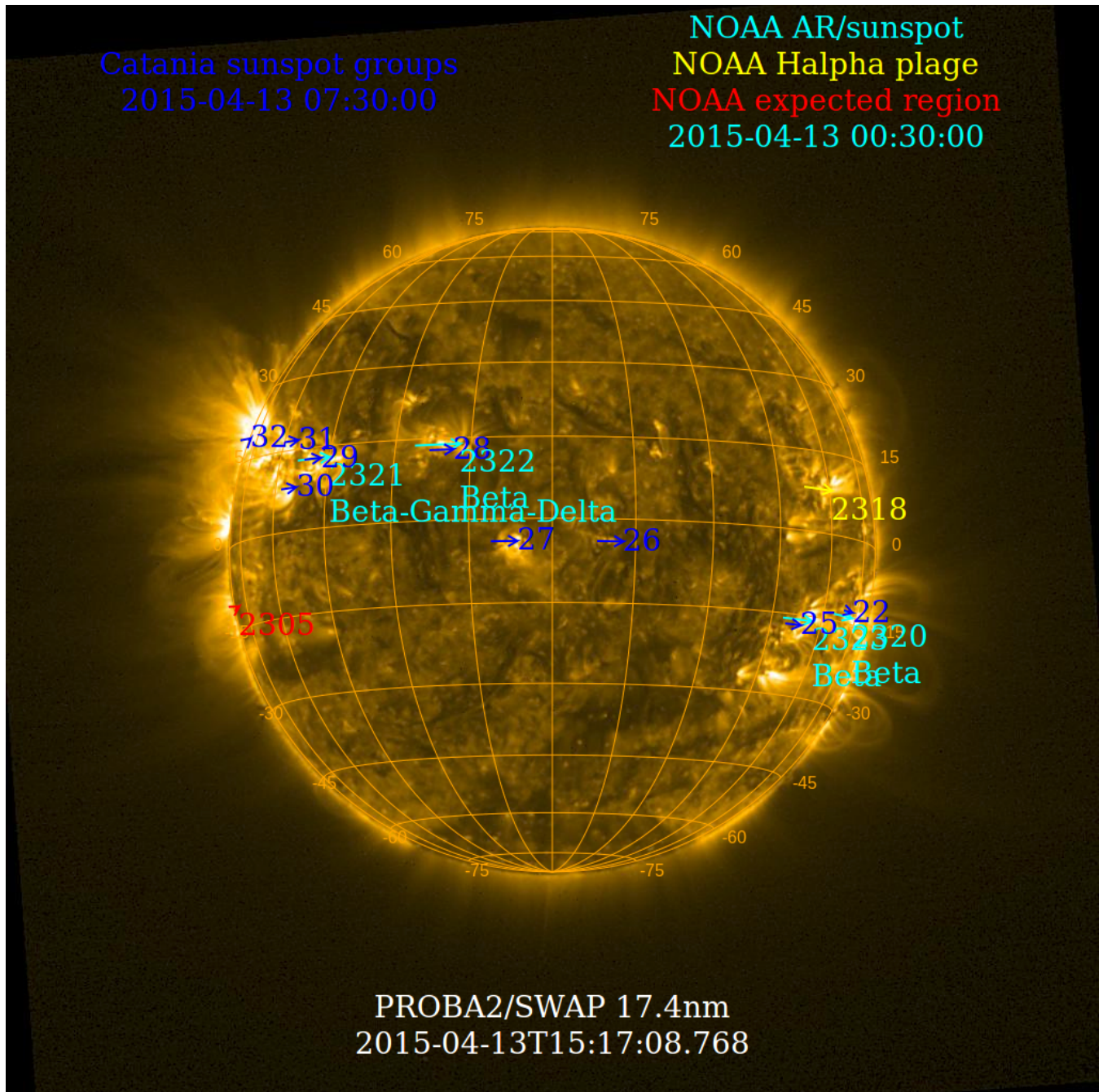
The level of solar activity<sup>1</sup> fluctuated between **very low** and **low** this week.

