


P2SC-ROB-WR-346 - 20161107 Weekly report #346	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Nov 07 to Sun Nov 13, 2016 21 Nov 2016 Laurence Wauters Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
To:	LYRA PI, marie.dominique@sidc.be SWAP PI, david.berghmans@sidc.be	http://proba2.sidc.be ++ 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

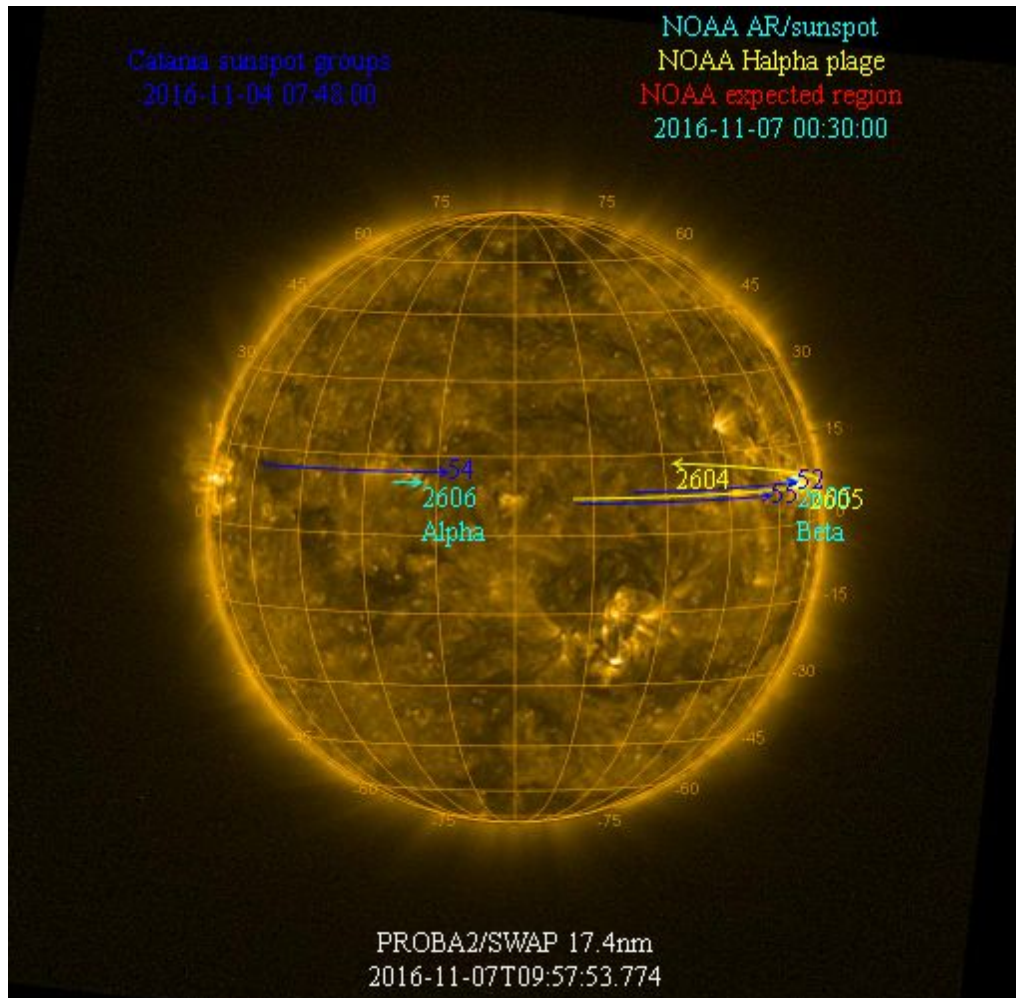
The level of solar activity¹ was very low this week.

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

	Monday 07 Nov	Tuesday 08 Nov	Wednesday 09 Nov	Thursday 10 Nov	Friday 11 Nov	Saturday 12 Nov	Sunday 13 Nov
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.

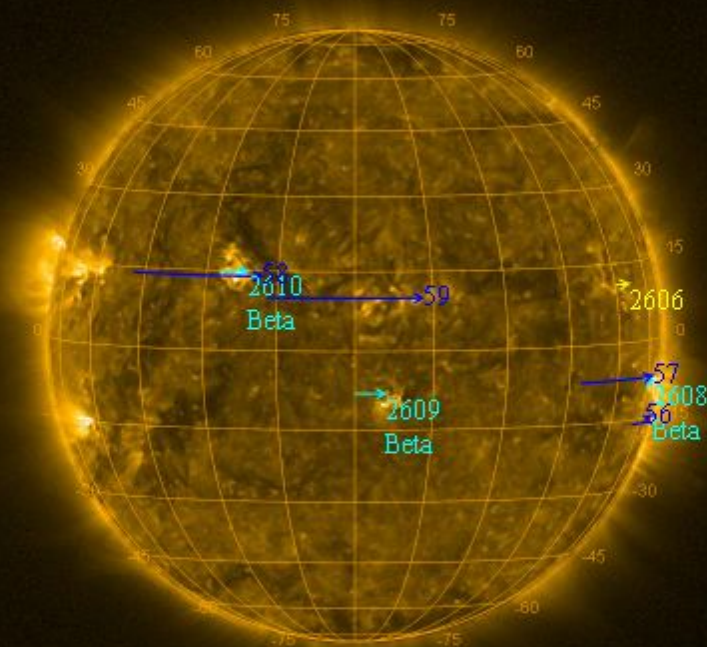
The SWAP images of Nov 07 and Nov 13 are shown below, with annotated active regions.



