P2SC-ROB-WR-344-20161024 Weekly report #344	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Oct 24 to Sun Oct 30, 2016 04 Nov 2016 Laurence Wauters Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

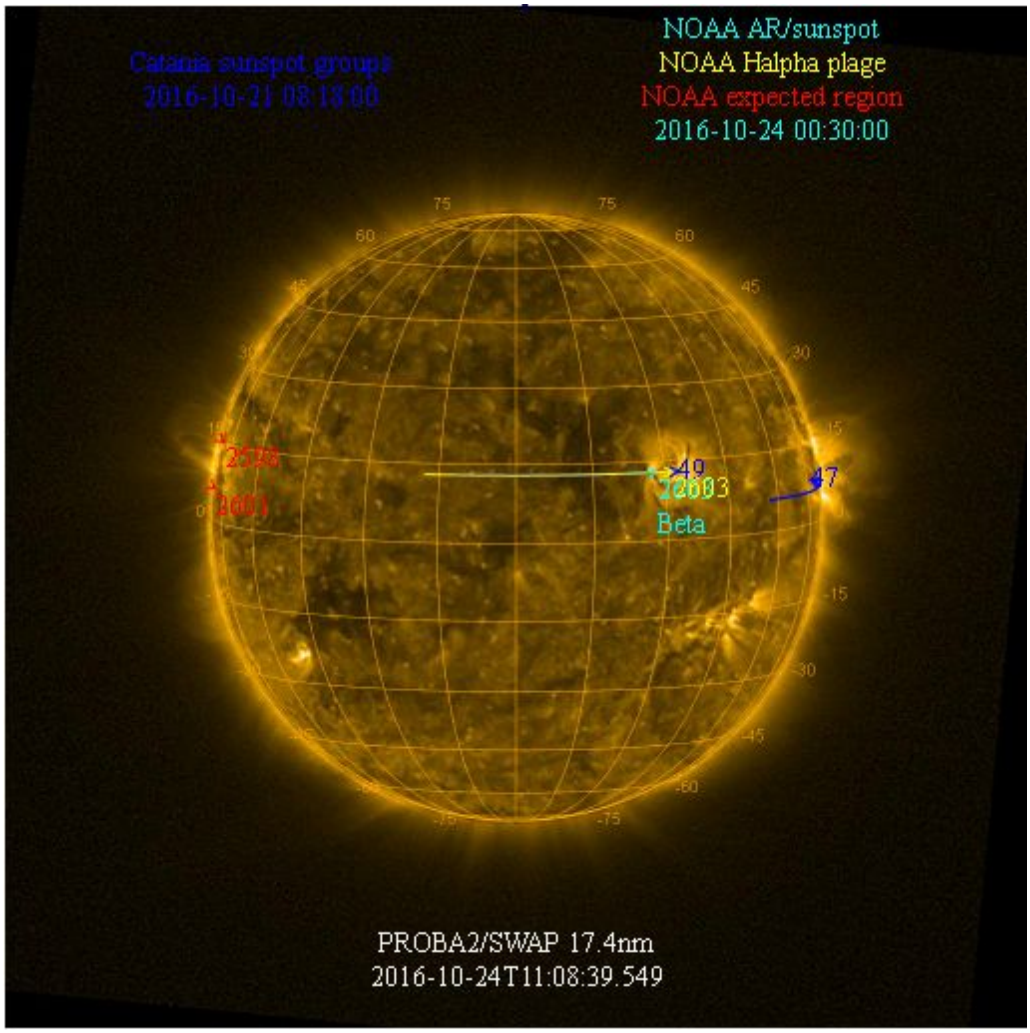
The level of solar activity[1] was **very low** this week.

