P2SC-ROB-WR-408 - 20180115 Weekly report #408	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Jan 15 to Sun Jan 21, 2018 22 Jan 2018 Jennifer O'Hara 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

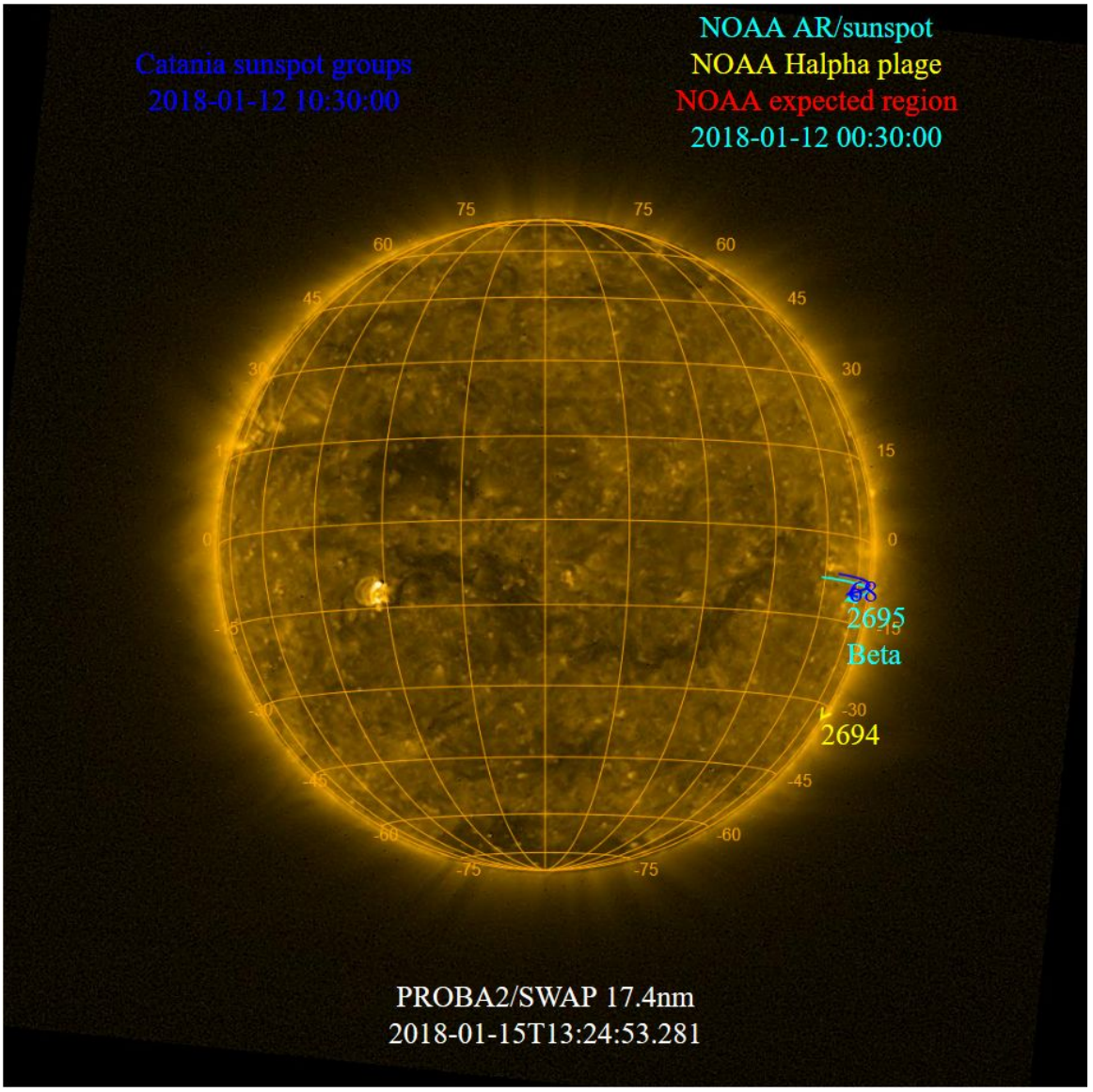
The level of solar activity[1] remained **very low** this week.

