


P2SC-ROB-WR-464 - 20190211	<b>P2SC Weekly report</b>	
Period covered: Date:  Written by: Approved by:	Mon Feb 11 to Sun Feb 17, 2019 20 Feb 2019  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 activity<sup>1</sup> was **very low** this week.

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

	Monday 11 Feb	Tuesday 12 Feb	Wednesday 13 Feb	Thursday 14 Feb	Friday 15 Feb	Saturday 16 Feb	Sunday 17 Feb
Activity	very low	very low	very low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

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

## **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>

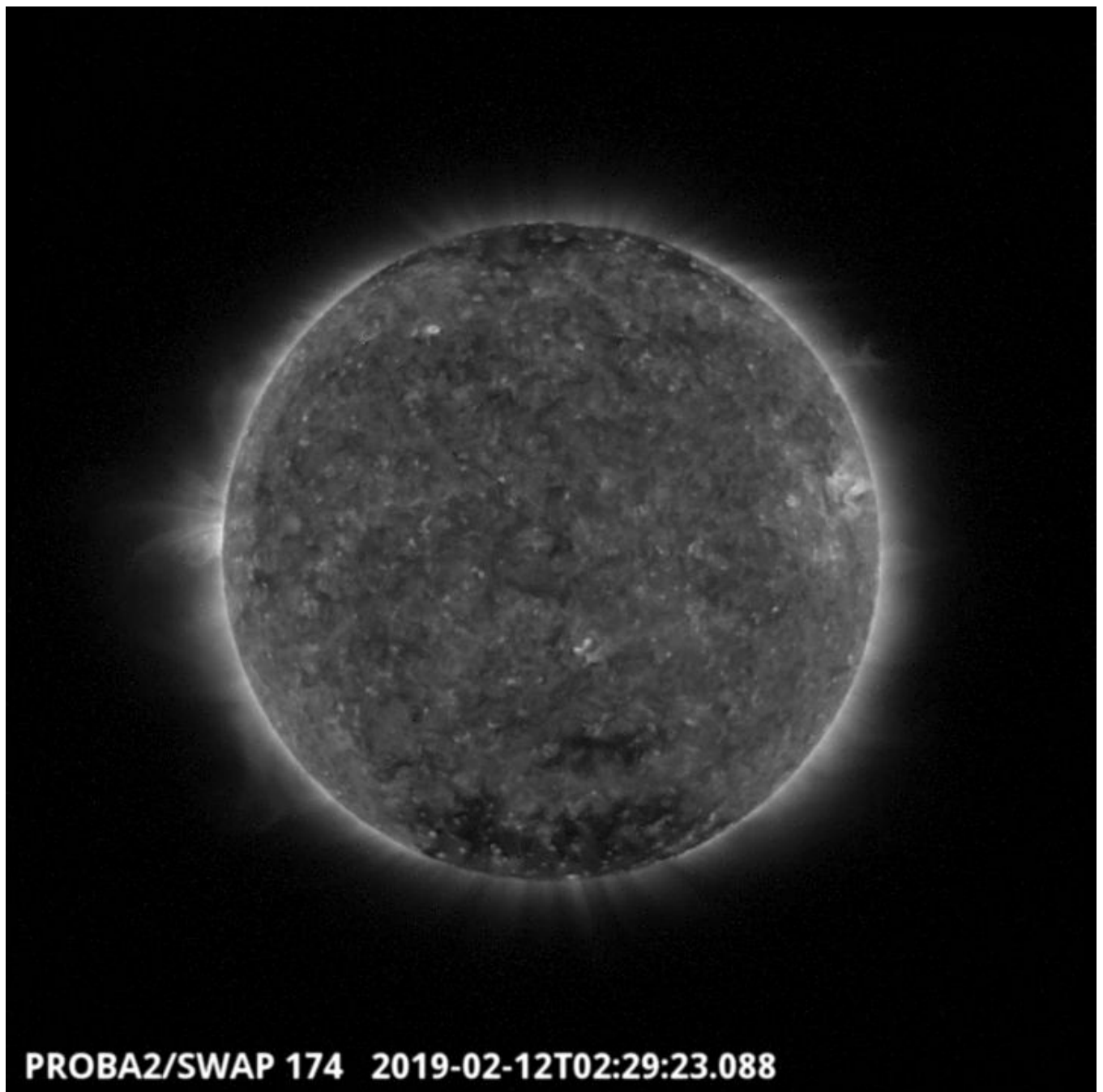
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 464).