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

	Monday 13 Apr	Tuesday 14 Apr	Wednesday 15 Apr	Thursday 16 Apr	Friday 17 Apr	Saturday 18 Apr	Sunday 19 Apr
Activity	low	very low	low	low	low	low	low
Flares	-	-	-	-	-	-	-

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

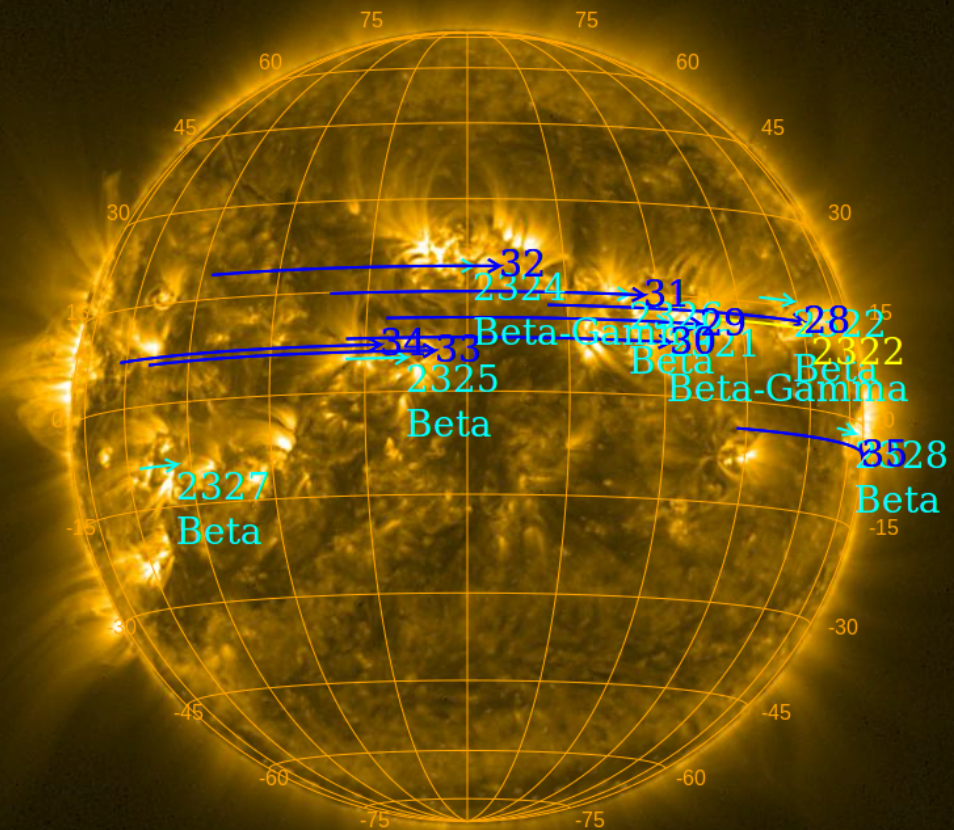
The SWAP images from 2015 Apr 13 and 2015 Apr 19 are shown below, with annotated active regions.



