


P2SC-ROB-WR-413 - 20180219 Weekly report #413	<b>P2SC Weekly report</b>	
Period covered: Date:  Written by: Approved by:	Mon Feb 19 to Sun Feb 25, 2018 26 Feb 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	<a href="http://proba2.sidc.be">http://proba2.sidc.be</a> ++ 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 activity<sup>1</sup> remained **very low** this week.

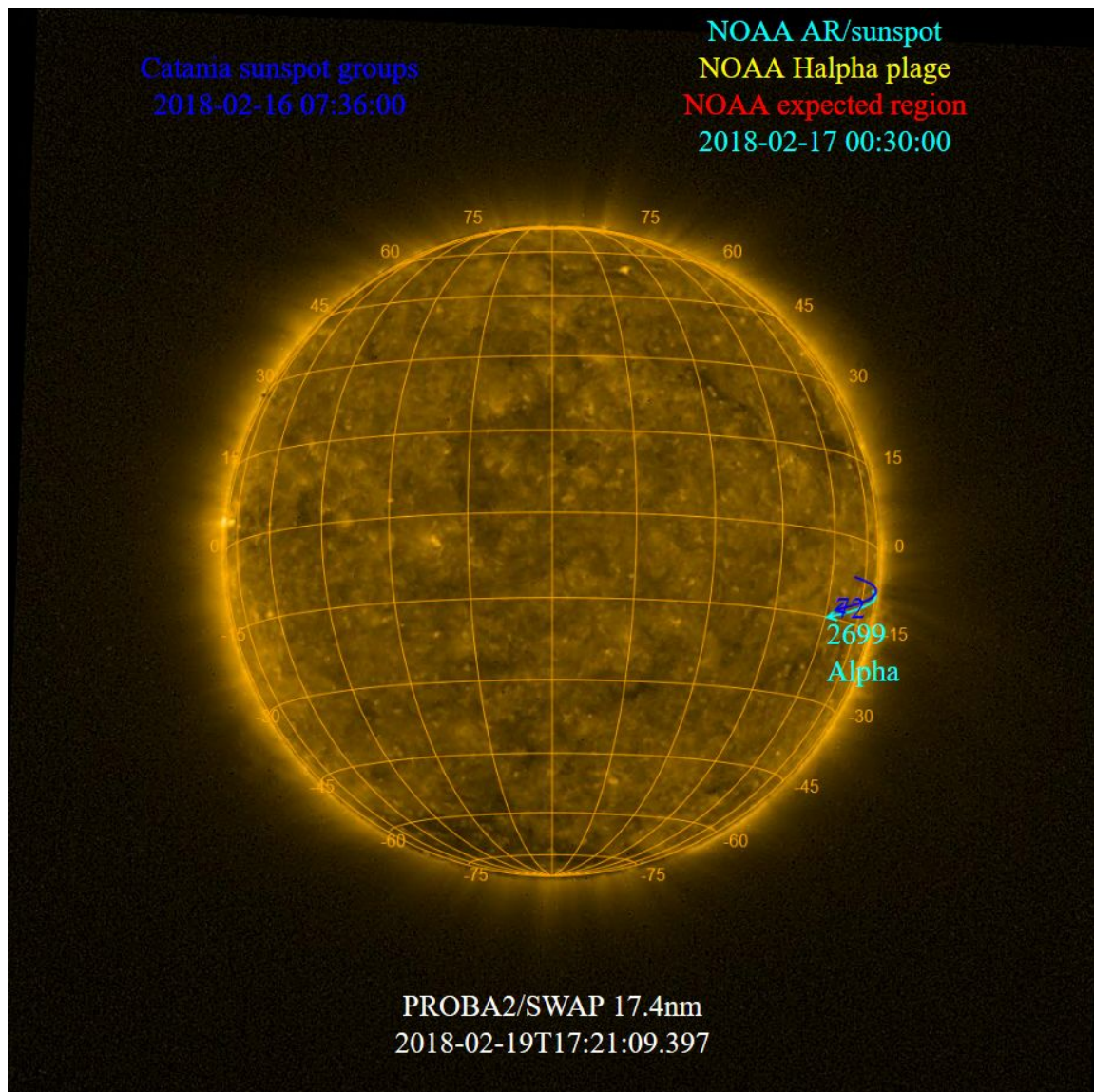
Only M- and X-flares are mentioned, the most energetic one(s) per day are presented in **bold**:

	Monday 19 Feb	Tuesday 20 Feb	Wednesday 21 Feb	Thursday 22 Feb	Friday 23 Feb	Saturday 24 Feb	Sunday 25 Feb
Activity	very low	very low	very low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

---

<sup>1</sup> See appendix. All timings are given in UT.

