


P2SC-ROB-WR-449 - 20181029 Weekly report #449	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Oct 29 to Sun Nov 04, 2018 05 Nov 2018 Jennifer O'Hara Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

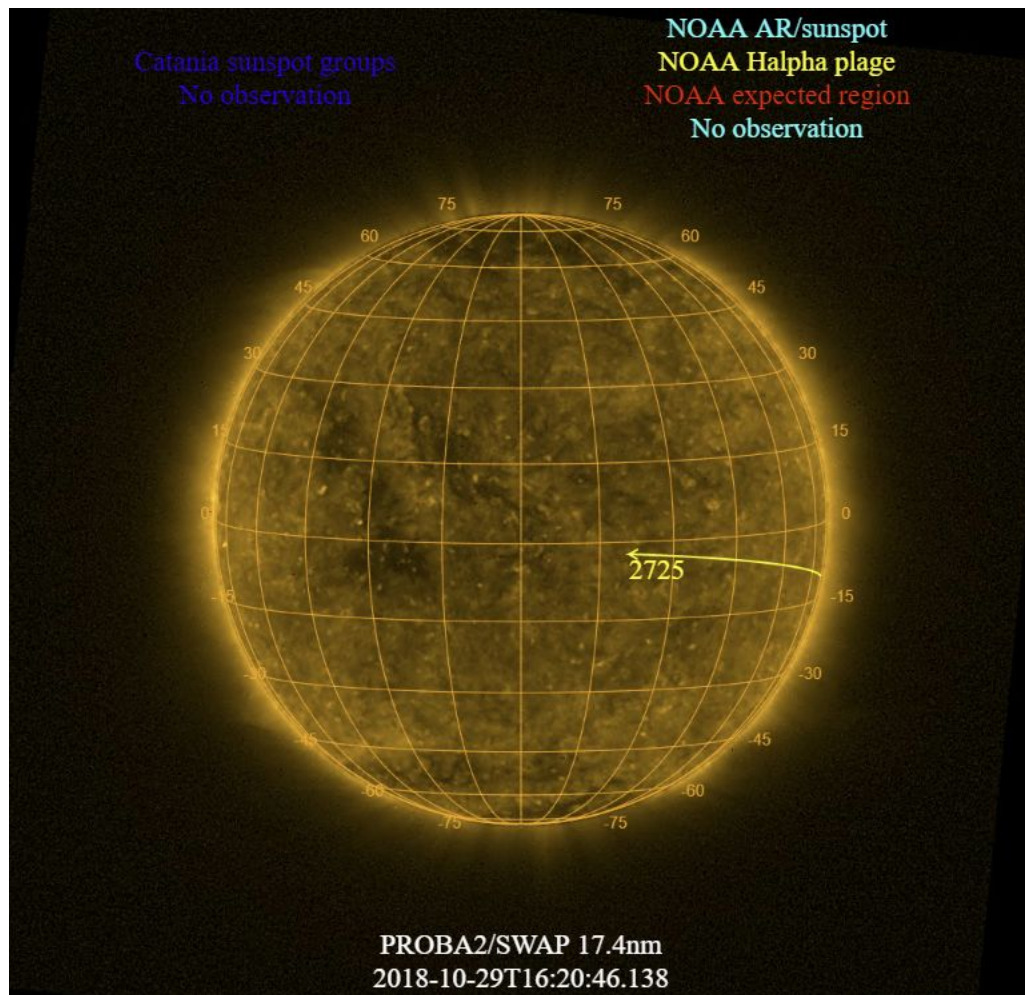
The level of solar activity¹ remained **very low** this week.

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

	Monday 29 Oct	Tuesday 30 Oct	Wednesday 31 Oct	Thursday 01 Nov	Friday 02 Nov	Saturday 03 Nov	Sunday 04 Nov
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.