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

Catania sunspot groups  
2015-04-16 06:48:00

NOAA AR/sunspot  
NOAA Halpha plage  
NOAA expected region  
2015-04-19 00:30:00



PROBA2/SWAP 17.4nm  
2015-04-19T15:23:17.536

## Solar Activity

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

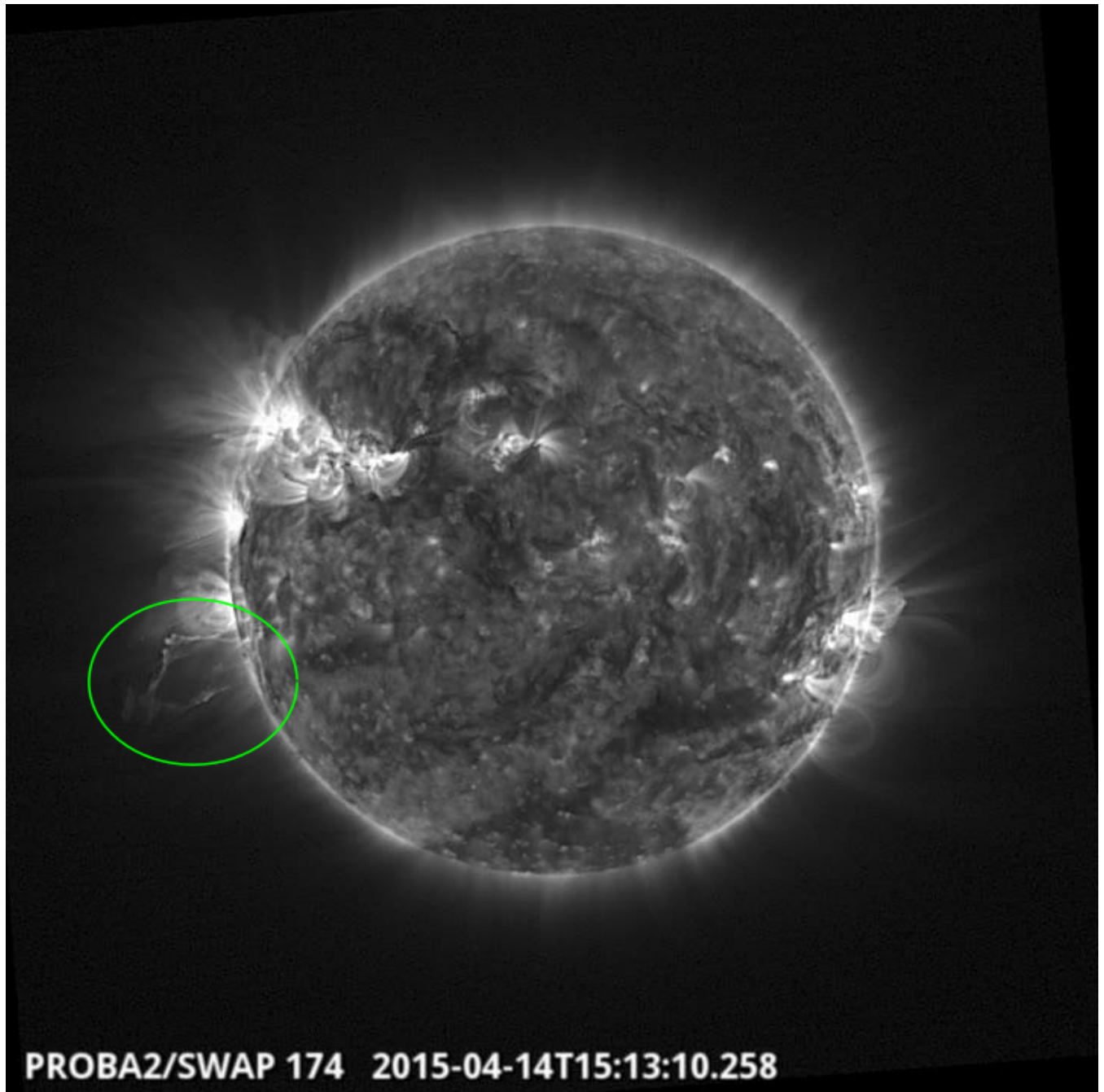
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: <http://proba2.oma.be/ssa>

This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 264).