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

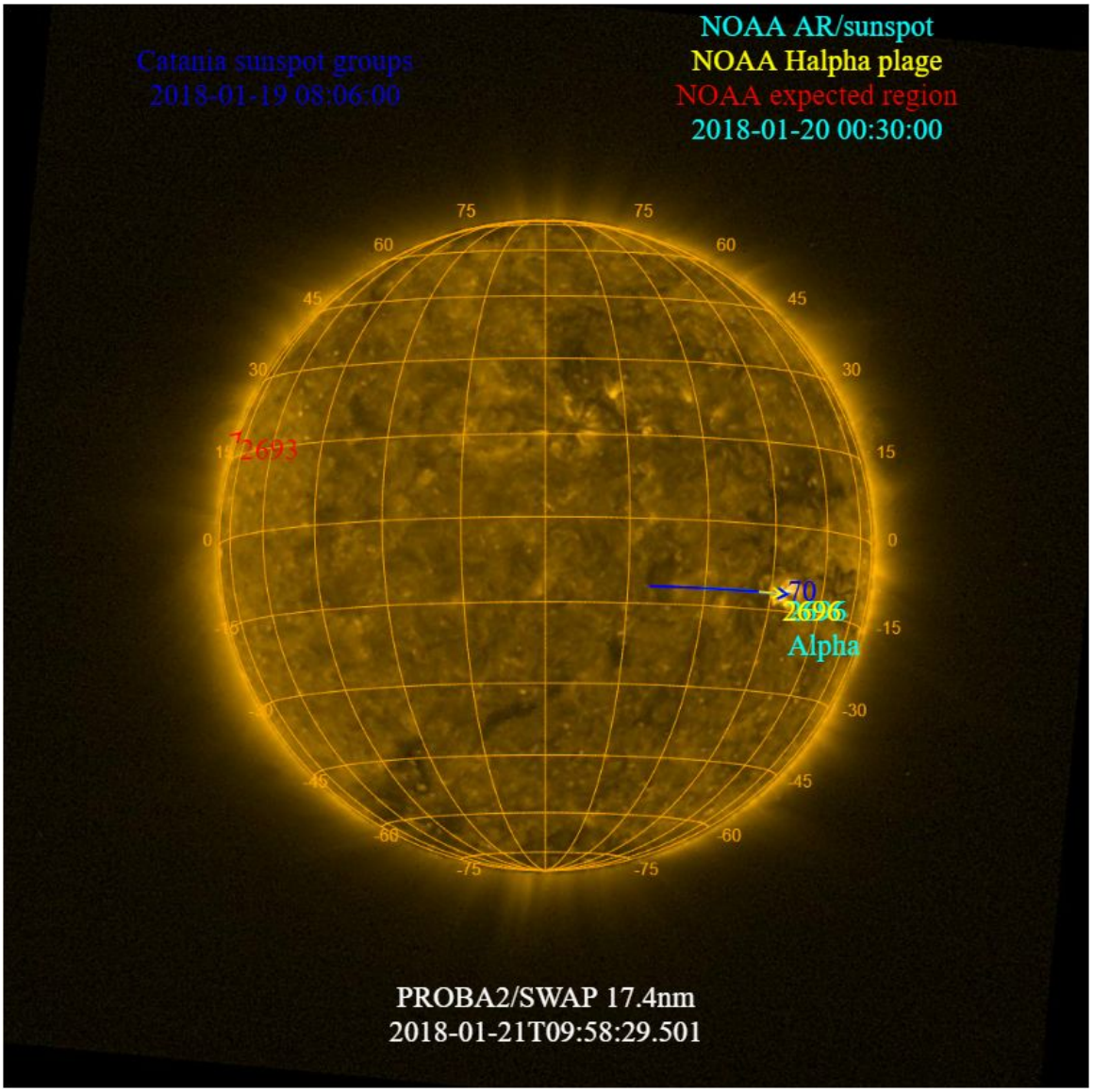
	Monday 15 Jan	Tuesday 16 Jan	Wednesday 17 Jan	Thursday 18 Jan	Friday 19 Jan	Saturday 20 Jan	Sunday 21 Jan
Activity	very low	very low	very low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

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

The SWAP images of Jan 15 and Jan 21 are shown below, with annotated active regions.



