


P2SC-ROB-WR-422- 20180423 Weekly report #422	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Apr 23 to Sun Apr 29, 2018 02 May 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

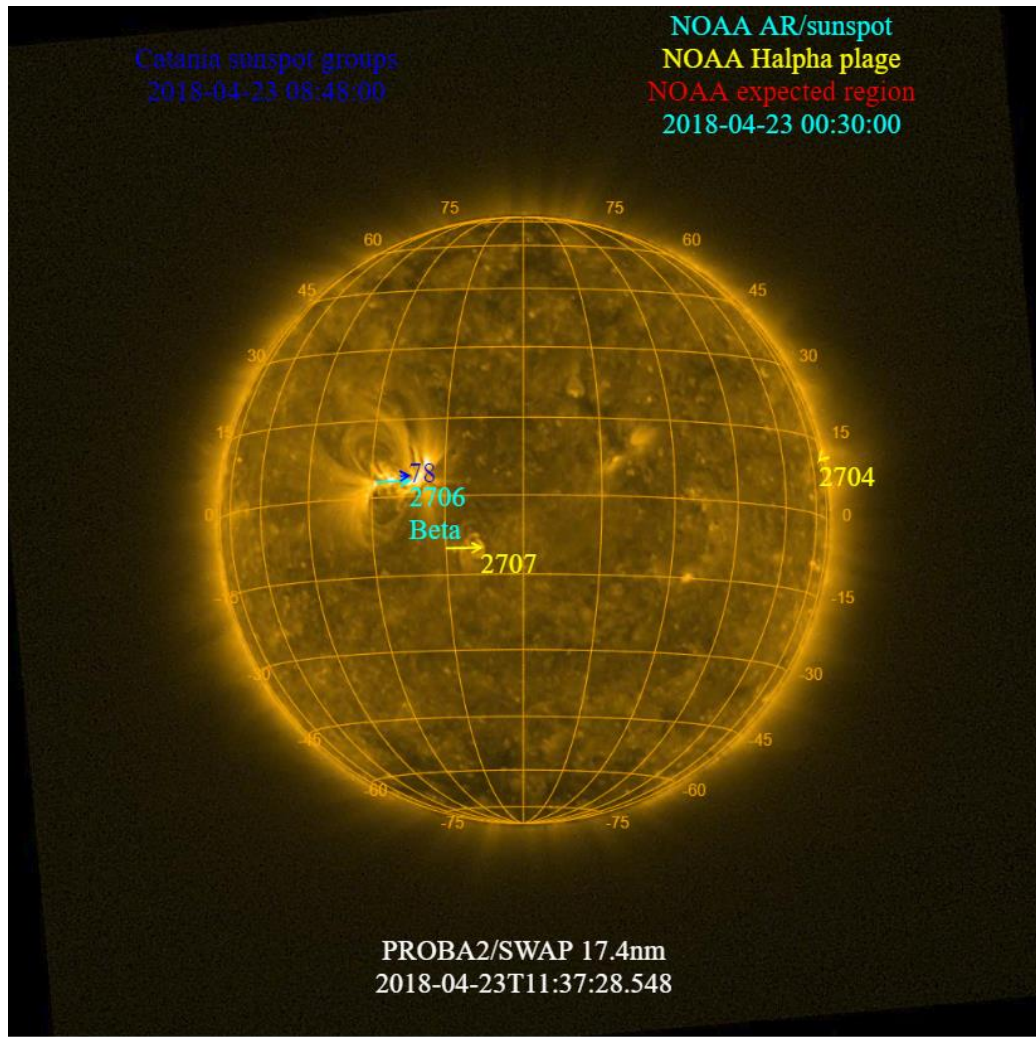
The level of solar activity¹ remained **very low** this week.

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

	Monday 23 Apr	Tuesday 24 Apr	Wednesday 25 Apr	Thursday 26 Apr	Friday 27 Apr	Saturday 28 Apr	Sunday 29 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.

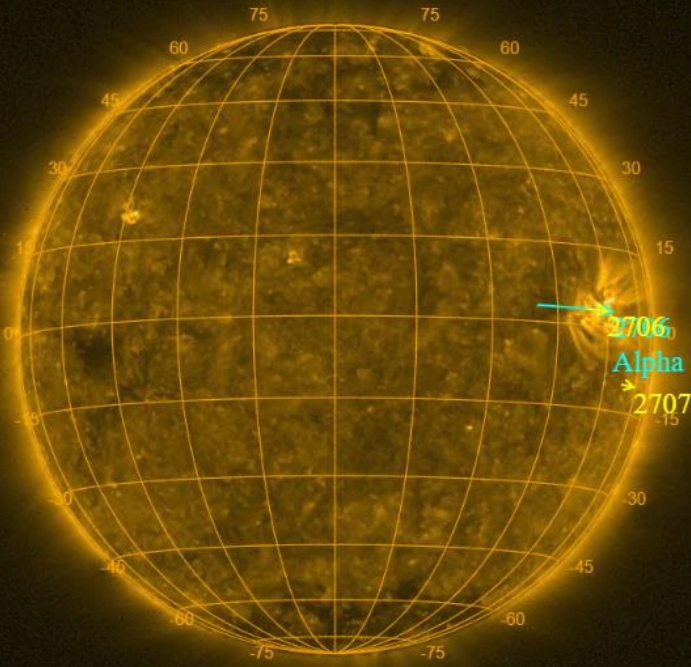
The SWAP images of Apr 23 and Apr 29 are shown below, with annotated active regions.



