


P2SC-ROB-WR-425 - 20180514 Weekly report #425	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon May 14 to Sun May 20, 2018 24 May 2018 Laurence Wauters Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

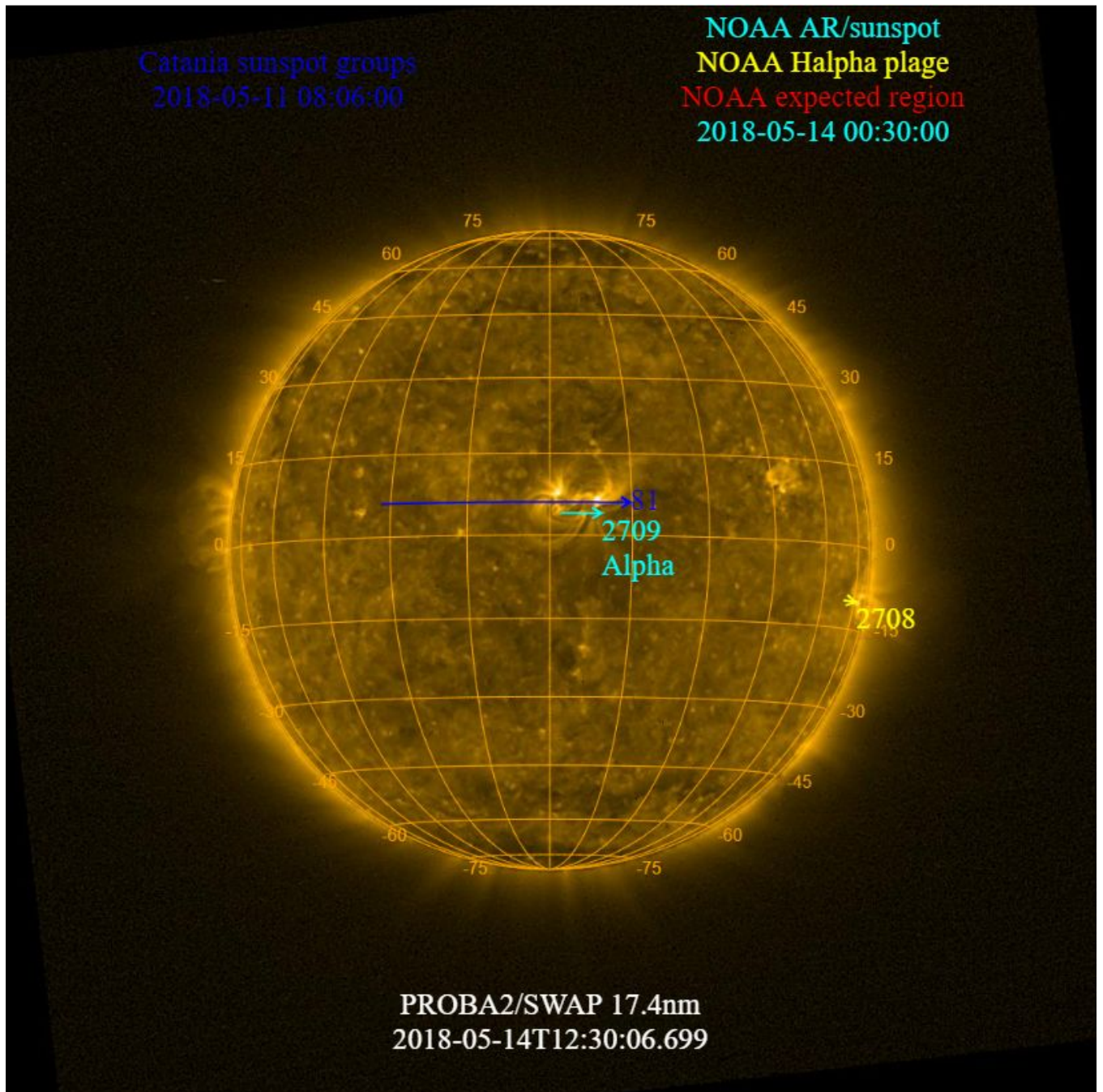
The level of solar activity¹ fluctuated was **very low** this week.