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


Catania sunspot groups
2018-01-19 08:06:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2018-01-20 00:30:00
75
60
45
30
15
0
-15
-30
-45
-60
-75
2693
2696
Alpha
PROBA2/SWAP 17.4nm
2018-01-21T09:58:29.501

Solar Activity

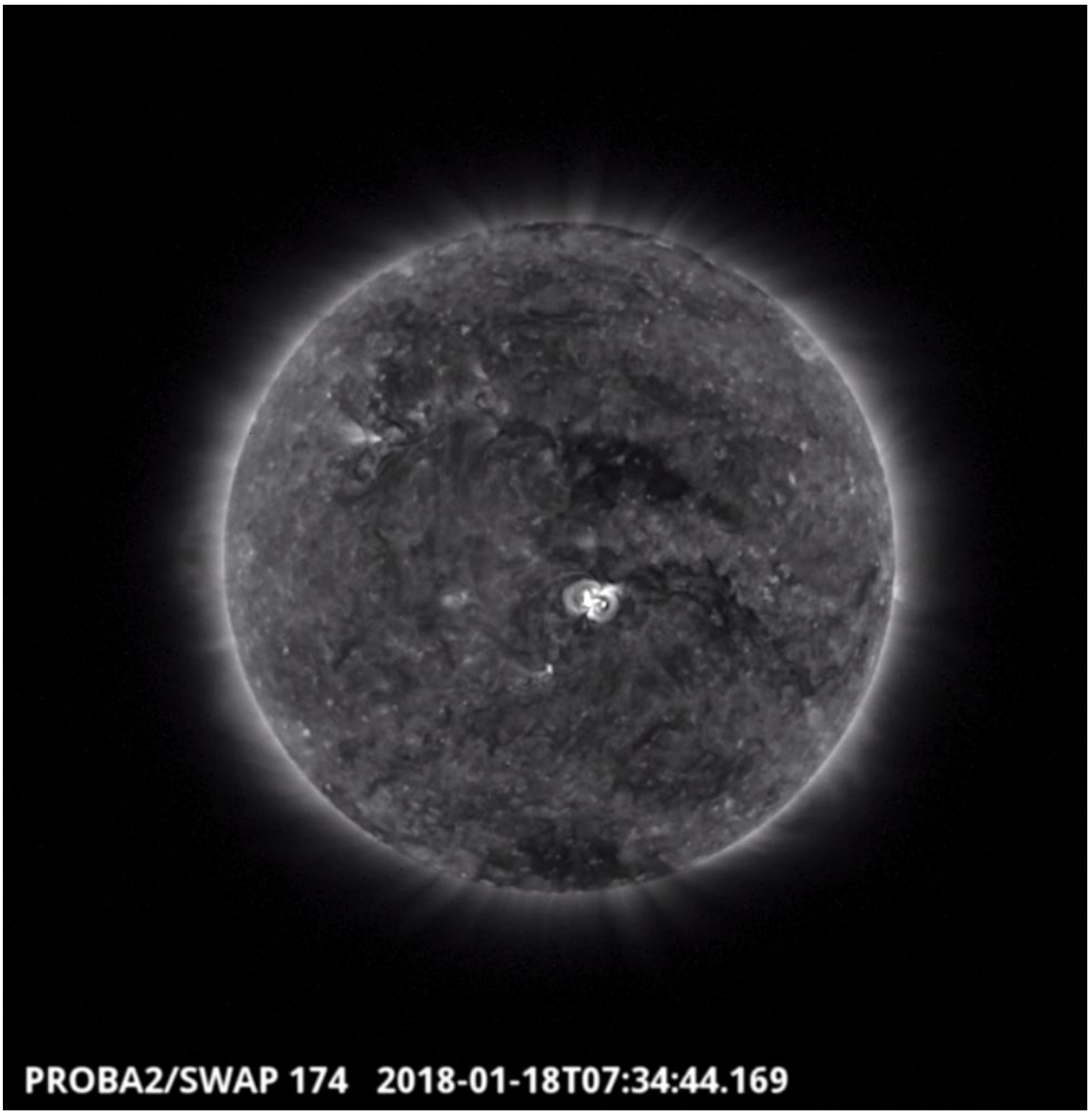
Solar flare activity remained very low during the week.
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: http://proba2.oma.be/ssa
This page also lists the recorded flaring events.

