


P2SC-ROB-WR-427 -20180528 Weekly report #427	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon May 28 to Sun Jun 03, 2018 04 Jun 2018 Jennifer O'Hara 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

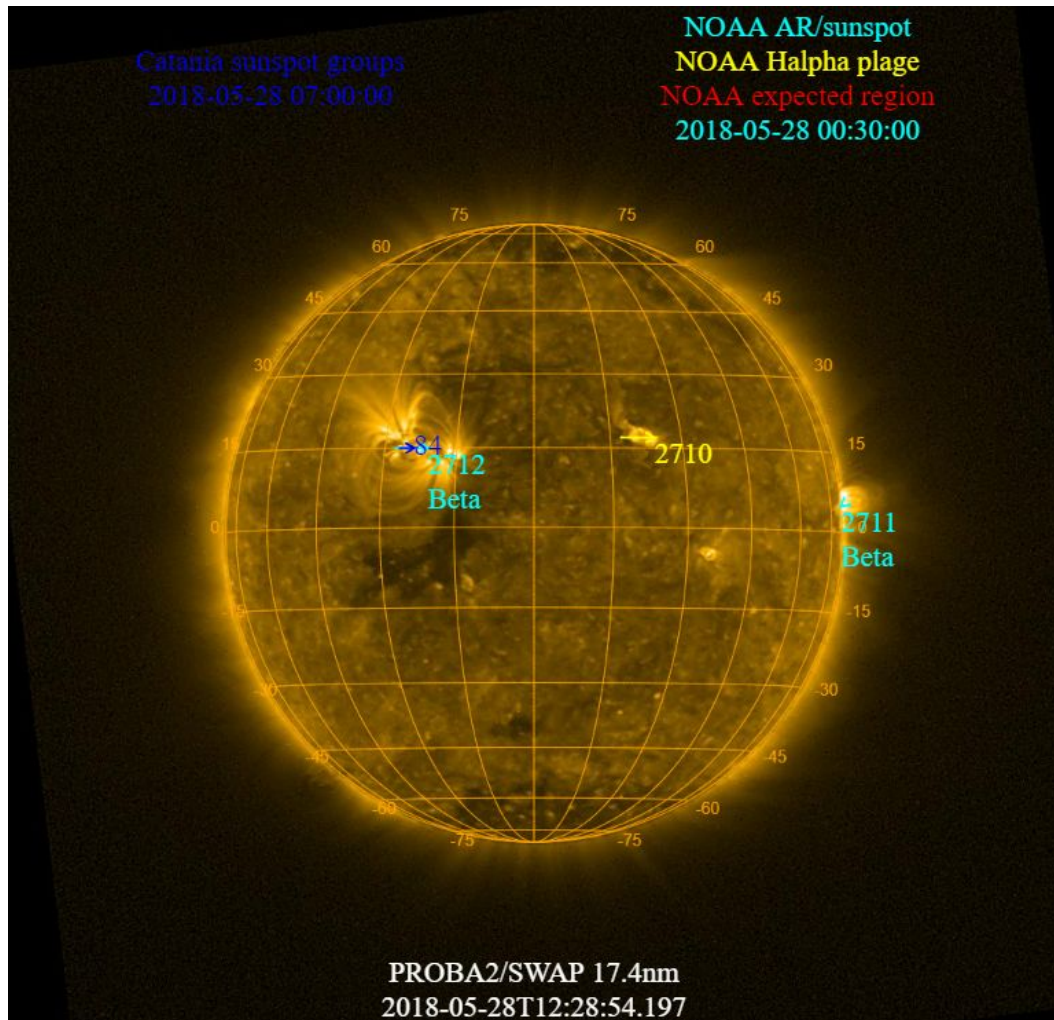
The level of solar activity¹ fluctuated between **very low** and **low** this week.

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

	Monday 28 May	Tuesday 29 May	Wednesday 30 May	Thursday 31 May	Friday 01 Jun	Saturday 02 Jun	Sunday 03 Jun
Activity	very low	low	very low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