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

	Monday 14 May	Tuesday 15 May	Wednesday 16 May	Thursday 17 May	Friday 18 May	Saturday 19 May	Sunday 20 May
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.

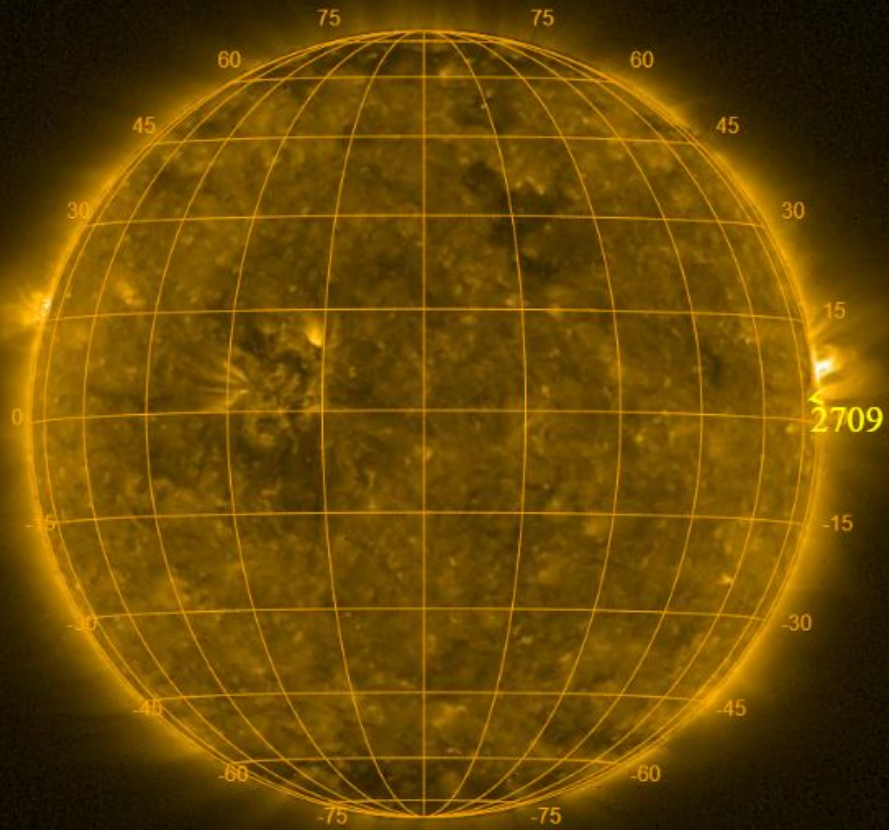
The SWAP images of May 14 and May 20 are shown below, with annotated active regions.



<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
2018-05-20T12:29:37.365

Solar Activity

Solar flare activity fluctuated 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>

