


P2SC-ROB-WR-467 - 20190304	<b>P2SC Weekly report</b>	
Period covered: Date:  Written by: Approved by:	Mon Mar 04 to Sun Mar 10, 2019 11 Mar 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> fluctuated between **very low and low** this week.

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

	Monday 04 Mar	Tuesday 05 Mar	Wednesday 06 Mar	Thursday 07 Mar	Friday 08 Mar	Saturday 09 Mar	Sunday 10 Mar
Activity	very low	very low	very low	very low	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 fluctuated between very low and 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>

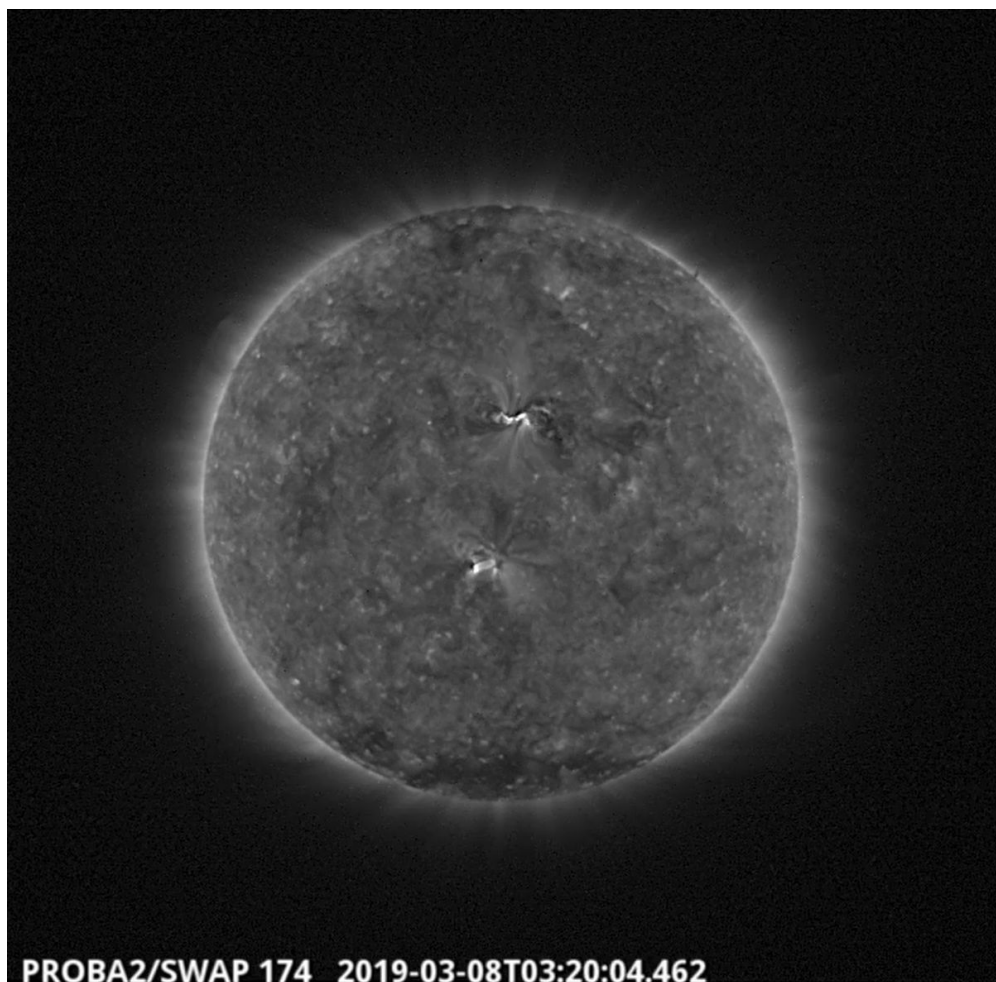
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 467).

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](#)

