


P2SC-ROB-WR-435 - 20180723 Weekly report #435	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Jul 23 to Sun Jul 29, 2018 01 Aug 2018 Laurence Wauters Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

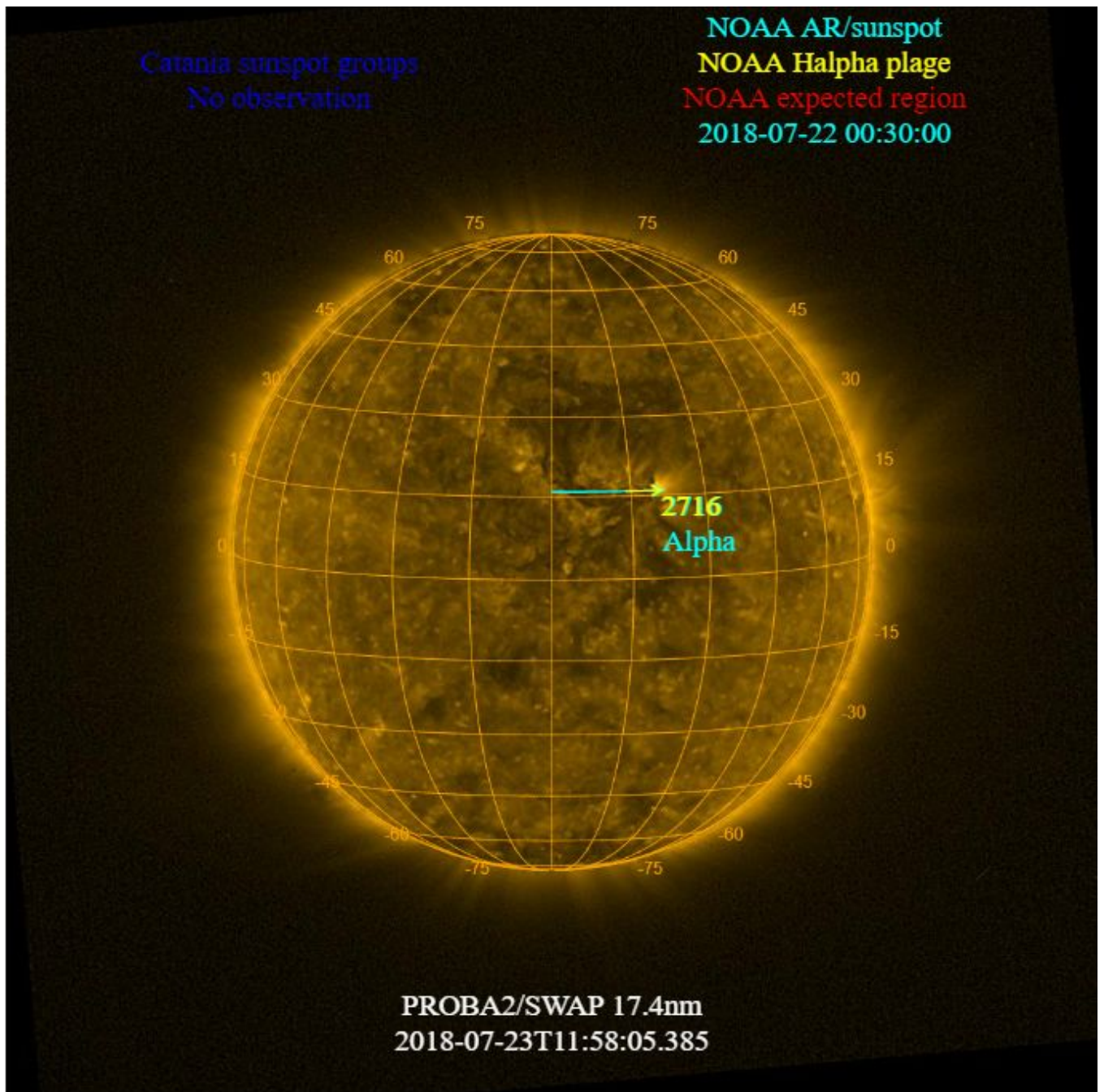
The level of solar activity¹ was **very low** this week.