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

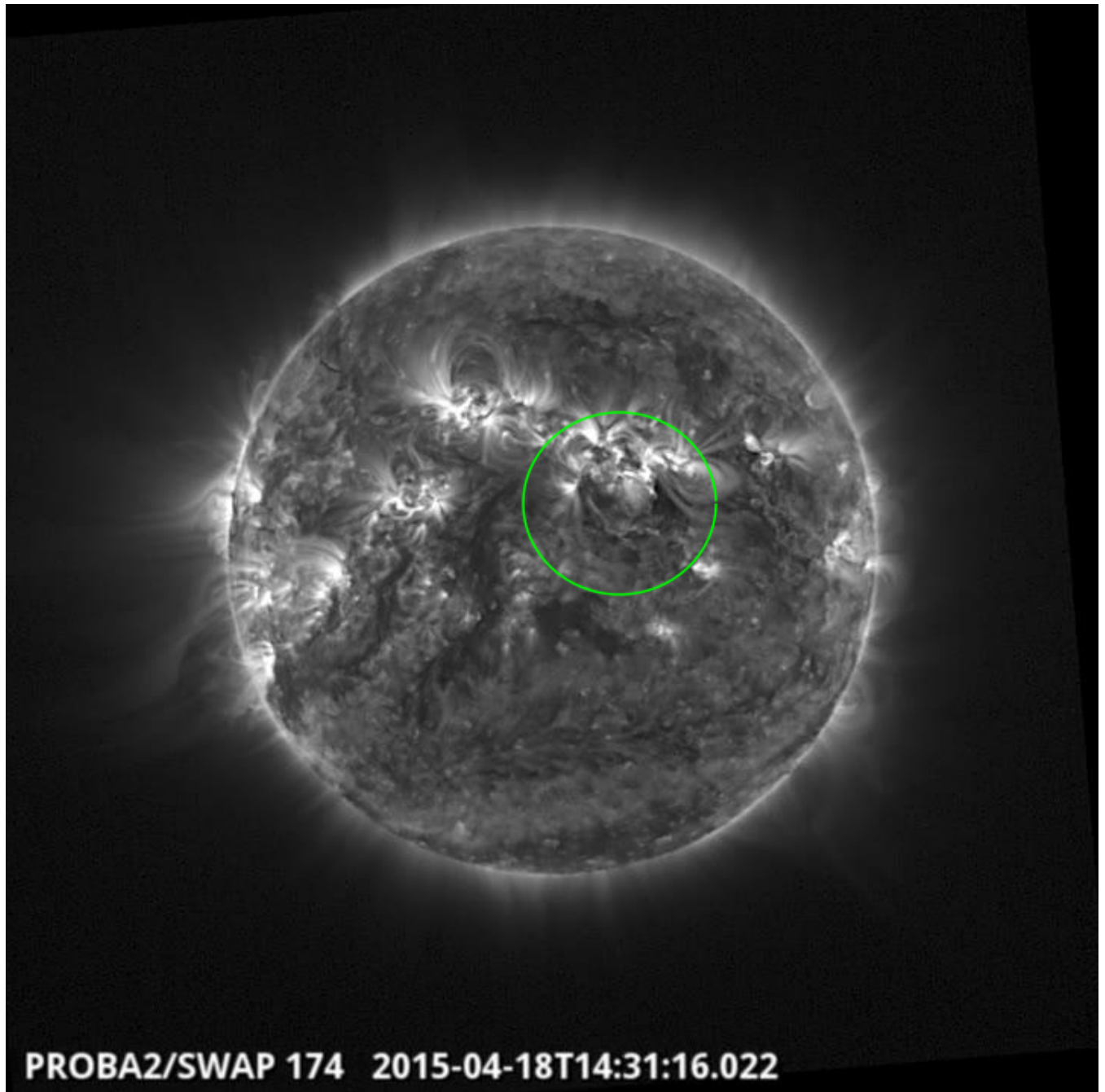
Tuesday Apr 14



**PROBA2/SWAP 174 2015-04-14T15:13:10.258**

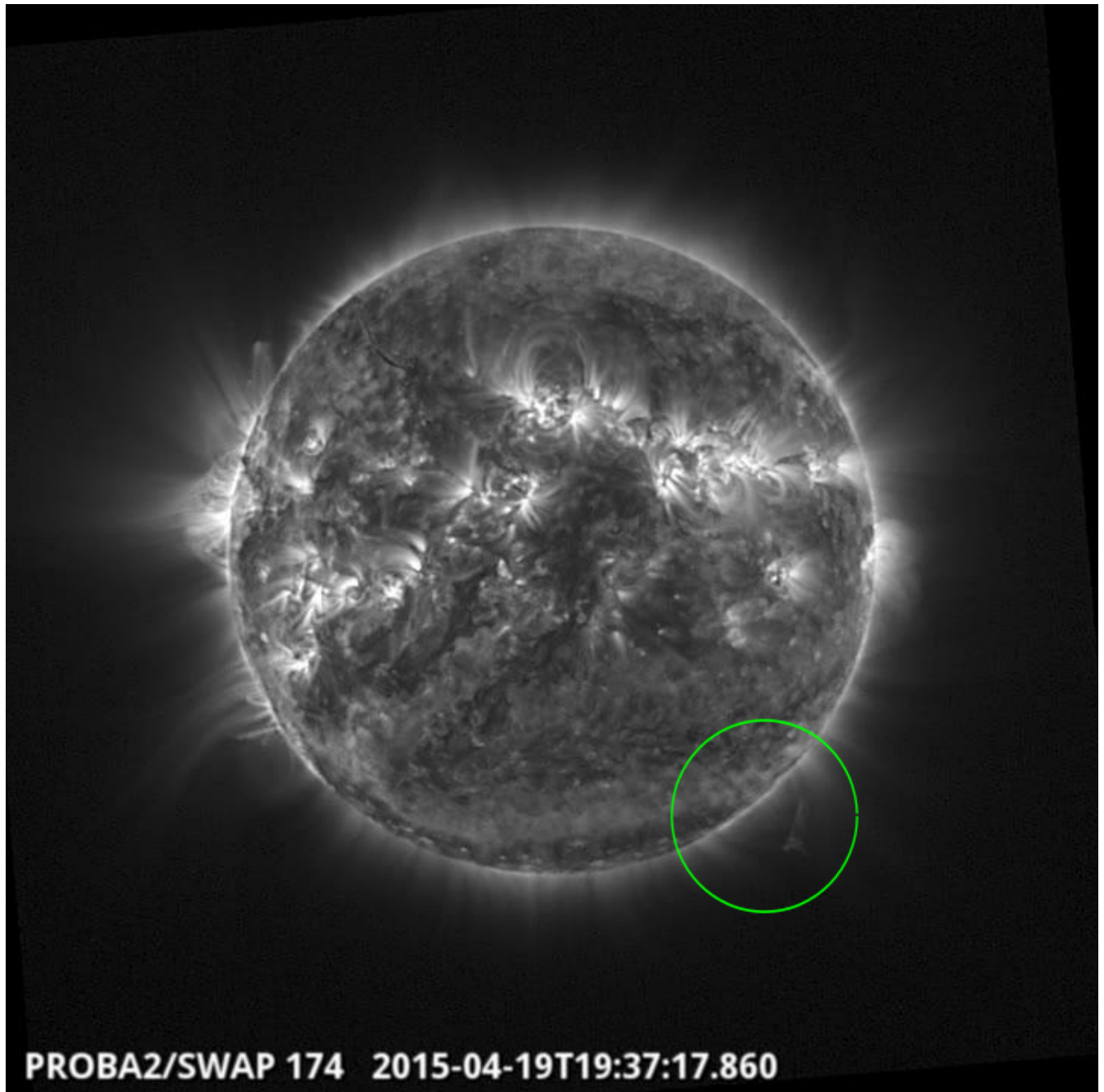
**Eruption on the east limb @ 15:13 - SWAP image**  
Find a movie of the event [here](#) (SWAP movie)

Saturday Apr 18



Dimming on the north west quadrant @ 14:31 - SWAP image  
Find a movie of the event [here](#) (SWAP movie)