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

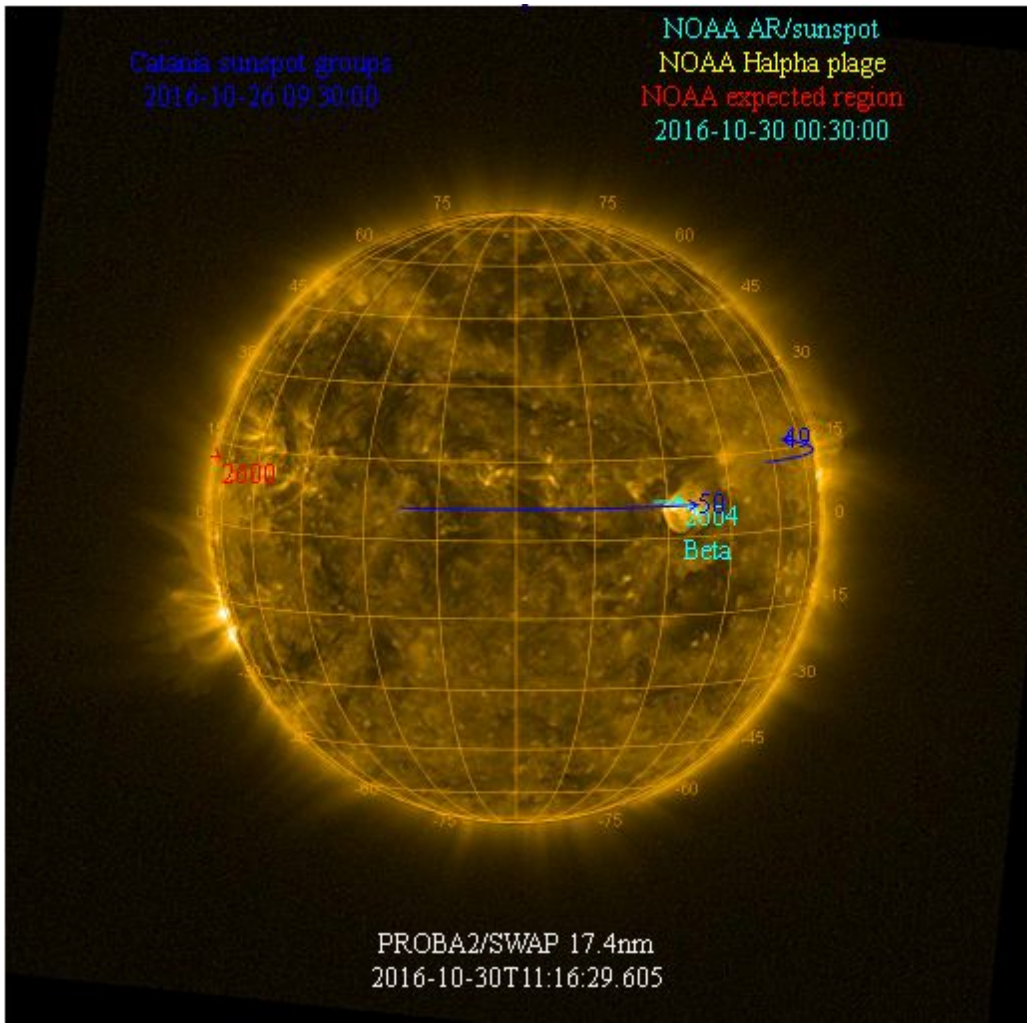
	Monday 24 Oct	Tuesday 25 Oct	Wednesday 26 Oct	Thursday 27 Oct	Friday 28 Oct	Saturday 29 Oct	Sunday 30 Oct
Activity	very low	very low	very low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

[1] See appendix. All timings are given in UT.

The SWAP images of Oct 24 and Oct 30 are shown below, with annotated active regions.



http://sidc.be/soteria/soteria.php


Catania sunspot groups
2016-10-26 09:30:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2016-10-30 00:30:00
2000
49
50
2004
Beta
PROBA2/SWAP 17.4nm
2016-10-30T11:16:29.605