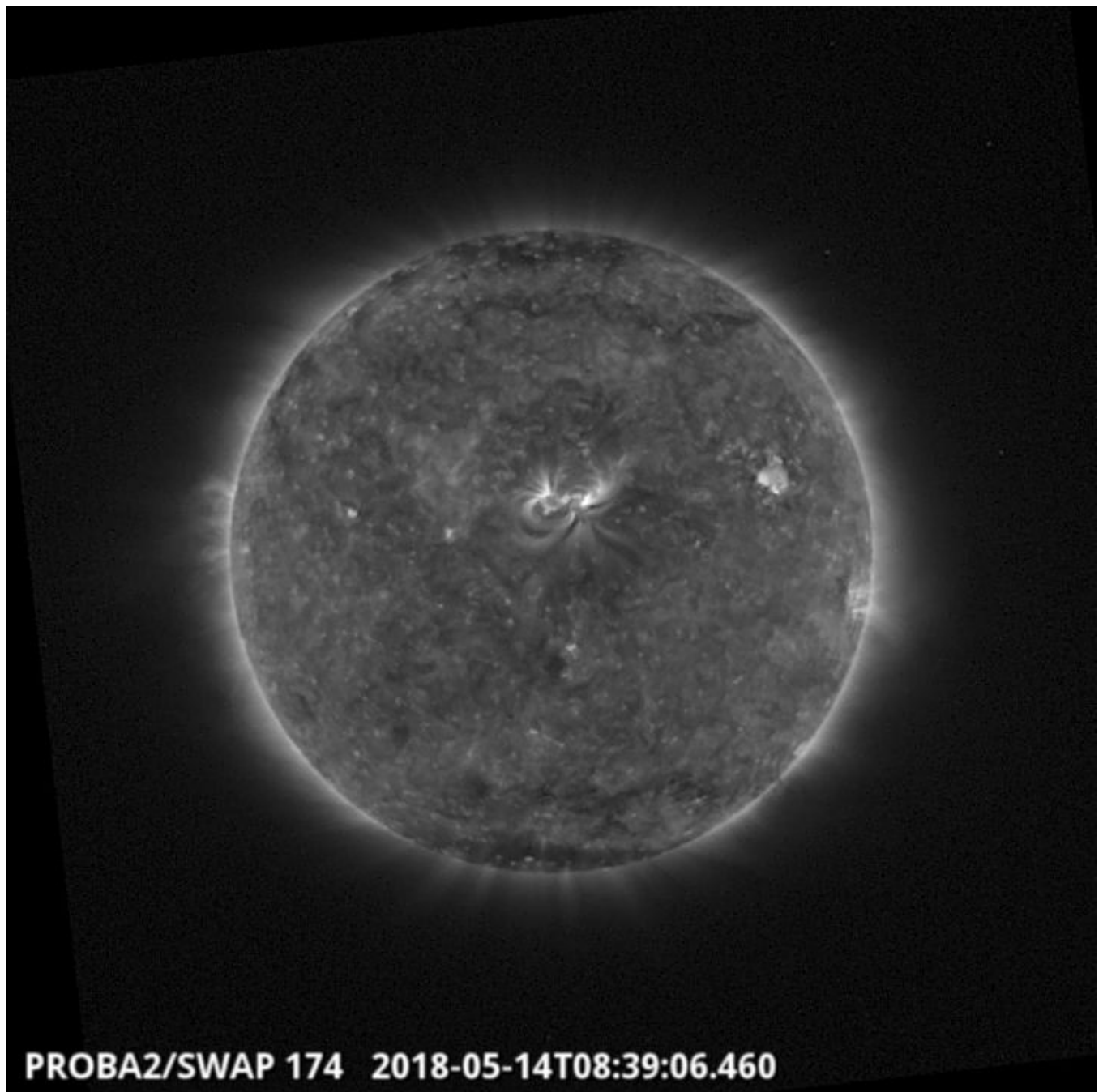
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 425).

