


P2SC-ROB-WR-463 - 20190204	<b>P2SC Weekly report</b>	
Period covered: Date:  Written by: Approved by:	Mon Feb 04 to Sun Feb 10, 2019 11 Feb 2019  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 activity<sup>1</sup> remained **very low** his week.

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

	Monday 04 Feb	Tuesday 05 Feb	Wednesday 06 Feb	Thursday 07 Feb	Friday 08 Feb	Saturday 09 Feb	Sunday 10 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 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>

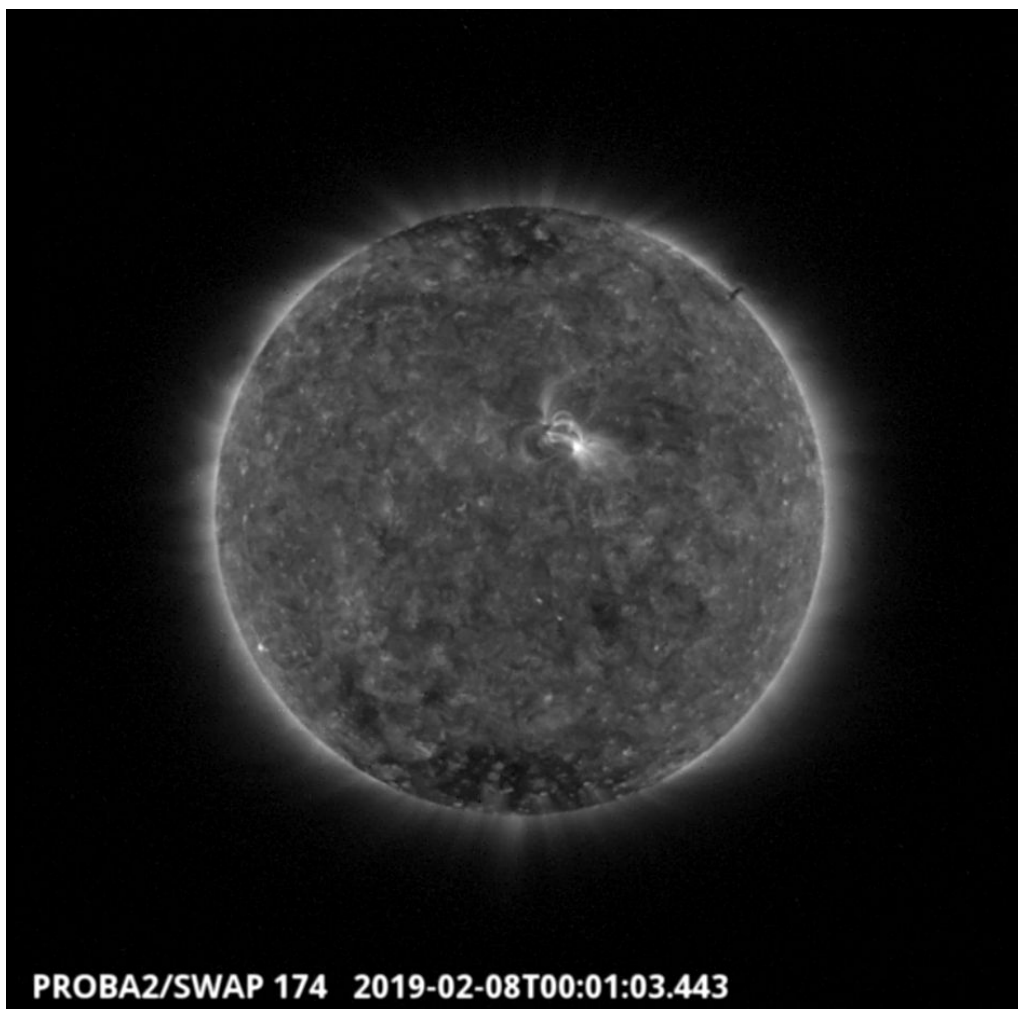
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 463).

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](#)