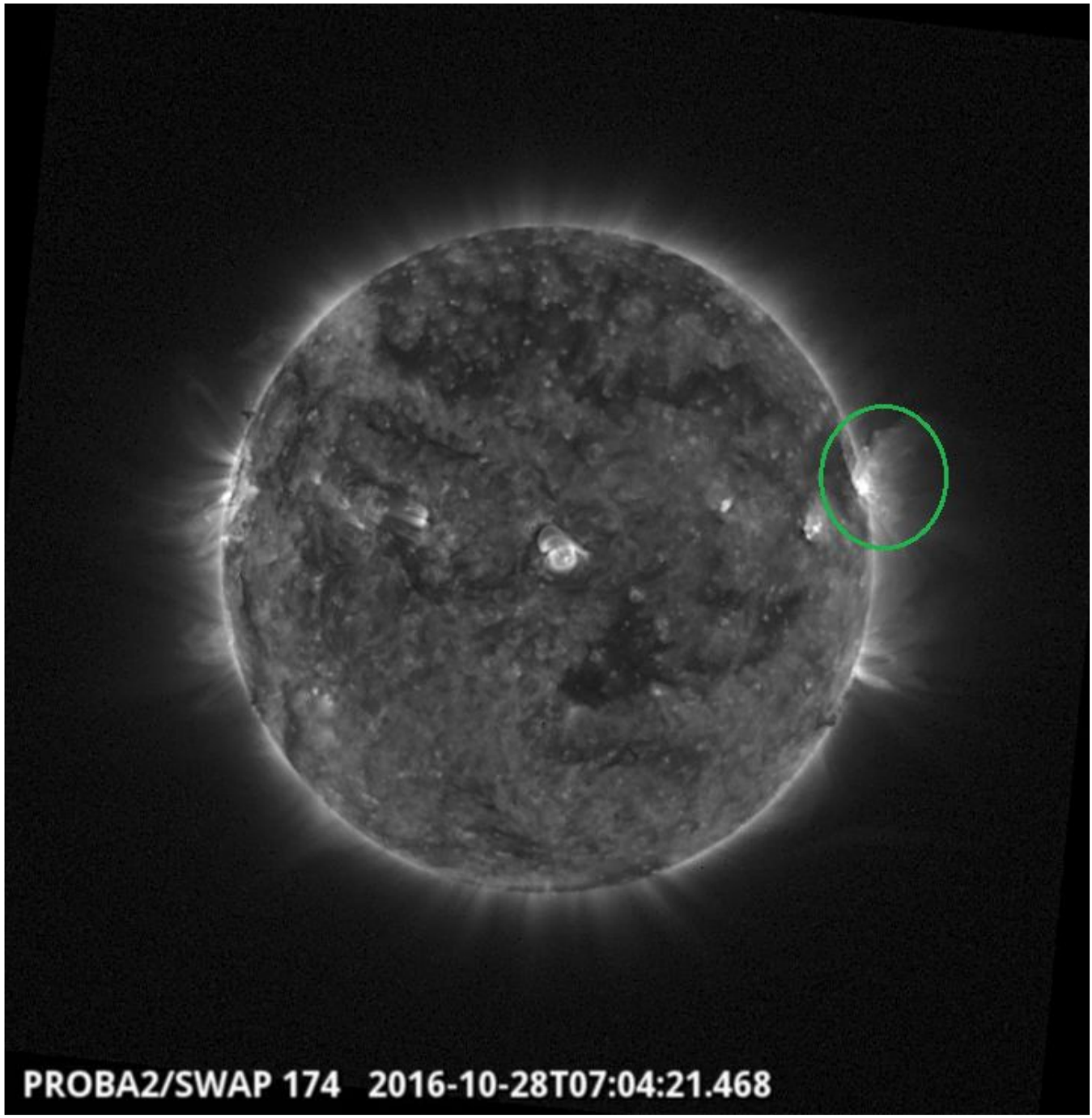
Solar Activity

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 344).
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 Oct 28