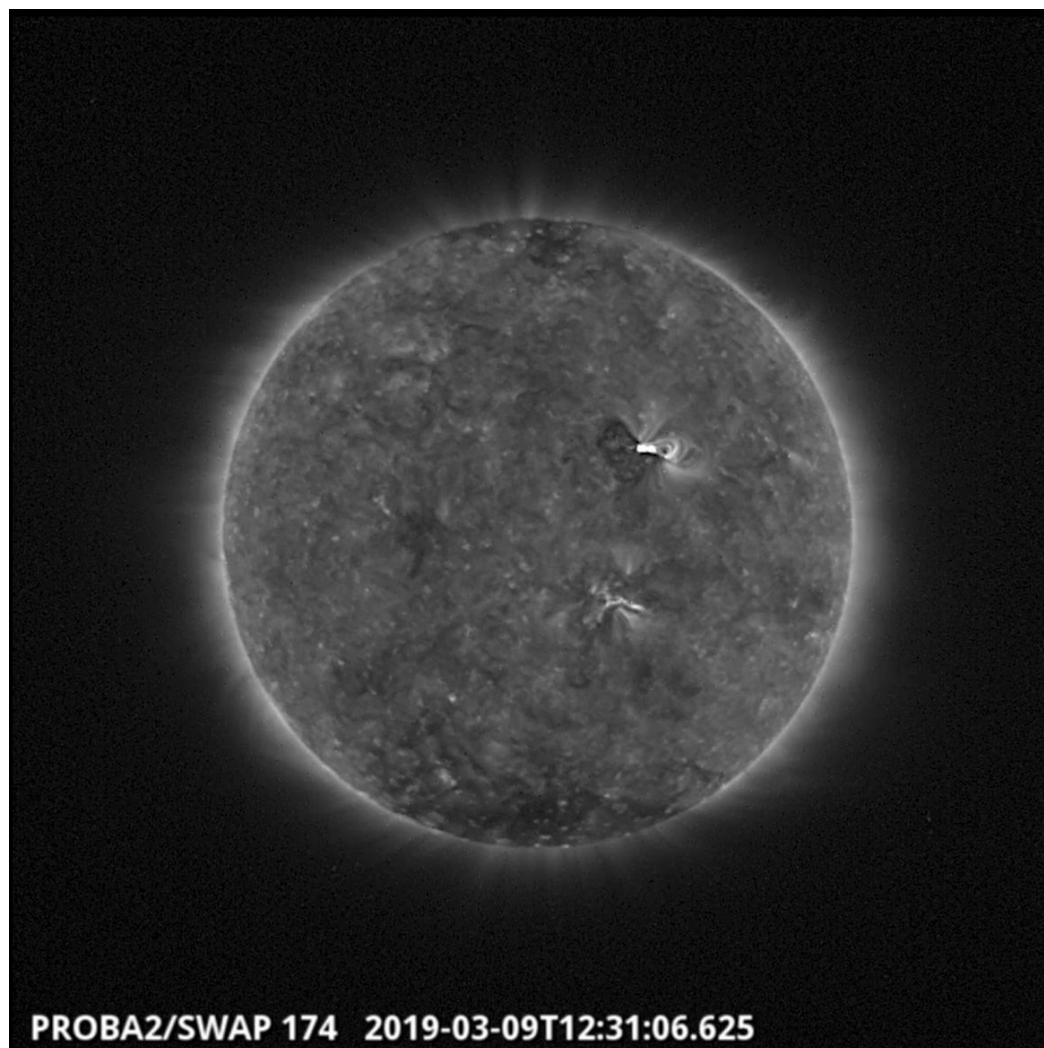
Friday Mar 08



**SWAP and LYRA observed a long duration C-class (C1.3) flare and associated EUV wave on 2019-Mar-08. The flare is visible in the SWAP image above at 3:20 UT, located in the northern hemisphere near the central meridian.**

Find a movie of the event [here](#) (SWAP movie) and [here](#) (SWAP difference movie)