Sunday Apr 19



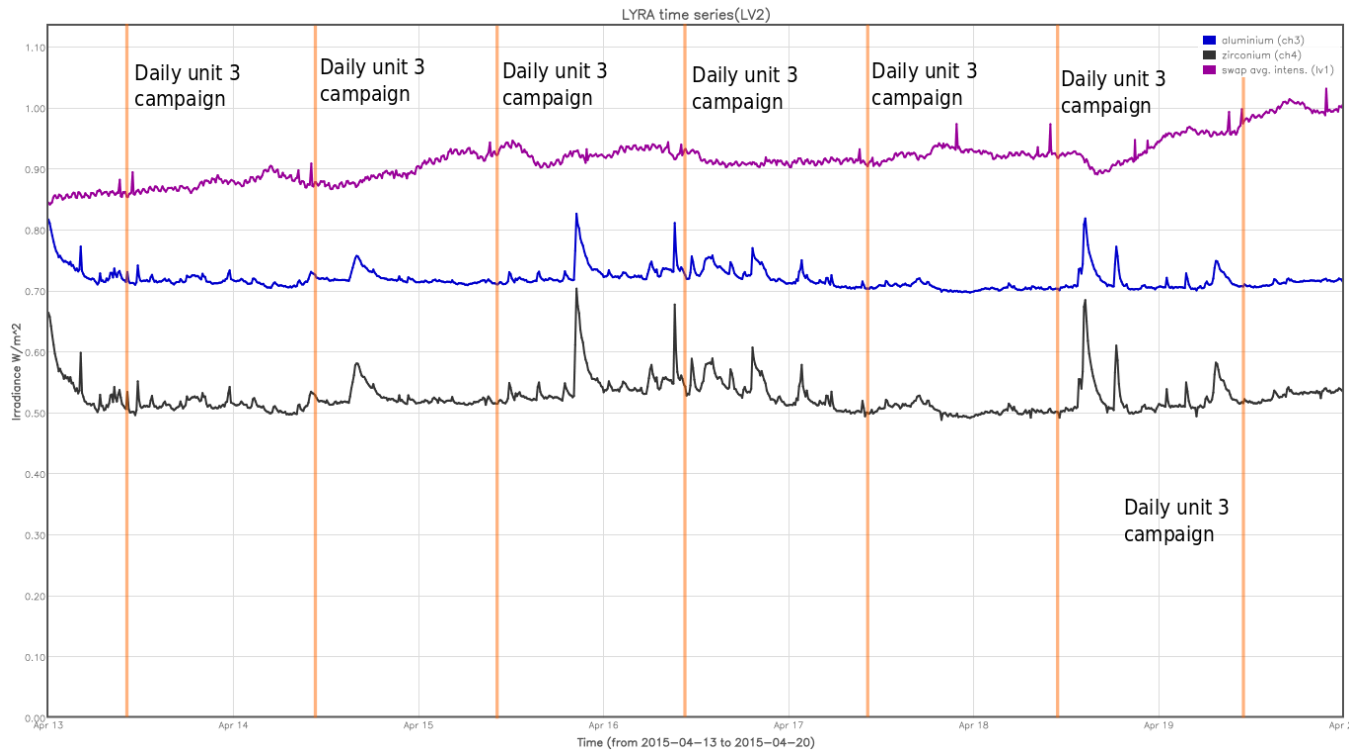
**PROBA2/SWAP 174 2015-04-19T19:37:17.860**

**Eruption on the west limb @ 19:37 - 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, 2015-04-13
- Daily unit 3 campaign, 2015-04-14
- Daily unit 3 campaign, 2015-04-15
- Daily unit 3 campaign, 2015-04-16
- Daily unit 3 campaign, 2015-04-17
- Daily unit 3 campaign, 2015-04-18
- Daily unit 3 campaign, 2015-04-19

**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**

- L. Hayes used LYRA to study the Nature of red noise processes in solar flares and effect on observations of QPP.

## 2. LYRA instrument status

### Calibration

No calibration this week.

### IOS & operations

Monday 13 Apr	Tuesday 14 Apr	Wednesday 15 Apr	Thursday 16 Apr	Friday 17 Apr	Saturday 18 Apr	Sunday 19 Apr
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
LYIOS00462	LYIOS00462	LYIOS00463	LYIOS00463	LYIOS00463	LYIOS00463	LYIOS00463

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

### LYRA detector temperature

LYRA detector 2 temperature globally varied between 48.1 and 48.9 °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 increased from 26553 to 26555.

The number of MCPM unrecoverable errors increased from 5933 to 6101.

#### IOS & operations

Monday 13 Apr	Tuesday 14 Apr	Wednesday 15 Apr	Thursday 16 Apr	Friday 17 Apr	Saturday 18 Apr	Sunday 19 Apr
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00572 634 images	IOS00572 707 images	IOS00572 647 images	IOS00572 690 images	IOS00572 714 images	IOS00572 555 images	IOS00572 675 images

Special operations for SWAP, this week:

- None

#### SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.96 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 17095 to 17157) 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 13 0UT and 2015 Apr 20 0UT: 4622

Highest cadence in this period: 0 seconds

Average cadence in this period: 130.85 seconds

Number of image gaps larger than 300 seconds: 0

### **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)