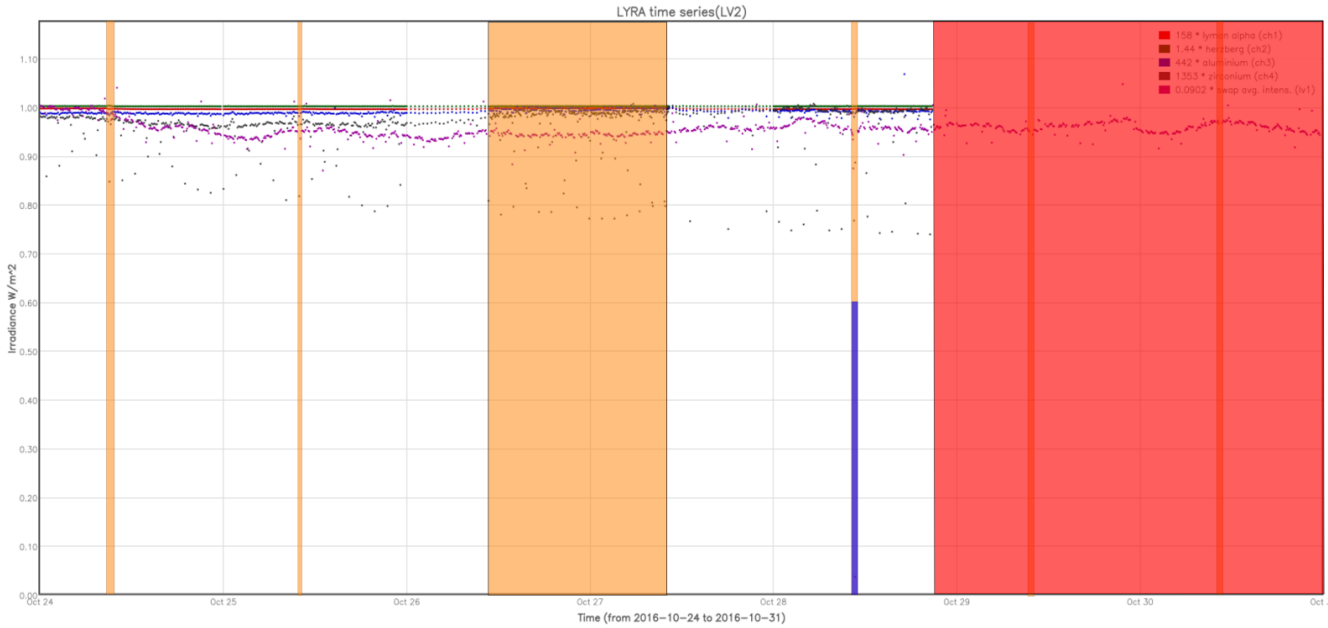


NOAA AR 2603 produced the largest flare of the week, a B3.1 class flare, which peaked at 07:17 UT on October 28. This group was the most active one throughout the week, producing several B-class flares.

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)



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

- SWAP occultation campaign, 2016-Oct-28

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

- Daily unit 3 campaign, 2016-Oct-24
- Daily unit 3 campaign, 2016-Oct-25
- Daily unit3 campaign, 2016-Oct-26
- High cadence (100Hz) backup campaign (units 2 and 3) from 2016-Oct-26 until 2016-Oct-27
- Daily unit3 campaign, 2016-Oct-27
- Daily unit 3 campaign, 2016-Oct-28
- Daily unit 3 campaign, 2016-Oct-29
- Daily unit 3 campaign, 2016-Oct-30

The red shaded period corresponds to:

- LYRA packets not received due to LYRA wrong checksum, the result is that the LYRA data is invalidated.

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

- None

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 24 Oct	Tuesday 25 Oct	Wednesday 26 Oct	Thursday 27 Oct	Friday 28 Oct	Saturday 29 Oct	Sunday 30 Oct
Nominal acquisition + daily U3 LYIOS00582	Nominal acquisition + daily U3 LYIOS00582	Nominal acquisition + daily U3+ High cadence backup campaign LYIOS00583	Nominal acquisition + daily U3 LYIOS00583	Nominal acquisition + daily U3 LYIOS00583	Nominal acquisition + daily U3 LYIOS00583	Nominal acquisition + daily U3 LYIOS00583

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

On 2016-Oct-26

- High cadence (100Hz) backup campaign

On 2016-Oct-28

- Daily occultation campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 51.50 to 54.41 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 4540 to 4974.
The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 24 Oct	Tuesday 25 Oct	Wednesday 26 Oct	Thursday 27 Oct	Friday 28 Oct	Saturday 29 Oct	Sunday 30 Oct
Nominal acquisition IOS00666 653 images	Nominal acquisition IOS00666 687 images	Nominal acquisition IOS00666 678 images	Nominal acquisition IOS00666 677 images	Nominal acquisition+SWAP occultation IOS00667 696 images	Nominal acquisition IOS00667 680 images	Nominal acquisition IOS00667 671 images

Special operations for SWAP, this week:

- SWAP occultation campaign on the Friday 28 Oct.

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 1.83 to 2.23 °C.

4. PROBA2 Science Center Status

The main operators are Laurence Wauters and Robbe Vansintjan.

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 22128 to 22194) 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 2016 Oct 24 00:00 UT and 2016 Oct 31 00:00 UT: 4742
Highest cadence in this period: 18 seconds
Average cadence in this period: 127.56 seconds
Number of image gaps larger than 300 seconds: 109
Largest data gap: 23.25 minutes

Data coverage LYRA

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

- Pass 22176 until pass 22184

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)