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](#)

Tuesday Feb 12



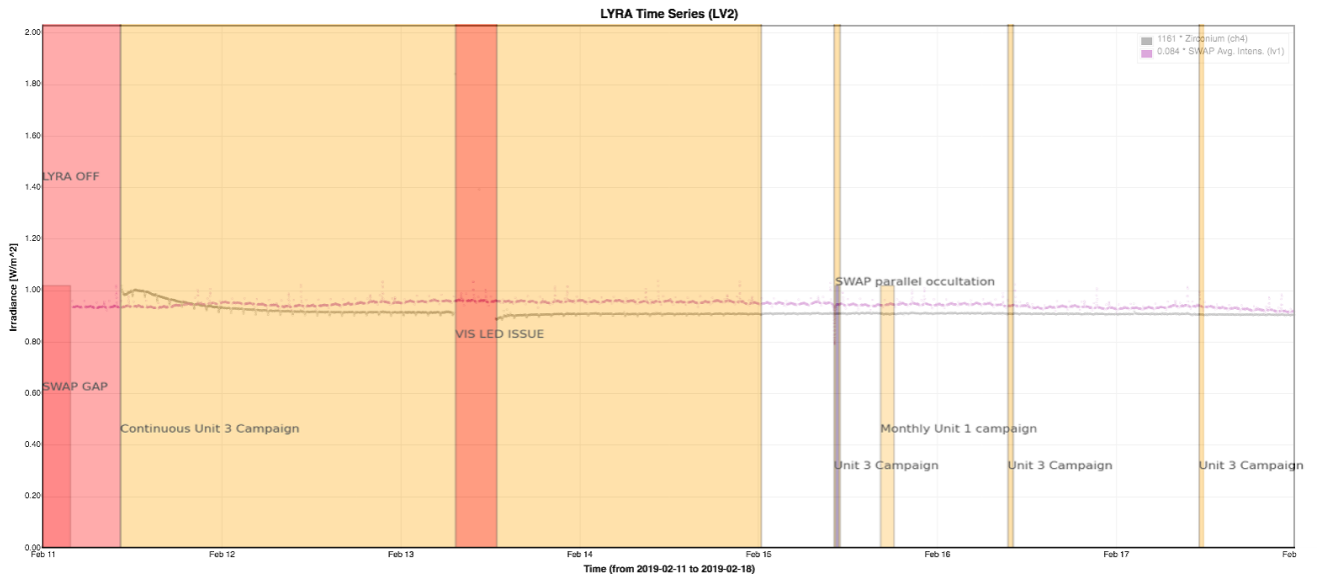
**A small high latitude southern coronal hole transited the solar disk last week, it is visible in the SWAP image above when it crossed the central meridian on 2019-Feb-12.**

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 )



### Operations and Calibrations:

#### SWAP:

- Occultation jumps, from 2019-Feb-11 to 2019-Feb-17

The blue shaded periods related to SWAP, correspond to, from left to right:

- SWAP parallel occultation with LYRA, 2018-Feb-15

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

- Continuous U3 campaign until end of 2019-Feb-14
- Daily U3 campaigns since 2019-Feb-15
- Monthly Unit 1 campaign, 2019-Feb-15

The red shaded periods related to other issues corresponds to:

- LYRA OFF, data gap from 2019-Feb-11 00:00 UT to 2019-Feb-11 10:25 UT
- LYRA VIS LED switch to 1 for the period 2019-Feb-13 since 7:08 UT to 12:41 UT (ASIC RELOAD request but the issue was solved by itself).
- No SWAP and HK data for passes 30016, 30017 (The BBE unit 5 was crashed during all these SVA supports). SWAP data gap from 2019-Feb-11 00:00 UT to 2019-Feb-11 03:45 UT.

## 2. LYRA instrument status

### IOS

Start IOS	Mon Feb 11 2019	LYIOS00752
End IOS	Sun Feb 18 2019	LYIOS00754

### LYRA detector temperature

LYRA detector 2 temperature globally varied between 45.21 and 55.96 °C.

### 3. SWAP instrument status

#### MCPM errors

The number of MCPM recoverable errors increased from 1275 to 1487.

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The number of MCPM unrecoverable errors remained at 0.

#### IOS

Start IOS	Mon Feb 11 2019	IOS00832
End IOS	Sun Feb 18 2019	IOS00834

#### SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 1.67 and 3.59°C.

#### **4. PROBA2 Science Center Status**

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 30016 to 30080) was nominal, except for:

- 30016,30017 (The BBE unit 5 was crashed during all these SVA supports.)

### Data coverage HK

All HK data files (LYRA\_AD) have been received, except:

- 30016,30017 (The BBE unit 5 was crashed during all these SVA supports.)

### Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received, except:

- 30016,30017 (The BBE unit 5 was crashed during all these SVA supports.)

Total number of images between 2019 Feb 11 00:00 UT and 2019 Feb 18 00:00 UT: 4985

Highest cadence in this period: 29 seconds

Average cadence in this period: 118.53 seconds

Number of image gaps larger than 300 seconds: 112

Largest data gap: 18.82 minutes

### Data coverage LYRA

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

- BINLYRA not received for passes 30016 to 30020 due to LYRA being in OFF mode.



## 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)