


P2SC-ROB-WR-409 - 20180122 Weekly report #409	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Jan 22 to Sun Jan 28, 2018 29 Jan 2018 Jennifer O'Hara Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

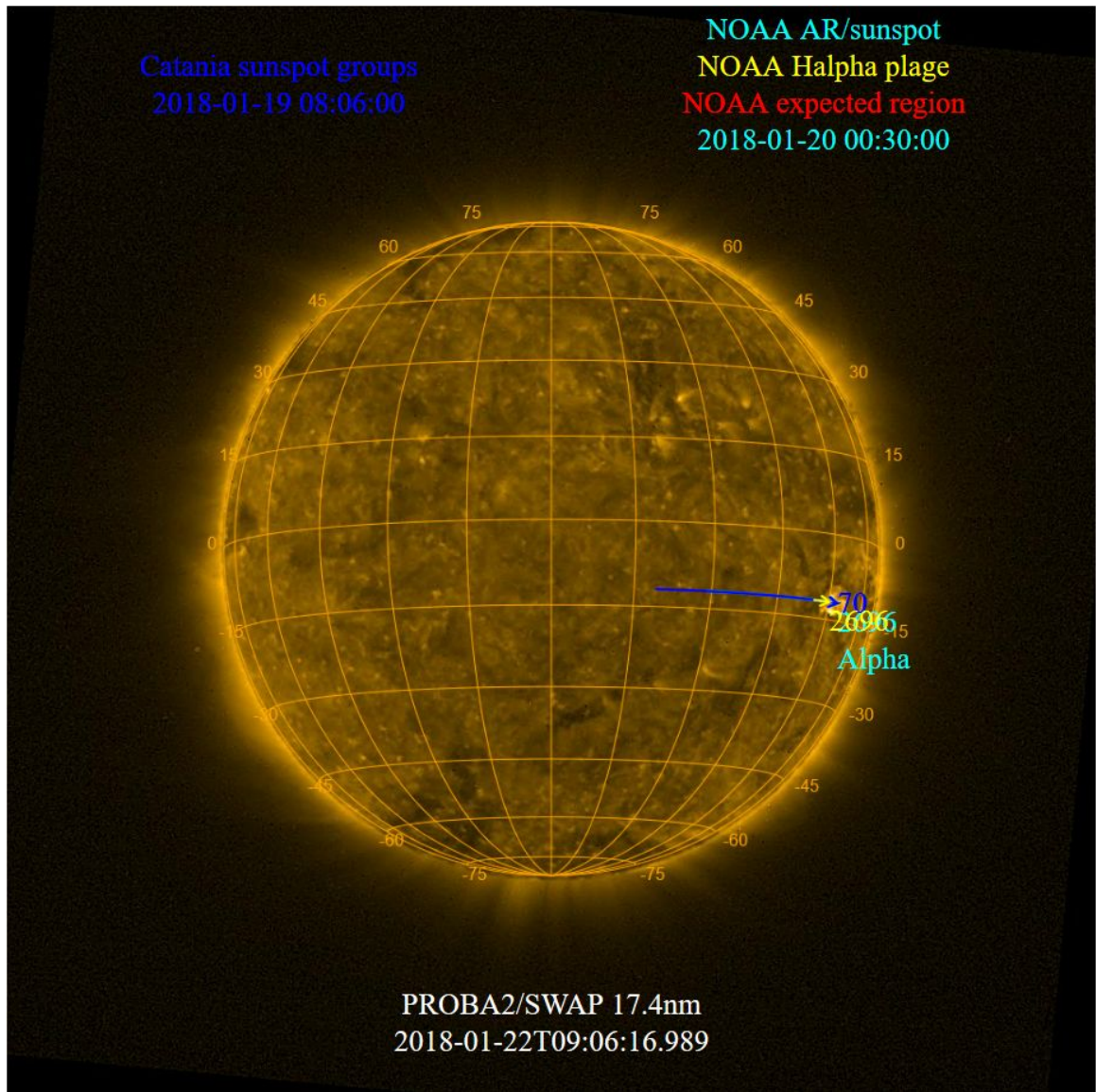
The level of solar activity¹ remained **very low** this week.