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

Catania sunspot groups
2016-11-11 08:30:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2016-11-13 00:30:00



PROBA2/SWAP 17.4nm
2016-11-13T09:46:08.538

Solar Activity

Solar flare activity was very low during the week.

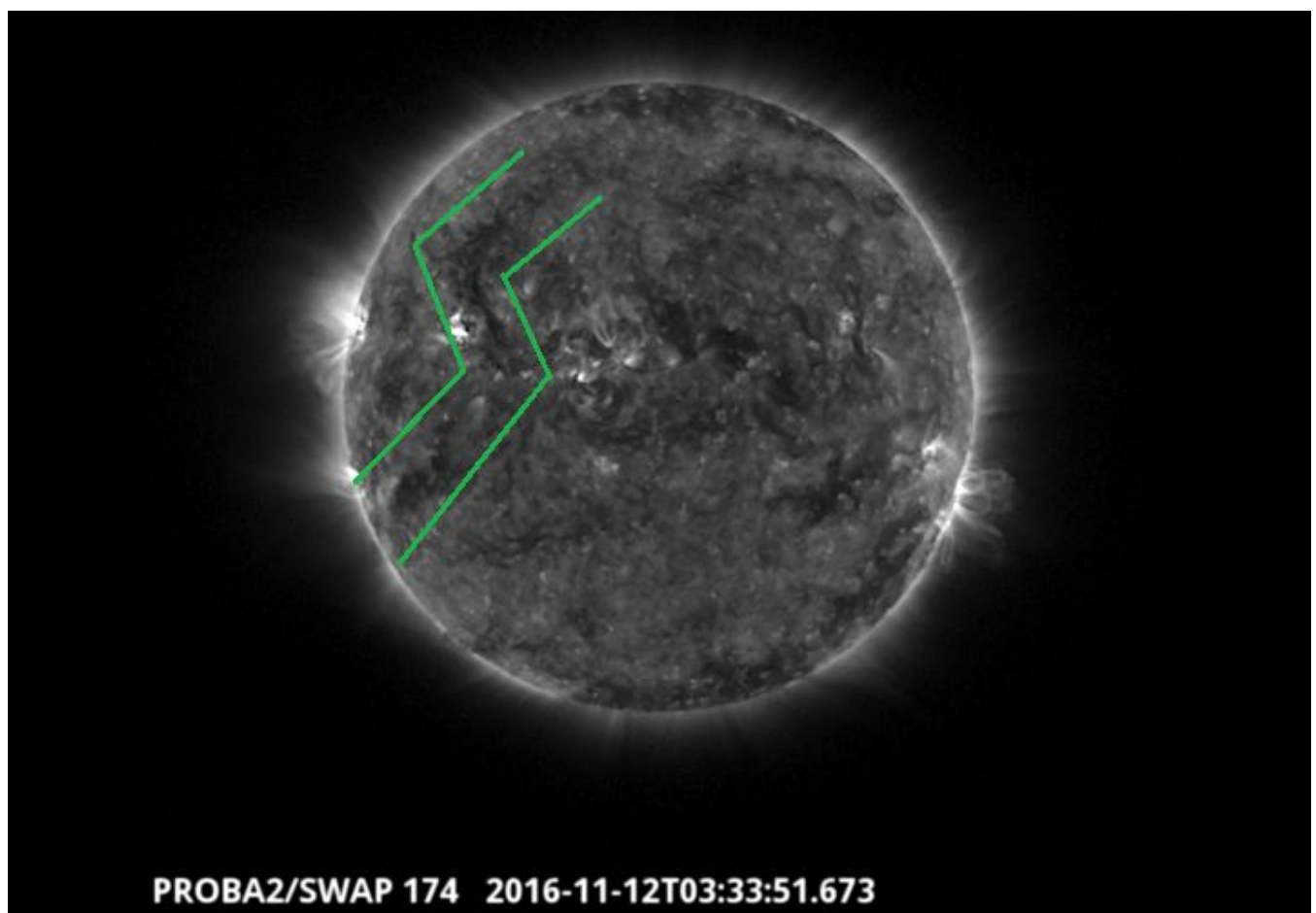
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: <http://proba2.oma.be/ssa>

This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 346).