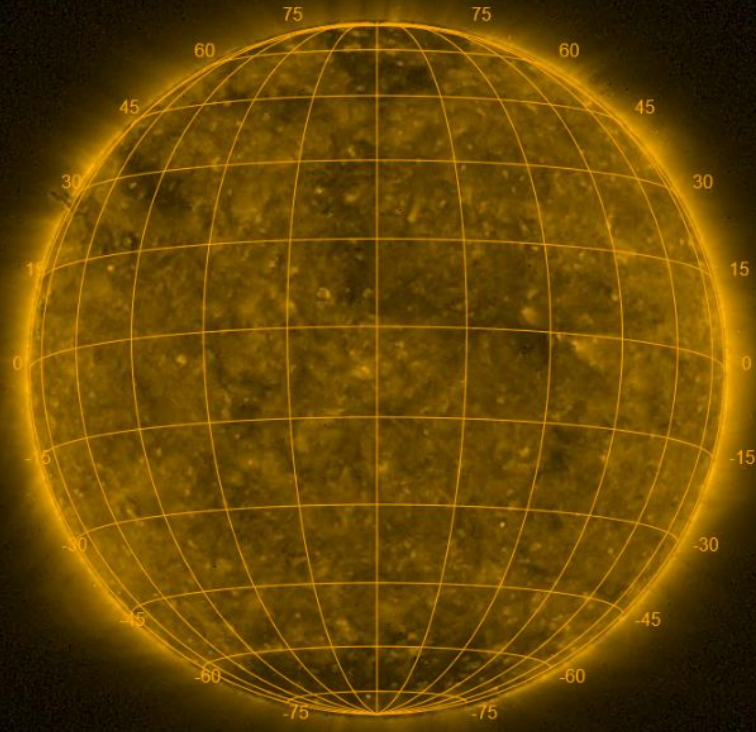
The SWAP images of Feb 19 and Feb 25 are shown below, with annotated active regions.