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

	Monday 22 Jan	Tuesday 23 Jan	Wednesday 24 Jan	Thursday 25 Jan	Friday 26 Jan	Saturday 27 Jan	Sunday 28 Jan
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.

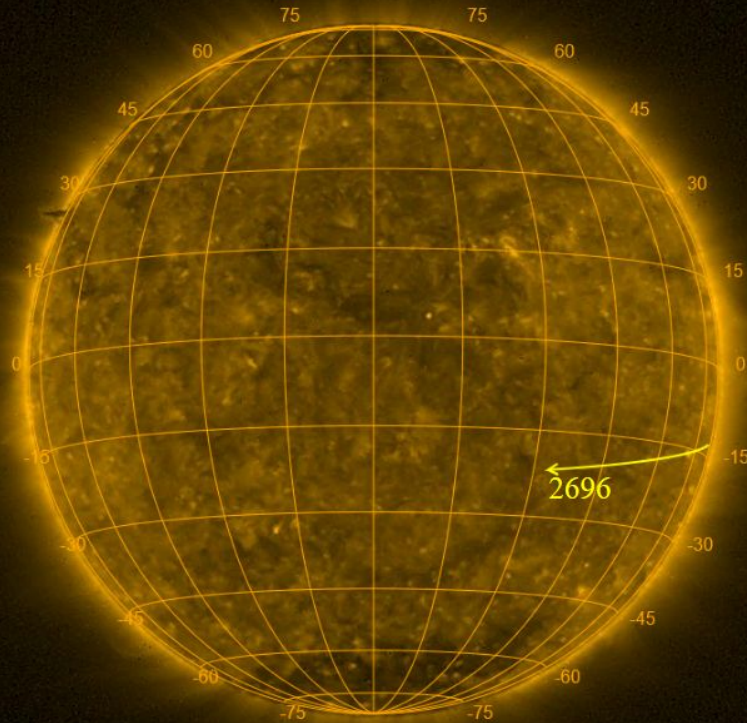
The SWAP images of Jan 22 and Jan 28 are shown below, with annotated active regions.