Saturday Mar 09



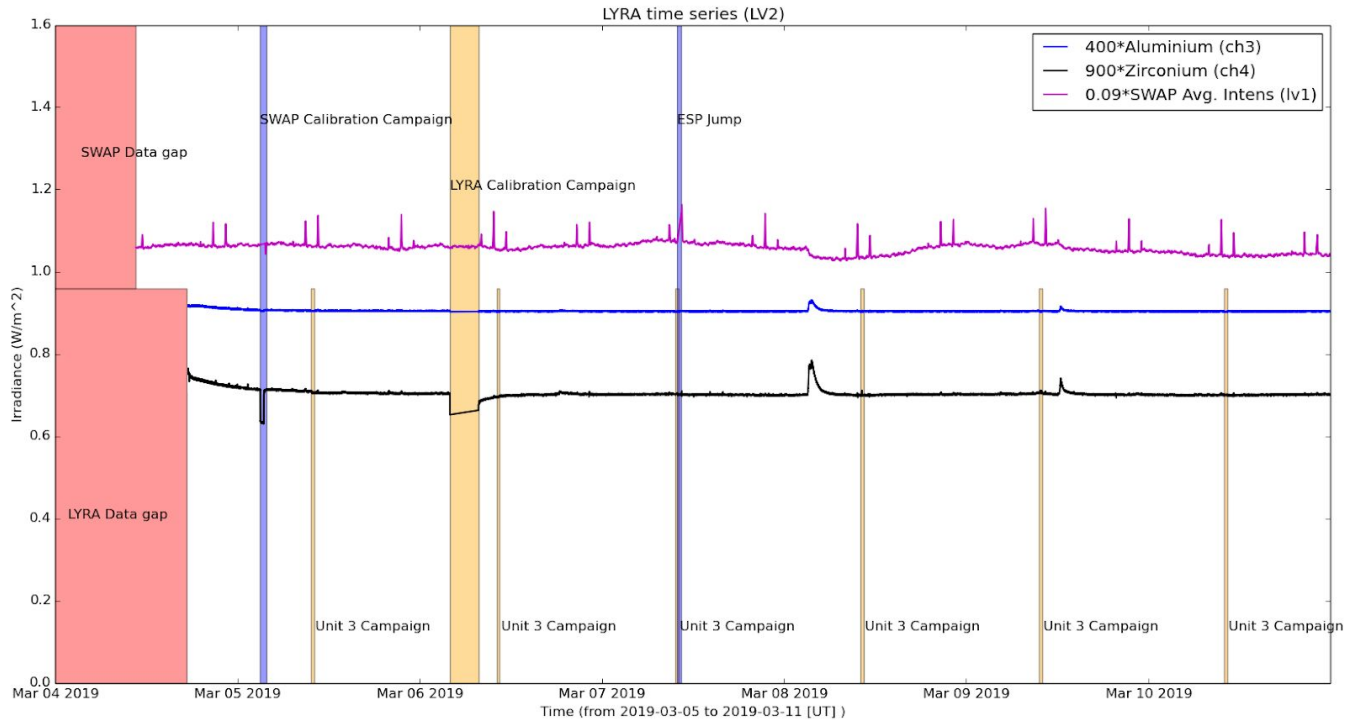
**SWAP and LYRA also observed a B-class flare and second EUV wave associated with NOAA AR 2734 on 2019-Mar-09. The flare is visible in the SWAP image above at 12:31 UT.**

Find a movie of the event [here](#) (SWAP movie) and [here](#) (SWAP difference 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:

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

- Bi-weekly calibration campaign, 2019-Mar-05
- ESP jump, 2019-Mar-07

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

- Daily Unit 3 campaign, 2019-Mar-05
- Daily Unit 3 campaign, 2019-Mar-06
- Bi-weekly calibration campaign, 2019-Mar-06
- Daily Unit 3 campaign, 2019-Mar-07
- Daily Unit 3 campaign, 2019-Mar-08
- Daily Unit 3 campaign, 2019-Mar-09
- Daily Unit 3 campaign, 2019-Mar-10

The red shaded periods related to other issues corresponds to:

- On 2019-Mar-03, 12:58:52 UT PROBA-2 was in safe mode (Bdot) with the reset register indicating a reboot.
  - SWAP data gap until it was restarted at 10:26 UT, 2019-Mar-04
  - LYRA data gap until it was restarted at 17:15 UT, 2019-Mar-04

## 2. LYRA instrument status

### IOS

Start IOS	Mon Mar 04 2019	LYIOS00758
End IOS	Sun Mar 10 2019	LYIOS00761

### LYRA detector temperature

LYRA detector 2 temperature globally varied between 42.38 and 52.05 °C.

### 3. SWAP instrument status

#### MCPM errors

The number of MCPM recoverable errors increased from 0 to 320.

The number of MCPM unrecoverable errors remained at 0.

#### IOS

Start IOS	Mon Mar 04 2019	IOS00835
End IOS	Sun Mar 10 2019	IOS00838

#### SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -5.29 and 1.83 °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 30211 to 30275) was nominal, except for:

- 30211, 30212, 30213, 30214, 30215, 30216, 30217 due to satellite in Bdot mode

### 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:

- 30211, 30212, 30213, 30214, 30215 due to satellite in Bdot mode

Total number of images between 2019 Mar 04 00:00 UT and 2019 Mar 11 00:00 UT: 4577

Highest cadence in this period: 0 seconds

Average cadence in this period: 123.79 seconds

Number of image gaps larger than 300 seconds: 100

Largest data gap: 33.67 minutes

### Data coverage LYRA

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

- 30211, 30212, 30213, 30214, 30215, 30216, 30217 due to satellite in Bdot 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)