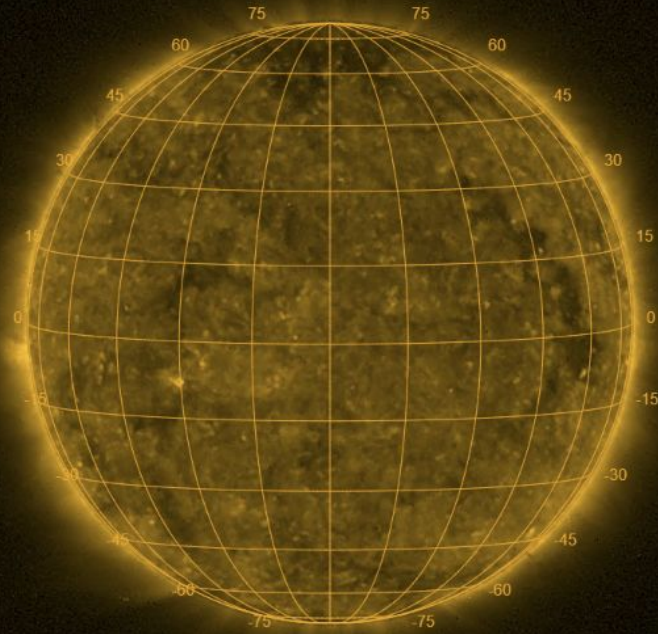
The SWAP images of Oct 29 and Nov 04 are shown below, with annotated active regions.



<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
2018-11-04T16:15:46.316

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>

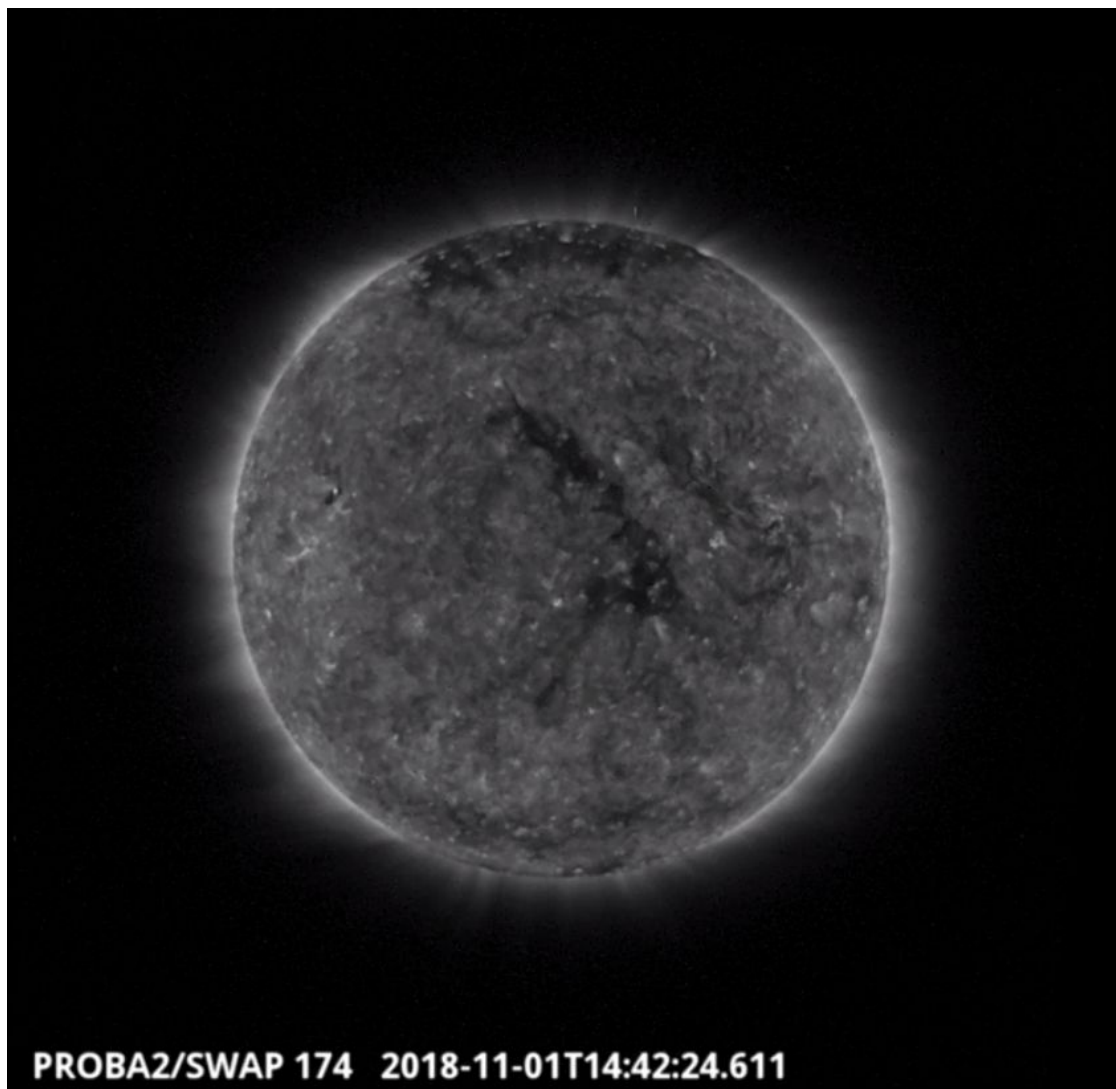
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 449).