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

Catania sunspot groups
No observation

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2018-04-28 00:30:00



PROBA2/SWAP 17.4nm
2018-04-29T11:36:17.505

Solar Activity

Solar flare activity remained 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>

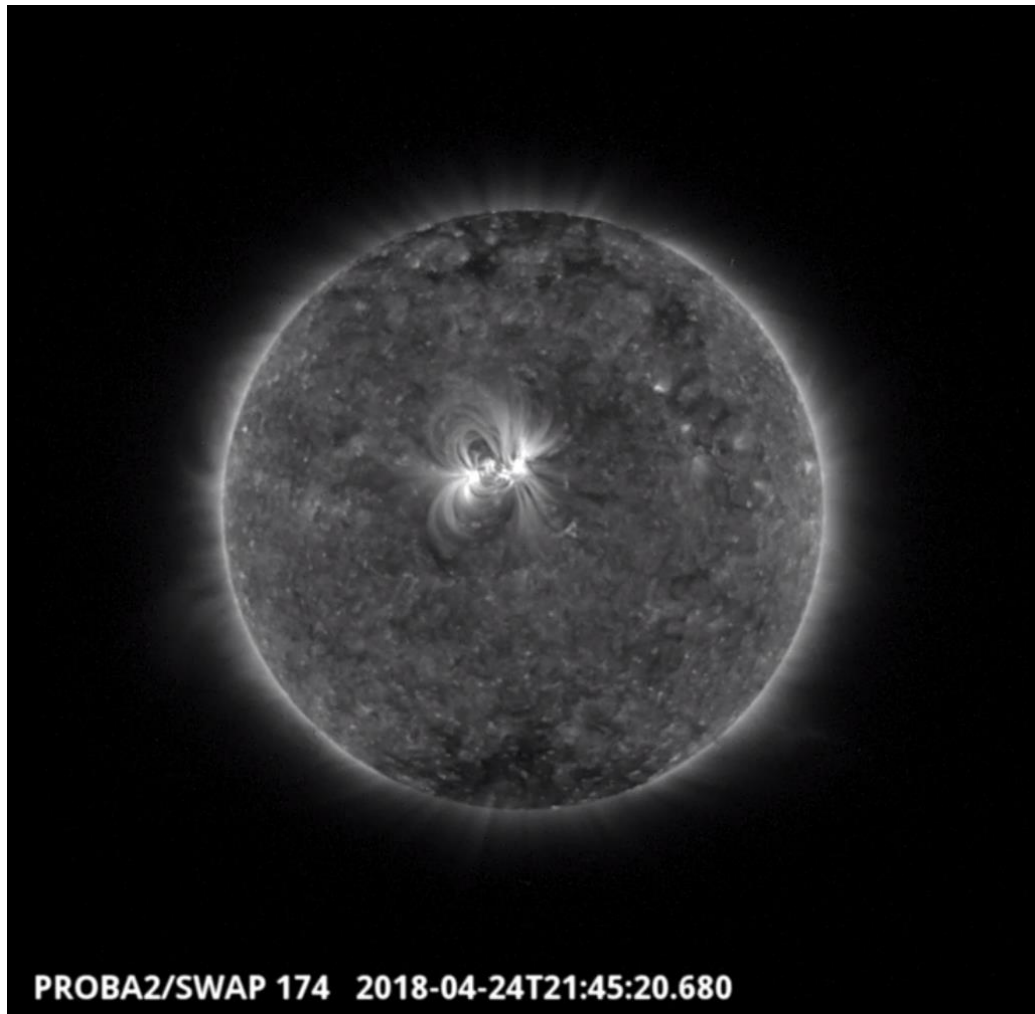
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 422).

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](#).