A weekly overview movie can be found here (SWAP week 408).

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

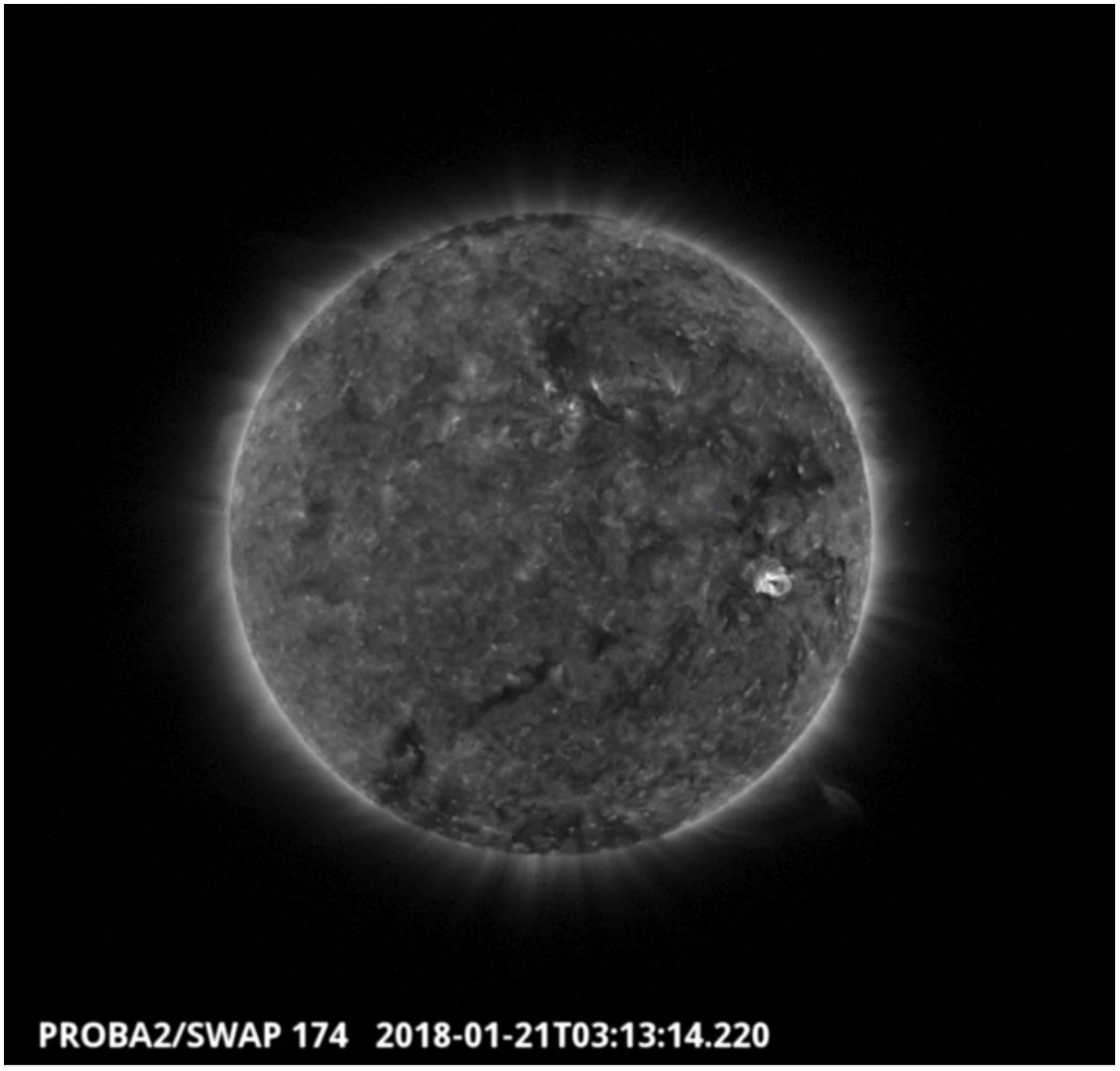
Thursday Jan 18



The largest flare of the week was a B-class (B9.7) flare associated with NOAA AR 2696 and was observed by SWAP on 2018-Jan-18. The flare is visible in centre of the solar disk in the SWAP image above at 07:34 UT.

Find a movie of the event **here** (SWAP movie)