<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  
2018-02-25T09:03:23.177

## **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>

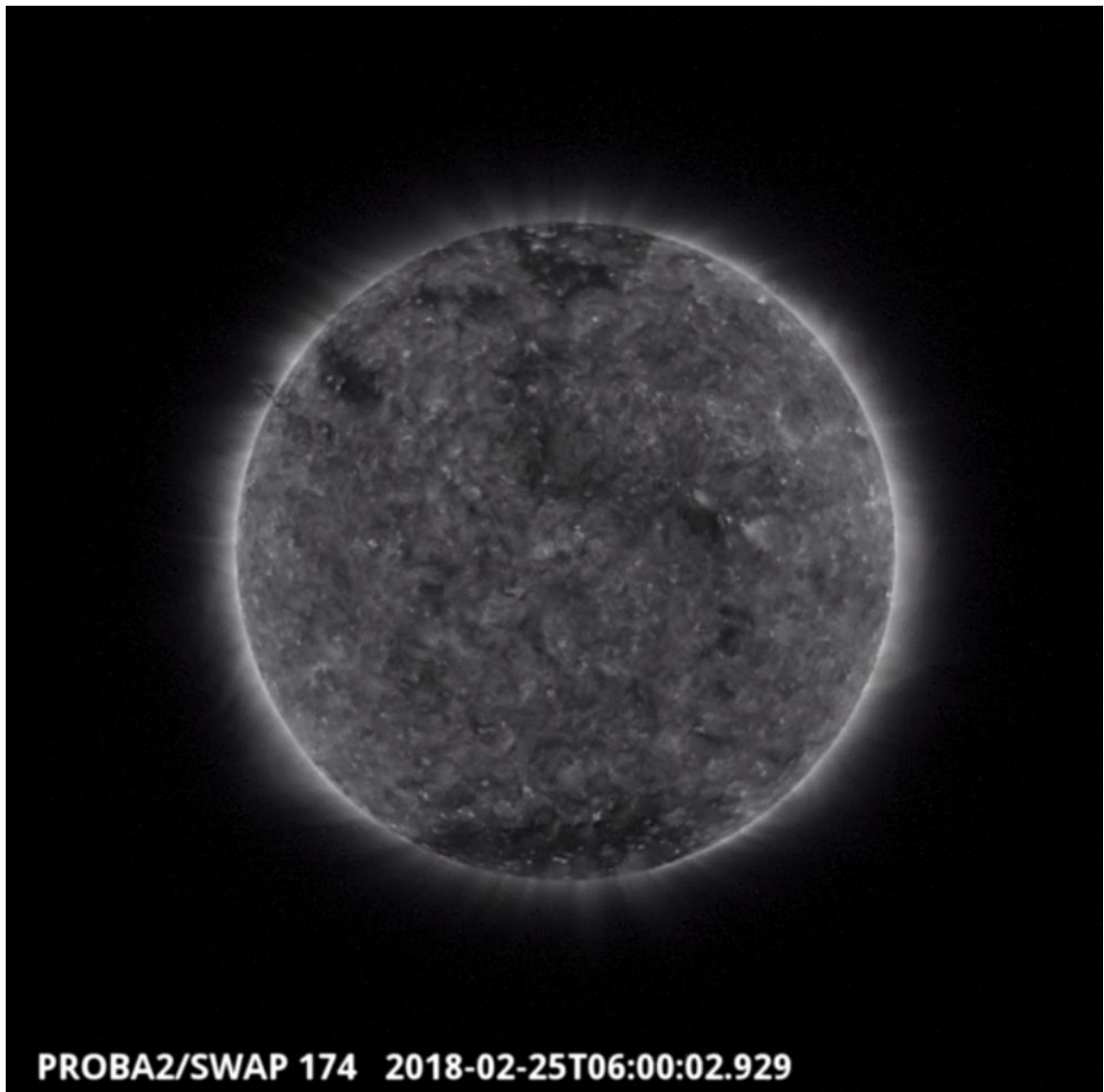
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 413).

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 Feb 25



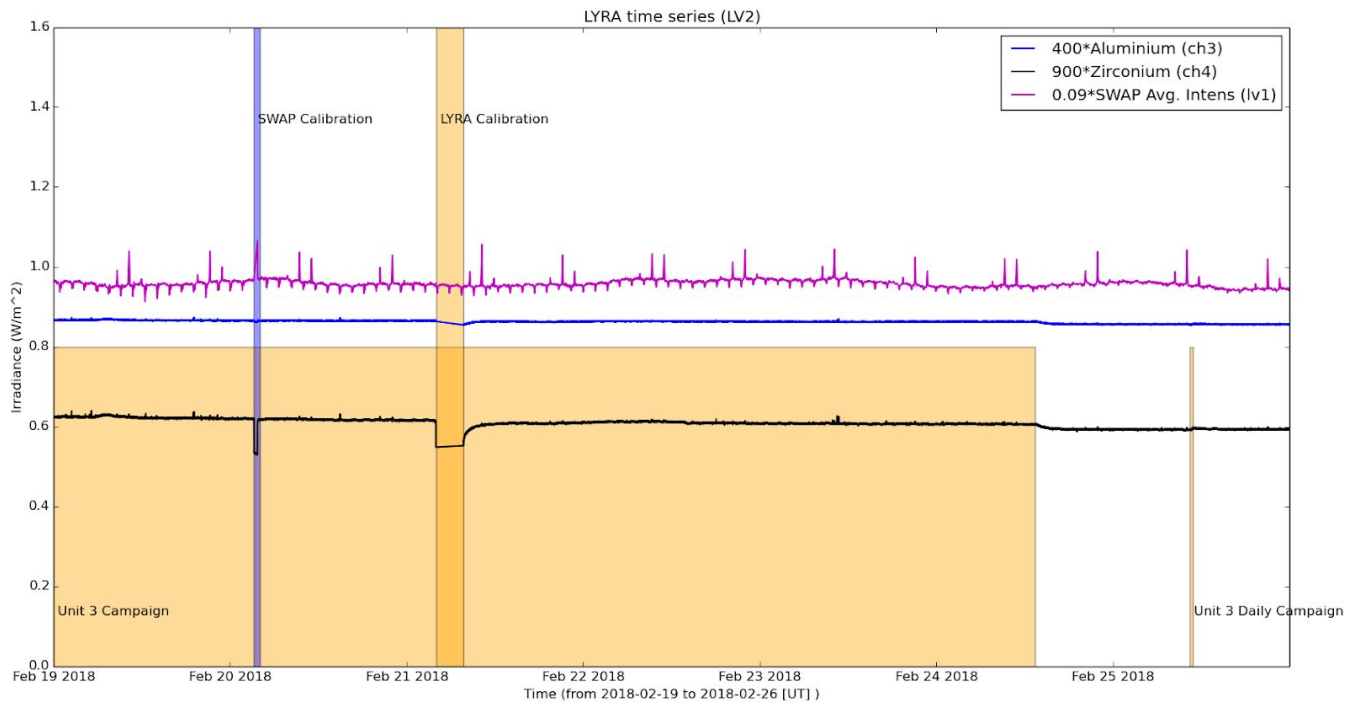
**A prominence was observed by SWAP on 2018-Feb-25, this is visible on the north east limb of the sun in the SWAP image above at 06:00 UT.**