<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
2018-01-28T14:02:36.185

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>

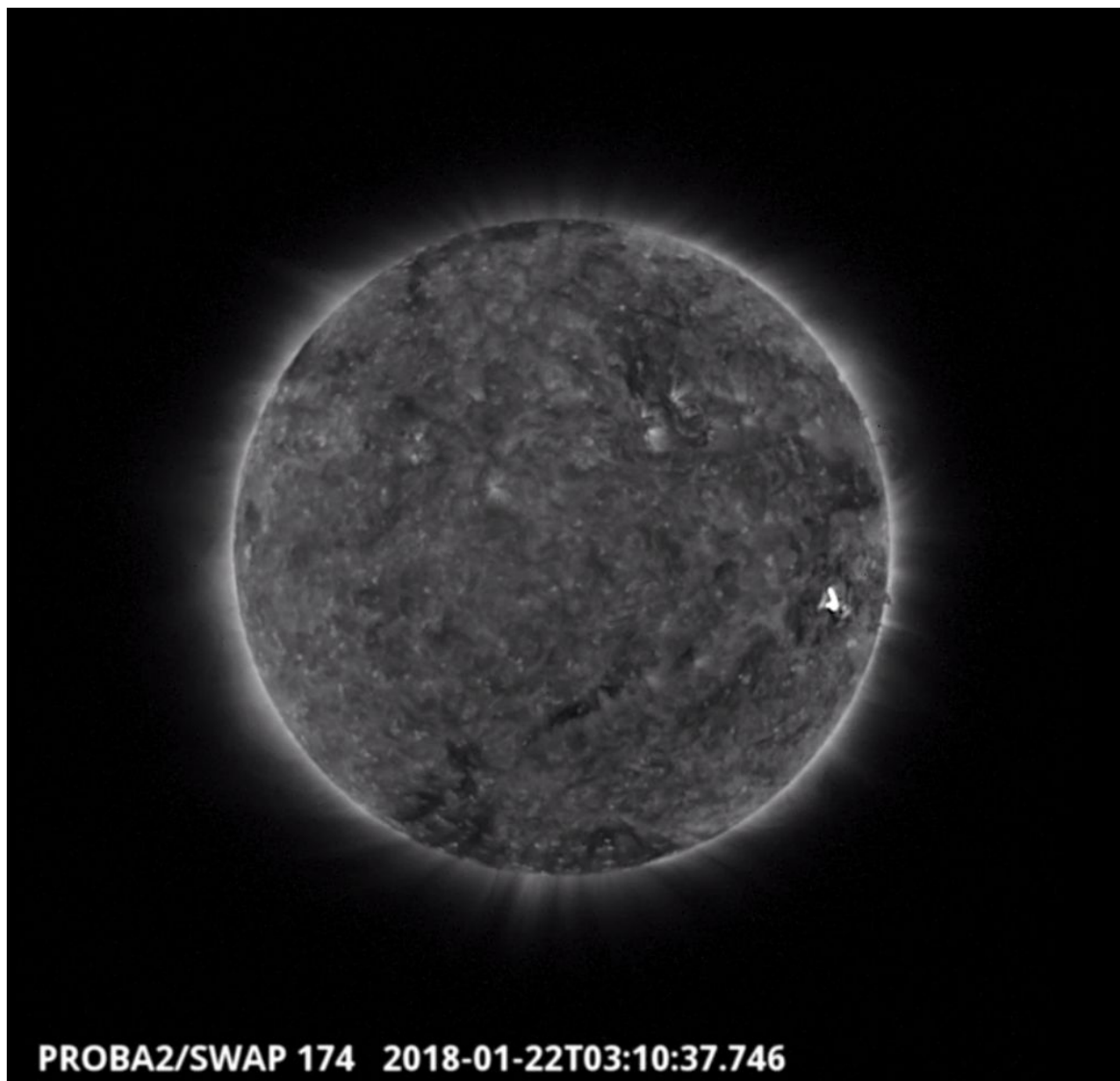
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 409).

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 Jan 22



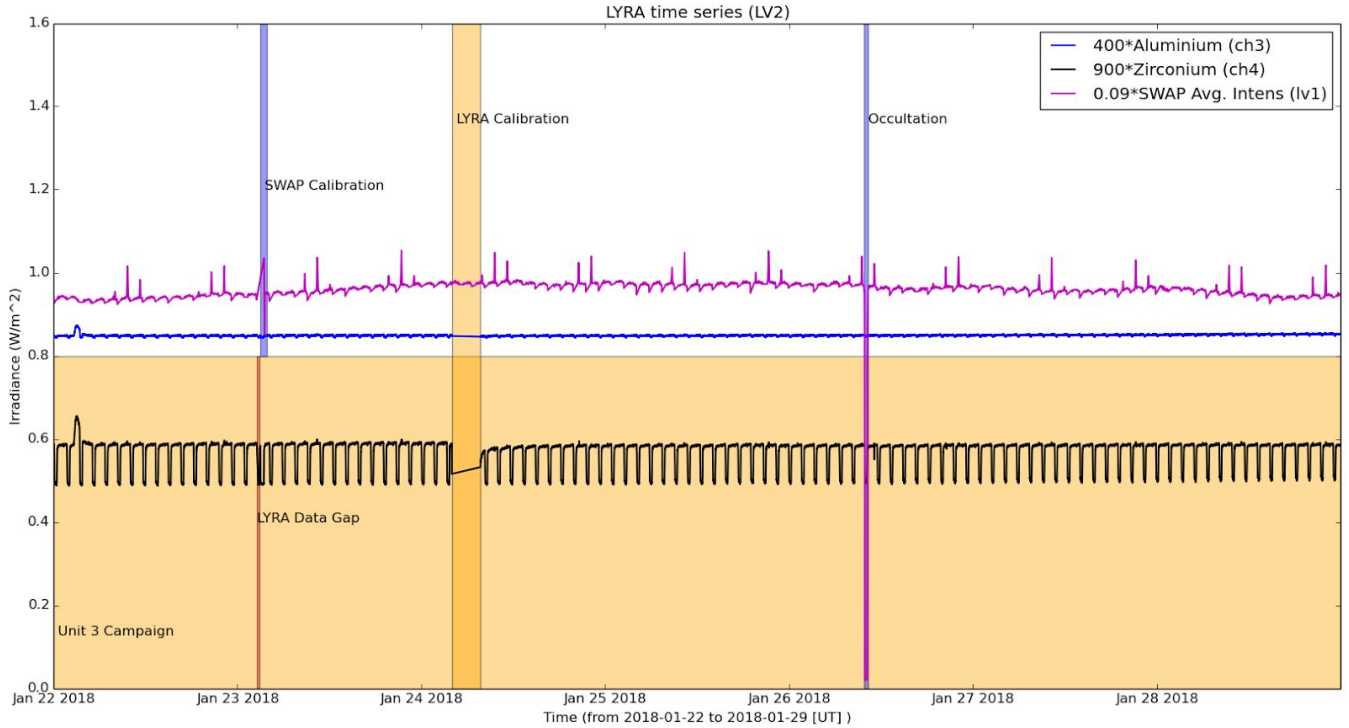
A CME with a B-class (B9.5) flare, associated with NOAA AR 2696, was observed by SWAP on 2018-Jan-22. The flare is visible towards the east of the solar disk in the SWAP image above at 03:10 UT.