Sunday Jan 21

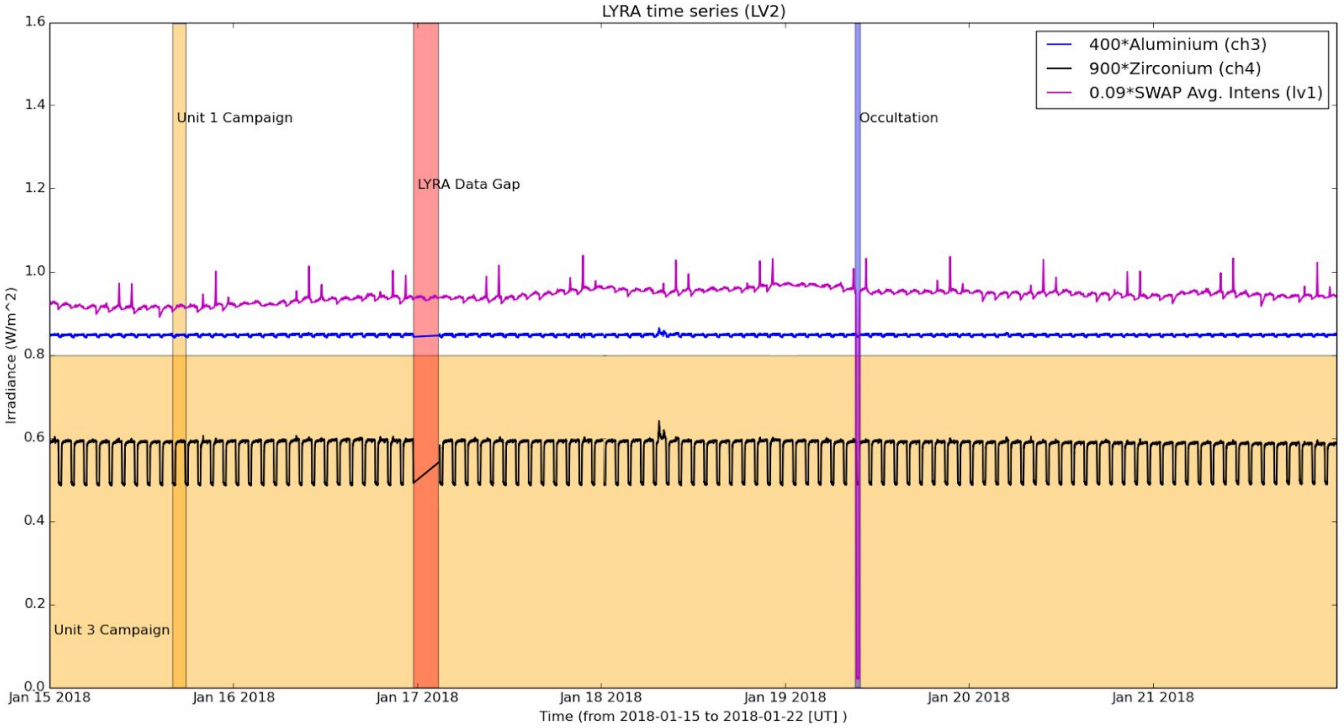


An eruption was observed by SWAP on 2018-Jan-21 off the south west limb of the Sun as shown in the SWAP image above at 03:13 UT.

Find a movie of the event **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 related to SWAP, correspond to, from left to right:

- Occultation campaign, 2018-Jan-19

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

- Unit 3 campaign, from 2018-Jan-15 to 2018-Jan-21
- Unit 1 campaign, 2018-Jan-15

The red shaded periods related to other issues corresponds to:

- LYRA data gap between 2018-Jan-16 23:31:38 and 2018-Jan-17 02:46:11 due to the pass not being able to be processed because of poor signal.

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

- Alexandros Koukras is visiting the P2SC from the 16th January to begin his project entitled “A unique opportunity of observing and modeling a CME event from the low to the outer corona”.
- Dipankar Banerjee visited the P2SC between the 15-17th January to begin his project on “Automated detection of Coronal Mass Ejections (CMEs) in SWAP images”, along with PhD student Ritesh Patel who is visiting the P2SC from the 17-25th January. Dipankar Banerjee also gave an STCE seminar entitled “India’s first Space observatory Aditya -L1” during his visit.

2. LYRA instrument status

Calibration

No calibration campaign this week.

IOS & operations

Monday 15 Jan	Tuesday 16 Jan	Wednesday 17 Jan	Thursday 18 Jan	Friday 19 Jan	Saturday 20 Jan	Sunday 21 Jan
Nominal acquisition + U3 + Monthly U1 LYIOS00670	Nominal acquisition + U3 LYIOS00670	Nominal acquisition + U3 LYIOS00670	Nominal acquisition + U3 LYIOS00670	Nominal acquisition + U3 LYIOS00671	Nominal acquisition + U3 LYIOS00671	Nominal acquisition + U3 LYIOS00671