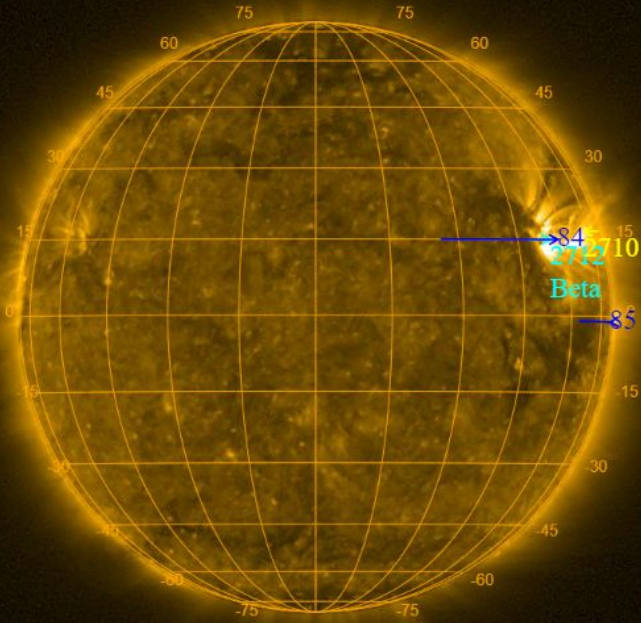
The SWAP images of May 28 and Jun 03 are shown below, with annotated active regions.



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

Catania sunspot groups
2018-06-01 07:18:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2018-06-03 00:30:00



PROBA2/SWAP 17.4nm
2018-06-03T12:29:38.094

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>

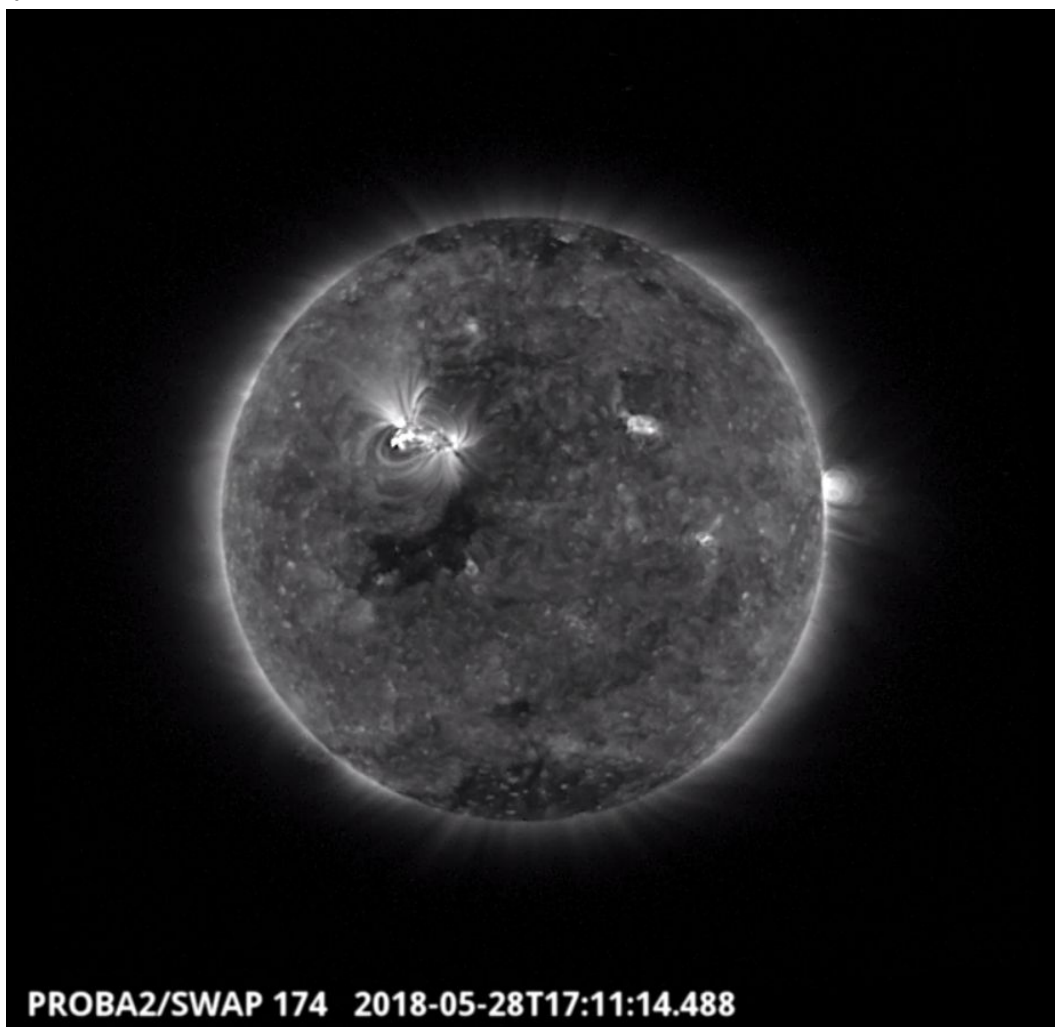
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 427).

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](#).