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

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

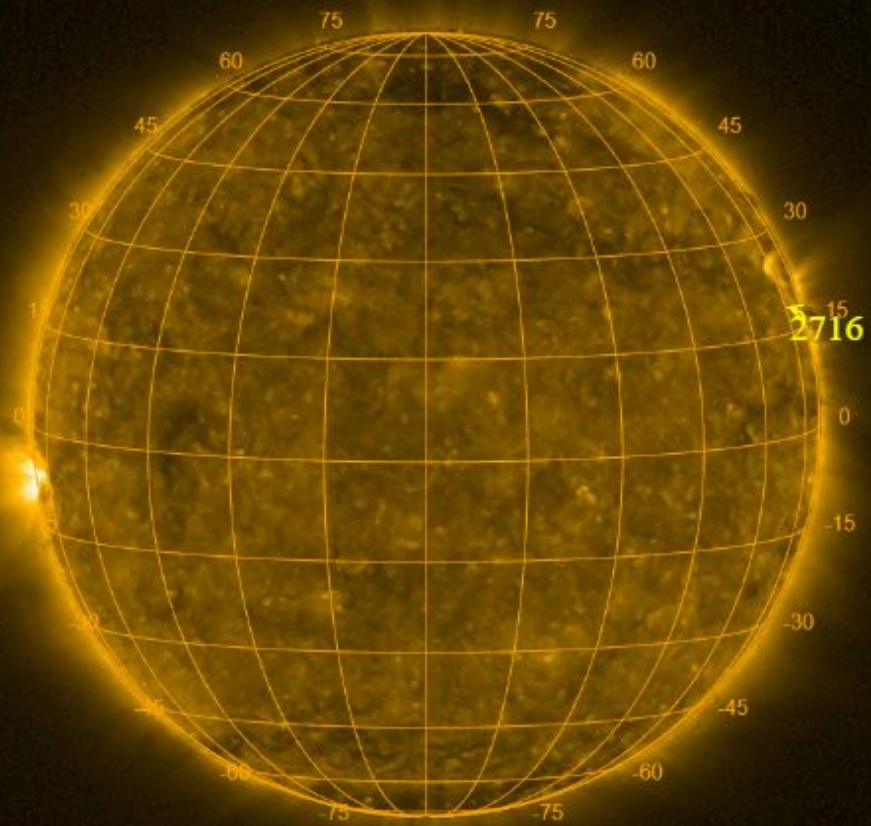
The SWAP images of Jul 23 and Jul 29 are shown below, with annotated active regions.