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](#)

Thursday Nov 01



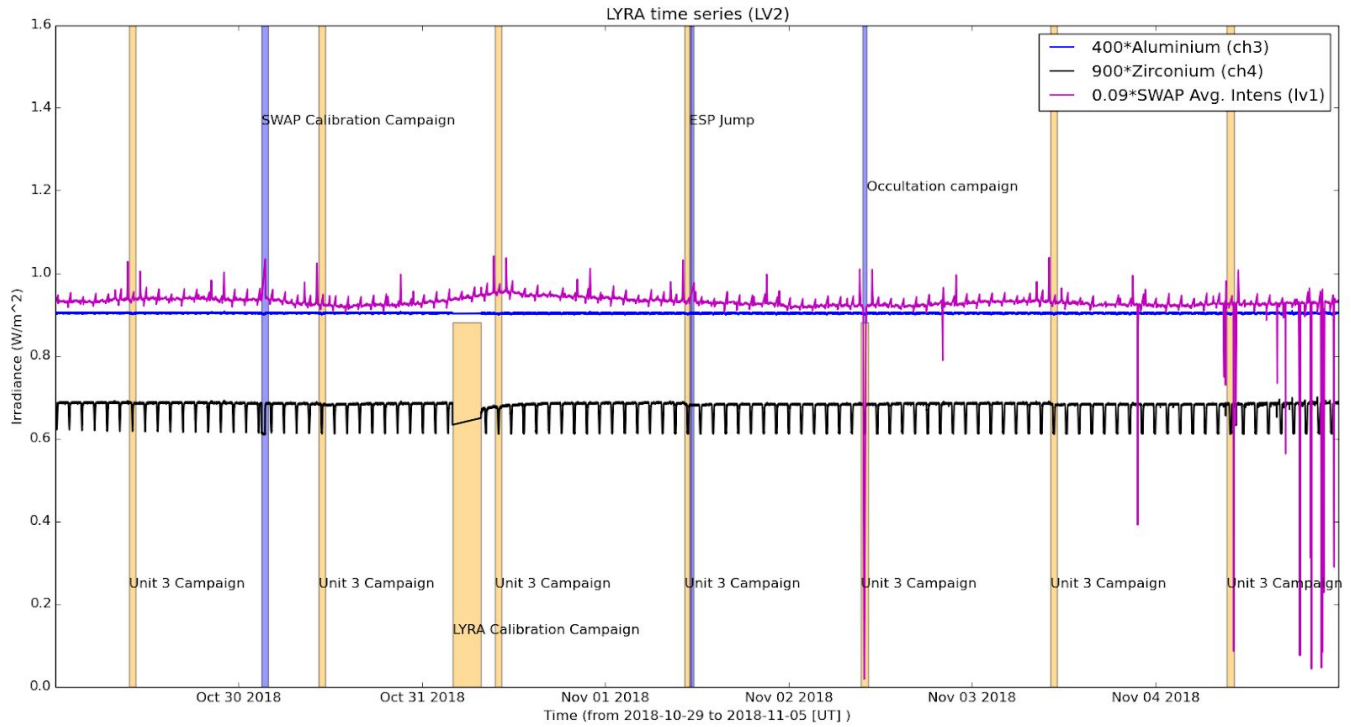
A small transient dimming was observed by SWAP on 2018-Nov-01, visible in the east of the solar disk in the SWAP image above taken at 14:42 UT.