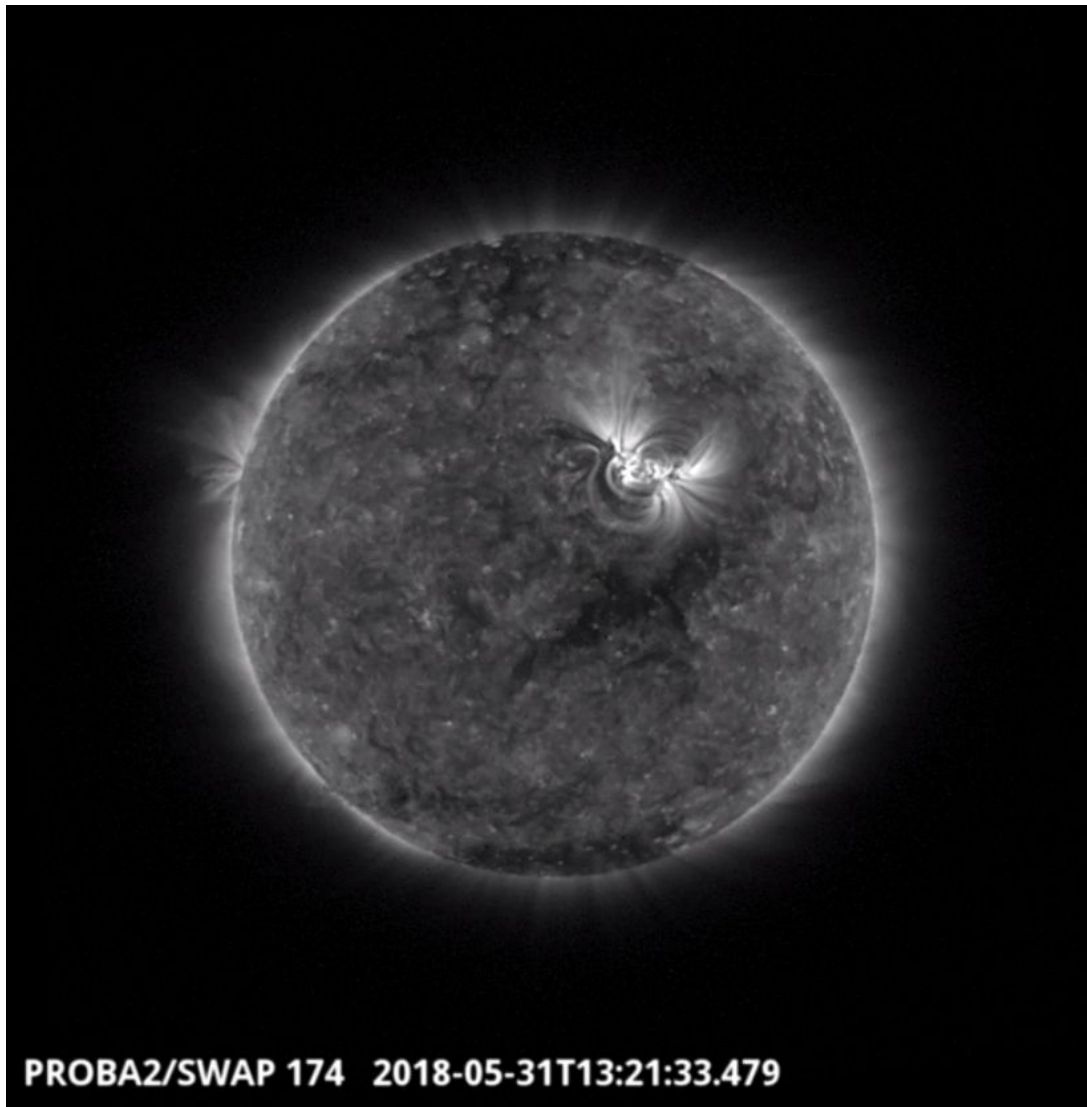
Monday May 28



The largest flare of the week was a C2.7 associated with NOAA AR 2712. The flare is visible in the north-east quadrant on the solar disk in the SWAP image above at 17:11 UT.