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

Catania sunspot groups
No observation

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
No observation



PROBA2/SWAP 17.4nm
2018-07-29T11:58:27.281

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>

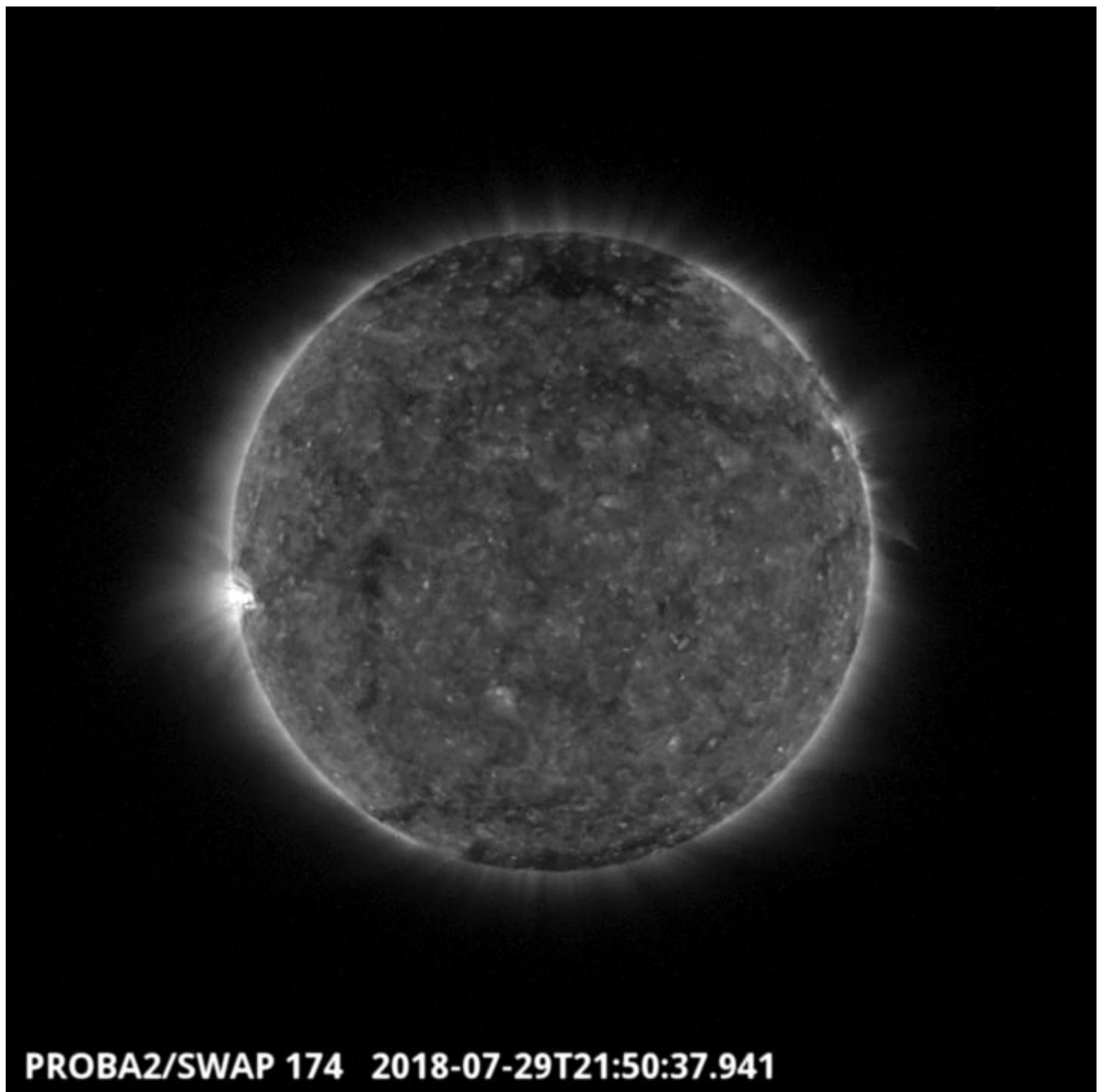
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 435).

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](#)