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 14



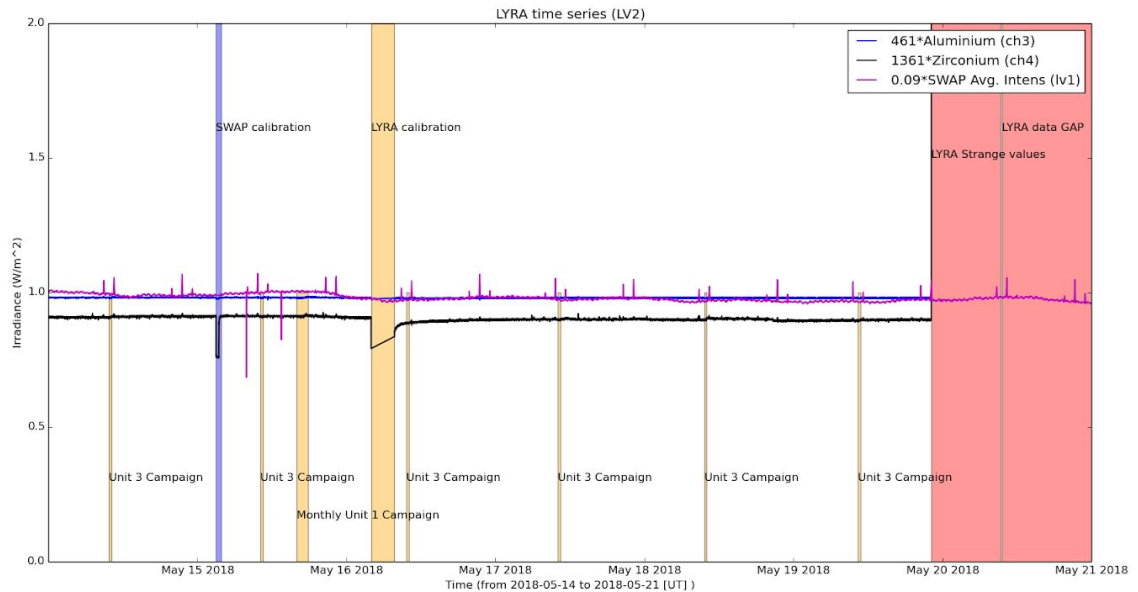
The Sun has been quiet in the past week, with one significant active region on the solar disk (NOAA AR 2709). The region can be seen in the SWAP image above (North-Central part of the Sun), this region didn't flare during the week.

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:

- SWAP calibration, 2018-05-15

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

- Daily unit 3 campaign, 2018-05-14
- Daily unit 3 campaign, 2018-05-15
- Monthly unit 1 campaign, 2018-05-15
- LYRA calibration, 2018-05-16
- Daily unit 3 campaign, 2018-05-16
- Daily unit 3 campaign, 2018-05-17
- Daily unit 3 campaign, 2018-05-18
- Daily unit 3 campaign, 2018-05-19

The red shaded periods related to other issues corresponds to:

- LYRA 'Strange values recorded' just after the pass of PROBA2 into SSA on 2018-05-19 at 22:14 until 2018-05-20 at 9:24
- LYRA data gap, no new LYRA data from 2018-05-20 at 9:33 until the end of the week.

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

- Palmerio, E used SWAP to work on Earth-impacting coronal mass ejections erupting from the solar limb, and will be visiting ROB from May 21 – Jun 1.

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 14 May	Tuesday 15 May	Wednesday 16 May	Thursday 17 May	Friday 18 May	Saturday 19 May	Sunday 20 May
Nominal acquisition + daily U3	Nominal acquisition + daily U3+ Monthly Unit 1 campaign	Nominal acquisition + daily U3 + calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00696	LYIOS00696	LYIOS00696	LYIOS00696	LYIOS00696	LYIOS00697	LYIOS00697

The following science campaigns were performed by LYRA:

- daily U3 observations campaigns
- Monthly unit 1 campaign, 2018-05-15

LYRA detector temperature

LYRA detector 2 temperature globally varied between 44.73 and 49.72 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 4585 to 4742.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 14 May	Tuesday 15 May	Wednesday 16 Mav	Thursday 17 May	Friday 18 May	Saturday 19 May	Sunday 20 May
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00772 679 images	IOS00772 687 images	IOS00772 697 images	IOS00772 662 images	IOS00772 671 images	IOS00772 662 images	IOS00772 620 images

Special operations for SWAP, this week:

- SWAP calibration, 2018-05-15

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.05 and 0.07 °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 27454 to 27517) was nominal, except for:

- 27514 until 27517 (Due to a buffer overflow in the LYRA Data Manager data structure.)

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 14 00:00 UT and 2018 May 21 00:00 UT: 4780

Highest cadence in this period: 30 seconds

Average cadence in this period: 126.51 seconds

Number of image gaps larger than 300 seconds: 123

Largest data gap: 12.83 minutes

Data coverage LYRA

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

- 27514 to 27517 (Due to a buffer overflow in the LYRA Data Manager data structure.)
- Passes 27508 to 27513 contain erroneous data (which commenced following the transit of the South Atlantic Anomaly)

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)