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

Thursday May 31



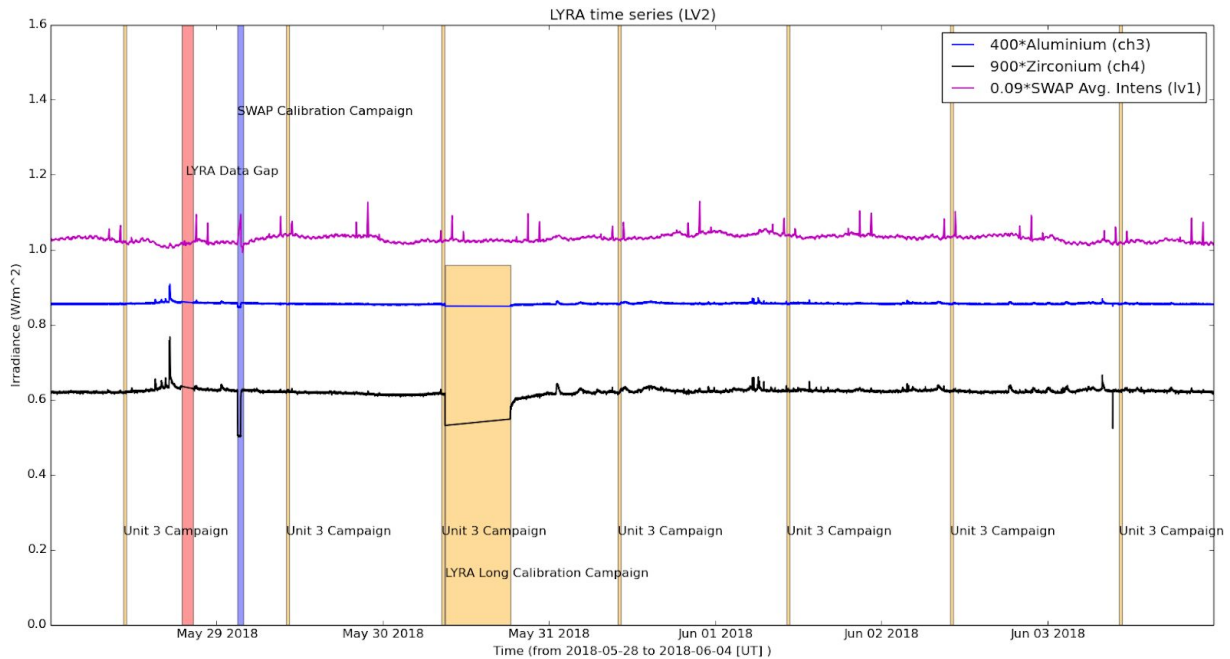
An eruption was observed by SWAP on the east limb of the Sun. This is visible in the SWAP image above at 13:21 UT on 2018-May-31.

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 related to SWAP, correspond to, from left to right:

- SWAP calibration, 2018-May-29

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

- daily U3 observations campaign, 2018-May-28
- daily U3 observations campaign, 2018-May-29
- daily U3 observations campaign, 2018-May-30
- LYRA Long calibration, 2018-May-30
- daily U3 observations campaign, 2018-May-31
- daily U3 observations campaign, 2018-Jun-01
- daily U3 observations campaign, 2018-Jun-02
- daily U3 observations campaign, 2018-Jun-03

The red shaded periods related to other issues corresponds to:

- LYRA data gap, 2018-May-28, from pass 27590 where one or more lumps of this pass are corrupted and whole pass therefore cannot be processed due to a known bug in the software.

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 2018-May-30, PROBA2 Liaison Scientist Marilena Mierla gave a seminar entitled PROBA2/SWAP - Recent Studies, at the Institute of Astronomy of the Romanian Academy, Bucharest, Romania.

Guest Investigator Program

- Erica Palmerio continued her visit to the P2SC, working with SWAP to study Earth-impacting coronal mass ejections erupting from the solar limb.

2. LYRA instrument status

Calibration

Long calibration campaign on Wednesday this week.

IOS & operations

Monday 28 May	Tuesday 29 May	Wednesday 30 May	Thursday 31 May	Friday 01 Jun	Saturday 02 Jun	Sunday 03 Jun
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + Long calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00705	LYIOS00705	LYIOS00705	LYIOS00705	LYIOS00705	LYIOS00706	LYIOS00706

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

On 2018-May-30

- LYRA Long Calibration

LYRA detector temperature

LYRA detector 2 temperature globally varied between 47.14 and 49.37 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 41 to 186.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 28 May	Tuesday 29 May	Wednesday 30 May	Thursday 31 May	Friday 01 Jun	Saturday 02 Jun	Sunday 03 Jun
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00774 578 images	IOS00774 708 images	IOS00774 698 images	IOS00774 684 images	IOS00774 690 images	IOS00775 618 images	IOS00775 584 images

Special operations for SWAP, this week:

On 2018-May-29

- SWAP bi-weekly calibration

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.41 and 0.55 °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 27582 to 27647) 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 2018 May 28 00:00 UT and 2018 Jun 04 00:00 UT: 4649

Highest cadence in this period: 30 seconds

Average cadence in this period: 130.09 seconds

Number of image gaps larger than 300 seconds: 151

Largest data gap: 10.17 minutes

Data coverage LYRA

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

- 27590 (One or more lumps of this pass are corrupted and whole pass therefore cannot be processed due to known bug in the software)

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)