Sunday Jul 29



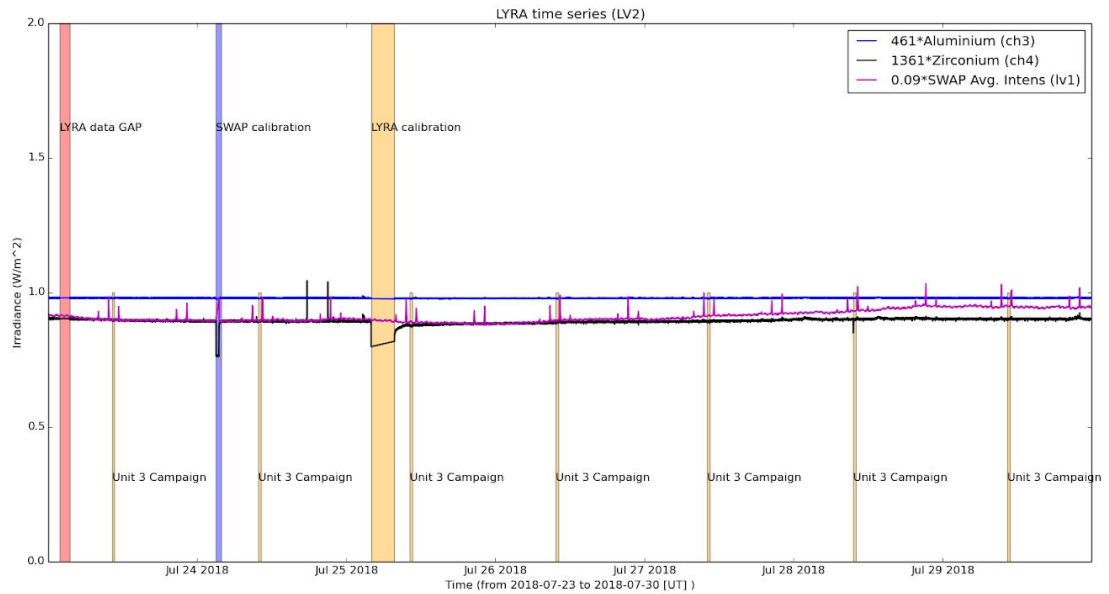
The largest flare of the week was a B1.0 class flare. The flare is visible in the SWAP image above (East limb of the Sun) at 21:50 UT on 2018-Jul-29.

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

- Bi-weekly calibration, 2018-Jul-24

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

- Daily Unit 3 campaign, 2018-Jul-23
- Daily Unit 3 campaign, 2018-Jul-24
- Bi-weekly calibration, 2018-Jul-25
- Daily Unit 3 campaign, 2018-Jul-25
- Daily Unit 3 campaign, 2018-Jul-26
- Daily Unit 3 campaign, 2018-Jul-27
- Daily Unit 3 campaign, 2018-Jul-28
- Daily Unit 3 campaign, 2018-Jul-29

The red shaded periods related to other issues corresponds to:

- One or more lump(s) of the pass 28105 were corrupted which give rise to a LYRA data gap on 2018-Jul-23 between 01:50 and 03:26 UT.

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>).

At COSPAR 2018 Matthew J West presented the SWAP observations in a presentation entitled: E2.2-0009-18 RHESSI SWAP post-flare giant arch signatures, in the session E2.2 Solar and stellar flares: multi- wavelength observations and simulations

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 23 Jul	Tuesday 24 Jul	Wednesday 25 Jul	Thursday 26 Jul	Friday 27 Jul	Saturday 28 Jul	Sunday 29 Jul
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00715	LYIOS00715	LYIOS00715	LYIOS00715	LYIOS00715	LYIOS00715	LYIOS00715

The following science campaigns were performed by LYRA:

- daily U3 observations campaigns
- Bi-weekly calibration, 2018-Jul-25

LYRA detector temperature

LYRA detector 2 temperature globally varied between 46.69 and 48.83 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 897 to 1122.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 23 Jul	Tuesday 24 Jul	Wednesday 25 Jul	Thursday 26 Jul	Friday 27 Jul	Saturday 28 Jul	Sunday 29 Jul
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00782 633 images	IOS00782 685 images	IOS00782 701 images	IOS00782 705 images	IOS00782 685 images	IOS00783 697 images	IOS00783 689 images

Special operations for SWAP, this week:

- Bi-weekly calibration, 2018-Jul-24

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.37 and -0.17 °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 28104 to 28169) 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 Jul 23 00:00 UT and 2018 Jul 30 00:00UT: 4852

Highest cadence in this period: 0 seconds

Average cadence in this period: 124.65 seconds

Number of image gaps larger than 300 seconds: 122

Largest data gap: 16.50 minutes

Data coverage LYRA

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

- One or more lump(s) of the pass 28105 were corrupted.

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)