Find a movie of the feature evolving [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-Feb-20

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

- Continuous Unit 3 campaign, from 2018-Feb-19 to 2018-Feb-24
- Bi-weekly calibration, 2018-Feb-21
- Daily Unit 3 campaign, 2018-Feb-25

The red shaded periods related to other issues corresponds to:

- None

## **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**

- Mariana Cécere and Valeria Sieyra (Ph.D. student) from the Instituto de Astronomía Teórica y Experimental, CONICET-UNC, Córdoba, Argentina continued their visit at the P2SC, working on the project: “A Systematic Study of CME Deflections”.
- 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”.

## 2. LYRA instrument status

### Calibration

Calibration campaign on Wednesday this week.

### IOS & operations

Monday 19 Feb	Tuesday 20 Feb	Wednesday 21 Feb	Thursday 22 Feb	Friday 23 Feb	Saturday 24 Feb	Sunday 25 Feb
Nominal acquisition + U3	Nominal acquisition + U3	Nominal acquisition + U3 + calibration	Nominal acquisition + U3	Nominal acquisition + U3	Nominal acquisition + U3	Nominal acquisition + daily U3
LYIOS00676	LYIOS00676	LYIOS00676	LYIOS00676	LYIOS00676	LYIOS00676	LYIOS00677

The following science campaigns were performed by LYRA:

- Continual U3 observations campaign for occultation season until 2018-Feb-24

On 2018-Feb-25

- Daily U3 campaign outside of occultation season

### LYRA detector temperature

LYRA detector 2 temperature globally varied between 51.17 and 55.10 °C.



### 3. SWAP instrument status

#### Calibration

Calibration campaign on Tuesday this week.

#### MCPM errors

The number of MCPM recoverable errors increased from 1951 to 2193.

The number of MCPM unrecoverable errors remained at 0.

#### IOS & operations

Monday 19 Feb	Tuesday 20 Feb	Wednesday 21 Feb	Thursday 22 Feb	Friday 23 Feb	Saturday 24 Feb	Sunday 25 Feb
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00763 536 images	IOS00763 691 images	IOS00764 614 images	IOS00764 659 images	IOS00764 591 images	IOS00764 617 images	IOS00764 597 images

Special operations for SWAP, this week:

On 2018-Feb-20:

- Bi-weekly calibration campaign

#### SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 1.83 and 3.51 °C.

## 4. PROBA2 Science Center Status

The main operator is Laurence Wauters.

The following changes were made to the P2SC:

- LYCLOGENG tool was developed and added to the pipeline.
- LMAT-UI was updated and the interface now includes LYCLOGENG.

## **5. Data reception & discussions with MOC**

### **Passes**

The delivery of the passes for this week (passes 26669 to 26732) 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 Feb 19 00:00 UT and 2018 Feb 26 00:00 UT: 4437

Highest cadence in this period: 30 seconds

Average cadence in this period: 136.31 seconds

Number of image gaps larger than 300 seconds: 171

Largest data gap: 10.27 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)