The following science campaigns were performed by LYRA:

- Unit 3 observations campaign all week

On 2018-Jan-15

- Monthly Unit 1 campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 45.08 and 48.31 °C.

3. SWAP instrument status

Calibration

No calibration campaign this week.

MCPM errors

The number of MCPM recoverable errors increased from 667 to 672.
The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 15 Jan	Tuesday 16 Jan	Wednesday 17 Jan	Thursday 18 Jan	Friday 19 Jan	Saturday 20 Jan	Sunday 21 Jan
Nominal acquisition IOS00752 737 images	Nominal acquisition IOS00752 675 images	Nominal acquisition IOS00753 758 images	Nominal acquisition IOS00753 666 images	Nominal acquisition + occultation IOS00753 778 images	Nominal acquisition IOS00753 644 images	Nominal acquisition IOS00754 726 images

Special operations for SWAP, this week:
On 2018-Jan-19

- Occultation campaign

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -3.05 and -0.65 °C.

4. PROBA2 Science Center Status

The main operator is Laurence Wauters.

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 26338 to 26403) 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 2018 Jan 15 00:00 UT and 2018 Jan 22 00:00 UT: 4994
Highest cadence in this period: 18 seconds
Average cadence in this period: 121.11 seconds
Number of image gaps larger than 300 seconds: 119
Largest data gap: 31.17 minutes

Data coverage LYRA

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

- BINLYRA_26357_SVA1_2018.01.17T03.22.48.tar file cannot be processed giving a LYRA gap between 2018-01-16 23:31:38 and 2018-01-17 02:46:11

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)