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](#)



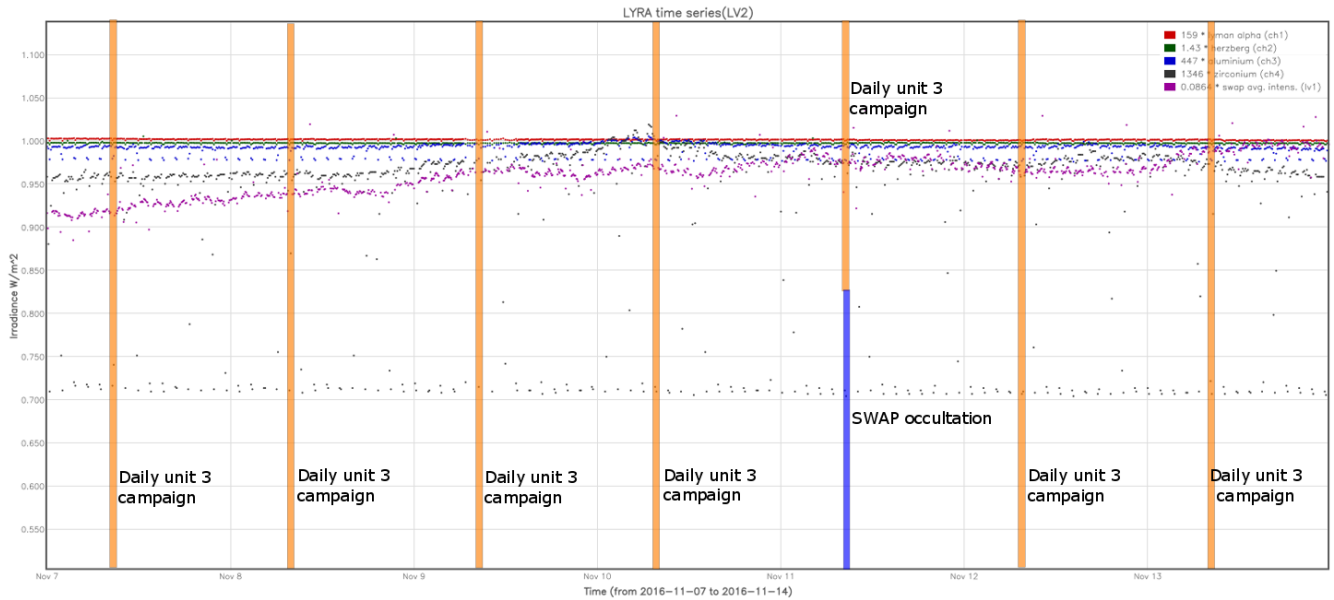
A coronal hole stretching from the south pole to north of the equator has dominated the solar disk since Nov 12

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)



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

- SWAP occultation campaign, 2016-Nov-11

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

- Daily unit 3 campaign, 2016-Nov-07
- Daily unit 3 campaign, 2016-Nov-08
- Daily unit 3 campaign, 2016-Nov-09
- Daily unit 3 campaign, 2016-Nov-10
- Daily unit 3 campaign, 2016-Nov-11
- Daily unit 3 campaign, 2016-Nov-12
- Daily unit 3 campaign, 2016-Nov-13

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

- O. Panasenco is visiting the P2SC from 2016 Nov 07 - 2016 Dec 07 to work on Pseudostreamers and their Immediate Environment: Observations and Modeling

2. LYRA instrument status

Calibration

None

IOS & operations

Monday 07 Nov	Tuesday 08 Nov	Wednesday 09 Nov	Thursday 10 Nov	Friday 11 Nov	Saturday 12 Nov	Sunday 13 Nov
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00585	LYIOS00585	LYIOS00585	LYIOS00585	LYIOS00585	LYIOS00585	LYIOS00585

The following science campaigns were performed by LYRA:

- Daily U3 observations campaign
- On 2016-Nov-11
- Daily occultation campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 44.19 and 48.23 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 5397 to 5579.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 07 Nov	Tuesday 08 Nov	Wednesday 09 Nov	Thursday 10 Nov	Friday 11 Nov	Saturday 12 Nov	Sunday 13 Nov
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition+ SWAP occultation	Nominal acquisition	Nominal acquisition
IOS00668 712 images	IOS00669 684 images	IOS00669 627 images	IOS00669 686 images	IOS00669 722 images	IOS00669 642 images	IOS00669 708 images

Special operations for SWAP, this week:

- SWAP occultation campaign on the Friday 11 Nov.

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -2.09 and -0.63 °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 22261 to 22324) was nominal, except for:

- Pass 22283 and 22284, no signal was received due to a Svalsat power outage.

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 Nov 07 00:00 UT and 2016 Nov 14 00:00 UT: 4789

Highest cadence in this period: 29 seconds

Average cadence in this period: 126.30 seconds

Number of image gaps larger than 300 seconds: 115

Largest data gap: 35.83 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)
MCPCM	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)