Friday Feb 08



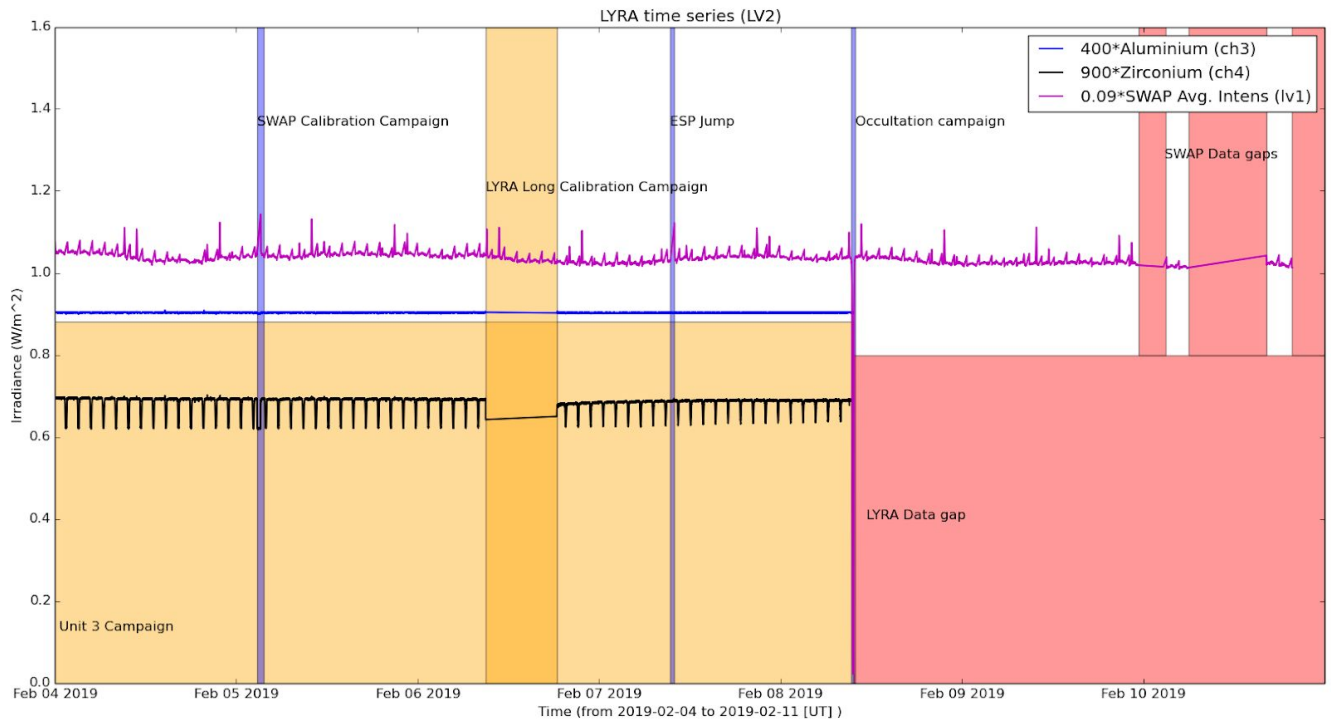
**A small filament was observed by SWAP for several days. In the image above it can be seen near the north-west limb on 2019-Feb-08 at 01:03 UT.**

Find a movie of the feature's evolution [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-04 to 2019-Feb-10

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

- Bi-weekly calibration campaign, 2019-Feb-05
- ESP jump, 2019-Feb-07
- Parallel occultation campaign with LYRA, 2019-Feb-08

LYRA:

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

- Continuous Unit 3 campaign, from 2019-Feb-04 to 2019-Feb-08
- Bi-weekly long calibration campaign, 2019-Feb-06

Other Issues:

The red shaded periods correspond to:

- LYRA OFF, data gap from 2019-Feb-08 09:40 UT to 2019-Feb-10 10:33 UT
- No SWAP and HK data for passes 30007, 30010, 30011, 30012, 30015 (The BBE unit 5 was crashed during all these SVA supports.), resulting in multiple SWAP data gaps:
  - 2019-Feb-09 23:23 to 2019-Feb-10 02:40 UT
  - 2019-Feb-10 06:00 to 2019-Feb-10 16:18 UT
  - 2019-Feb-10 19:42 to 2019-Feb-11 00:00 UT

## 2. LYRA instrument status

### IOS

Start IOS	Mon Feb 04 2019	LYIOS00751
End IOS	Sun Feb 10 2019	LYIOS00752

### LYRA detector temperature

LYRA detector 2 temperature globally varied between 51.46 and 55.93 °C.

### 3. SWAP instrument status

#### MCPM errors

The number of MCPM recoverable errors increased from 1110 to 1263.

The number of MCPM unrecoverable errors remained at 0.

#### IOS

Start IOS	Mon Feb 04 2019	IOS00830
End IOS	Sun Feb 10 2019	IOS00832

#### SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 1.67 and 4.07 °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 29950 to 30015) was nominal, except for:

- Passes 30007,30010,30011,30012,30015 (The BBE unit 5 was crashed during all these SVA supports.)

### Data coverage HK

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

- Passes 30007,30010,30011,30012,30015 (The BBE unit 5 was crashed during all these SVA supports.)

### Data coverage SWAP

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

- BINSWAP\_29989\_RED3\_2019.02.08T04.58.05.tar was corrupted due to problematic pass.
- Passes 30007,30010,30011,30012,30015 (The BBE unit 5 was crashed during all these SVA supports.)

Total number of images between 2019 Feb 04 00:00 UT and 2019 Feb 11 00:00 UT: 4420

Highest cadence in this period: 30 seconds

Average cadence in this period: 133.34 seconds

Number of image gaps larger than 300 seconds: 106

Largest data gap: 381.45 minutes

### Data coverage LYRA

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

- BINLYRA not received for passes 29993 to 30015 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)