Tuesday Apr 24



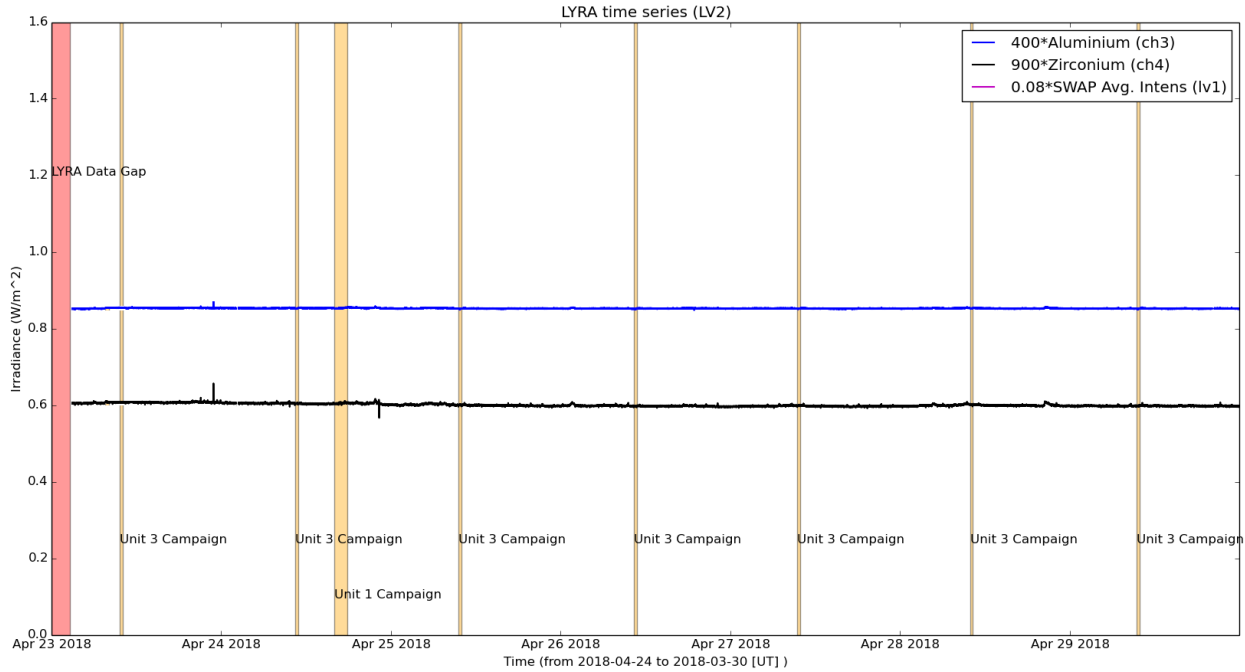
The largest flare of the week (B2.1), which was associated with NOAA 2706, was observed by SWAP on 2018-04-24. This is visible in the centre of the solar disk in the SWAP image above at 21:45 UT.

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:

- None

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

- Daily Unit 3 campaign, 2018-Apr-23
- Daily Unit 3 campaign, 2018-Apr-24
- Unit 1 campaign, 2018-Apr-24
- Daily Unit 3 campaign, 2018-Apr-25
- Daily Unit 3 campaign, 2018-Apr-26
- Daily Unit 3 campaign, 2018-Apr-27
- Daily Unit 3 campaign, 2018-Apr-28
- Daily Unit 3 campaign, 2018-Apr-29

The red shaded periods related to other issues corresponds to:

- LYRA data gap, 2018-Apr-23

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

- PhD student Ranadeep Sarkar from Udaipur Solar Observatory continued his visit to the P2SC to working on his project entitled "Evolution of coronal cavities leading to CMEs".

2. LYRA instrument status

Calibration

No calibration campaign this week.

IOS & operations

Monday 23 Apr	Tuesday 24 Apr	Wednesday 25 Apr	Thursday 26 Apr	Friday 27 Apr	Saturday 28 Apr	Sunday 29 Apr
Nominal acquisition + daily U3	Nominal acquisition + daily U3+ monthly U1	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00692	LYIOS00692	LYIOS00692	LYIOS00692	LYIOS00692	LYIOS00693	LYIOS00693

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 48.38 and 50.46 °C.

3. SWAP instrument status

Calibration

No calibration campaign this week.

MCPM errors

The number of MCPM recoverable errors increased from 4170 to 4386.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 23 Apr	Tuesday 24 Apr	Wednesday 25 Apr	Thursday 26 Apr	Friday 27 Apr	Saturday 28 Apr	Sunday 29 Apr
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00768 650 images	IOS00768 661 images	IOS00768 684 images	IOS00768 632 images	IOS00768 723 images	IOS00769 714 images	IOS00769 564 images

Special operations for SWAP, this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.45 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 27259 to 27321) 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 Apr 23 00:00 UT and 2018 Apr 30 00:00 UT: 4715

Highest cadence in this period: 110 seconds

Average cadence in this period: 128.27 seconds

Number of image gaps larger than 300 seconds: 142

Largest data gap: 7.33 minutes

Data coverage LYRA

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

- Pass 27259 corrupted. No data LYRA data processed between 2018-04-22 23:21:52 and 2018-04-23 02:37:16. (Hopefully will be retrieved in future reprocessing)

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)