For a full visualisation of the event see the movie of the day [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-Jan-23
- Parallel occultation campaign with LYRA, 2018-Jan-26

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

- Continuous Unit 3 campaign, from 2018-Jan-22 to 2018-Jan-28
- Bi-weekly calibration, 2018-Jan-24

The red shaded periods related to other issues corresponds to:

- LYRA data gap between 2018-Jan-23 02:33:37 and 2018-Jan-23 02:44:29 due to missing BINLYRA_26415_RED3 file, as the signal was bad during the the dump of the Lyra store.

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

- Alexandros Koukras continued his visit to the P2SC working on his project entitled “A unique opportunity of observing and modeling a CME event from the low to the outer corona”.
- Ritesh Patel completed his first visit to the P2SC between the 17-25th January working on the project entitled “Automated detection of Coronal Mass Ejections (CMEs) in SWAP images”.

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 22 Jan	Tuesday 23 Jan	Wednesday 24 Jan	Thursday 25 Jan	Friday 26 Jan	Saturday 27 Jan	Sunday 28 Jan
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
LYIOS00671	LYIOS00671	LYIOS00671	LYIOS00671	LYIOS00672	LYIOS00672	LYIOS00672

The following science campaigns were performed by LYRA:

- Continuous Unit 3 observation campaign

On 2018-Jan-24

- Short bi-weekly calibration

LYRA detector temperature

LYRA detector 2 temperature globally varied between 45.21 and 51.90 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 672 to 819.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 22 Jan	Tuesday 23 Jan	Wednesday 24 Jan	Thursday 25 Jan	Friday 26 Jan	Saturday 27 Jan	Sunday 28 Jan
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition + occultation	Nominal acquisition	Nominal acquisition
IOS00754 592 images	IOS00754 693 images	IOS00756 633 images	IOS00756 775 images	IOS00756 765 images	IOS00756 529 images	IOS00757 739 images

Special operations for SWAP, this week:

On 2018-Jan-23

- Bi-weekly calibration

On 2018-Jan-26

- Occultation campaign

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -2.01 and 1.59 °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 26404 to 26468) 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 Jan 22 00:00 UT and 2018 Jan 29 00:00 UT: 4764

Highest cadence in this period: 0 seconds

Average cadence in this period: 126.96 seconds

Number of image gaps larger than 300 seconds: 147

Largest data gap: 31.37 minutes

Data coverage LYRA

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

- BINLYRA_26415_RED3, as the signal was bad during the the dump of the Lyra store. Store 6 was dumped in pass 26420.

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)