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:

- Bi-weekly calibration, 2018-Oct-30
- ESP Jump, 2018-Nov-01
- Parallel occultation campaign with LYRA, 2018-Nov-02

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

- Daily Unit 3 Campaign, 2018-Oct-29
- Daily Unit 3 Campaign, 2018-Oct-30
- Bi-weekly calibration, 2018-Oct-31
- Daily Unit 3 Campaign, 2018-Oct-31
- Daily Unit 3 Campaign, 2018-Nov-01
- Daily Unit 3 Campaign, 2018-Nov-02
- Daily Unit 3 Campaign, 2018-Nov-03
- Daily Unit 3 Campaign, 2018-Nov-04

The red shaded periods related to other issues corresponds to:

- None

* Note: the low values observed in the SWAP average intensity on 2018-Nov-03 and 2018-Nov-04 are due to unplanned depointings caused by the blinding of the CAM2 of the star tracker.

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>).

PROBA2 data was featured in multiple oral and poster presentations at the 2018 SDO Science Workshop which took place in Gent between the 29th October and the 2nd November, including:

- “Joint observation of the X9.3 and X8.3 flares of September 6 and 10 2017 by SDO/EVE, PROBA2/LYRA and MAVEN/EUVM” presented by Marie Dominique.
- “Analyzing the kinematics of EUV waves by combining simulations and multi-instrument Observations” presented by Alexandros Koukras.
- “Exploring the Middle Corona with a New Generation of Instruments” prepared by Matthew West and Dan Seaton.
- “Exploring The Solar Poles From L1 Perspective” poster by Matthew West.
- “Tracking of predominant periodicities evolution for PROBA2/LYRA and other long-term solar time series” poster by Laurence Waters.
- “Exceptional Extended Field of View Observations by SWAP on 1 and 3 April 2017” poster by Jennifer O'Hara.
- “Long-term evolution of the solar corona using SWAP data” poster by Marilena Mierla.

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 29 Oct	Tuesday 30 Oct	Wednesday 31 Oct	Thursday 01 Nov	Friday 02 Nov	Saturday 03 Nov	Sunday 04 Nov
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
LYIOS00732	LYIOS00732	LYIOS00732	LYIOS00732	LYIOS00732	LYIOS00733	LYIOS00733

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

On 2018-Oct-31:

- Bi-weekly calibration campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 50.46 and 53.74 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 1440 to 1681.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 29 Oct	Tuesday 30 Oct	Wednesday 31 Oct	Thursday 01 Nov	Friday 02 Nov	Saturday 03 Nov	Sunday 04 Nov
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00794 764 images	IOS00794 776 images	IOS00795 IOS00796 IOS00797 IOS00798 761 images	IOS00798 640 images	IOS00798 756 images	IOS00799 608 images	IOS00798 583 images

Special operations for SWAP, this week:

On 2018-Oct-30:

- Bi-weekly calibration campaign

On 2018-Nov-01:

- ESP Jump

On 2018-Nov-02:

- Parallel occultation campaign with LYRA

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 2.07 and 3.59 °C.

4. PROBA2 Science Center Status

The main operator is Jennifer O'Hara.

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 29032 to 29098) 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 Oct 29 00:00 UT and 2018 Nov 05 00:00 UT: 4891

Highest cadence in this period: 18 seconds

Average cadence in this period: 123.65 seconds

Number of image gaps larger than 300 seconds: 123

Largest data gap: 32.67 minutes

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
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)