P2SC-ROB-WR-410 - 2080129 Weekly report #410	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Jan 29 to Sun Feb 04, 2018 07 Feb 2018 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

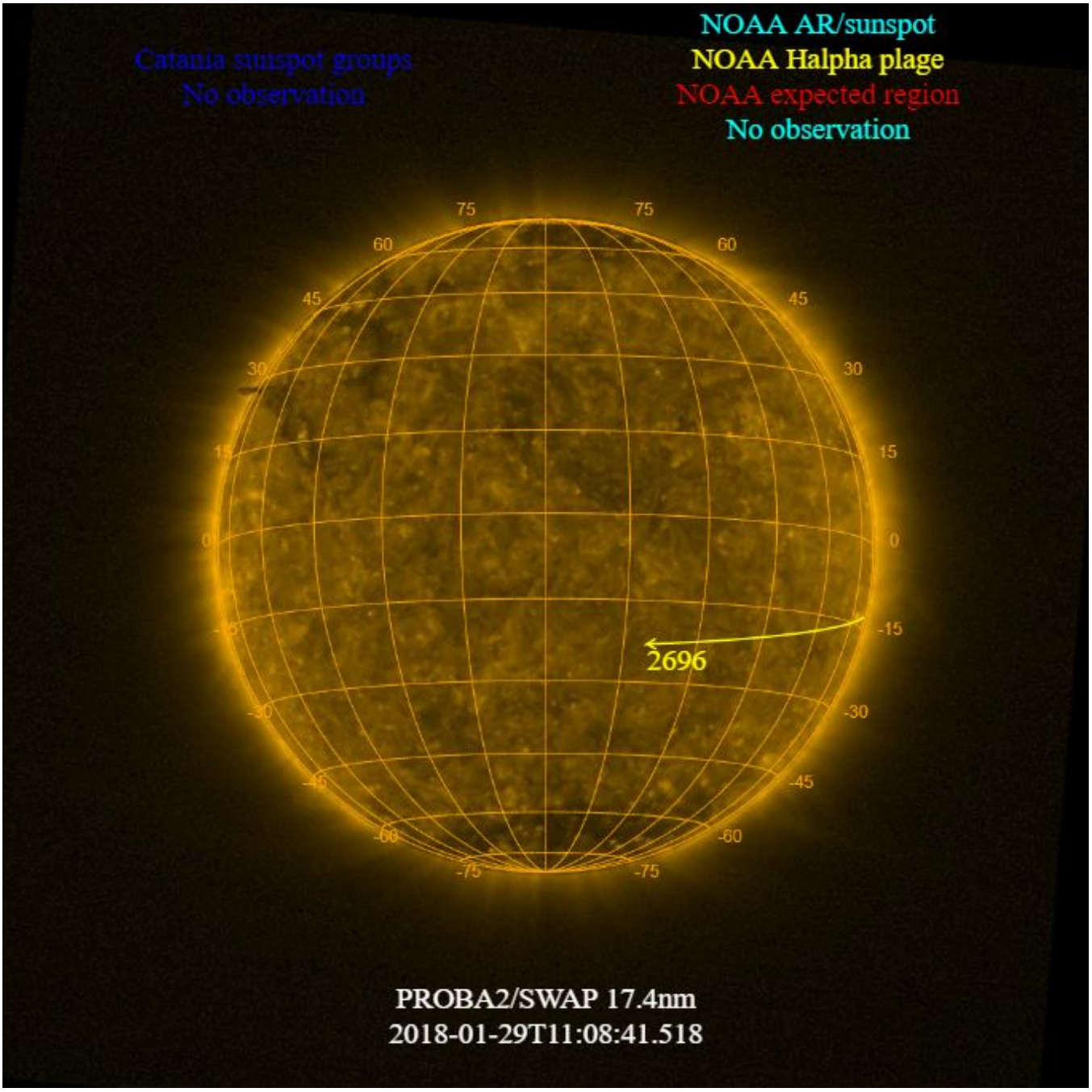
The level of solar activity[1] fluctuated between **very low and low** this week.

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

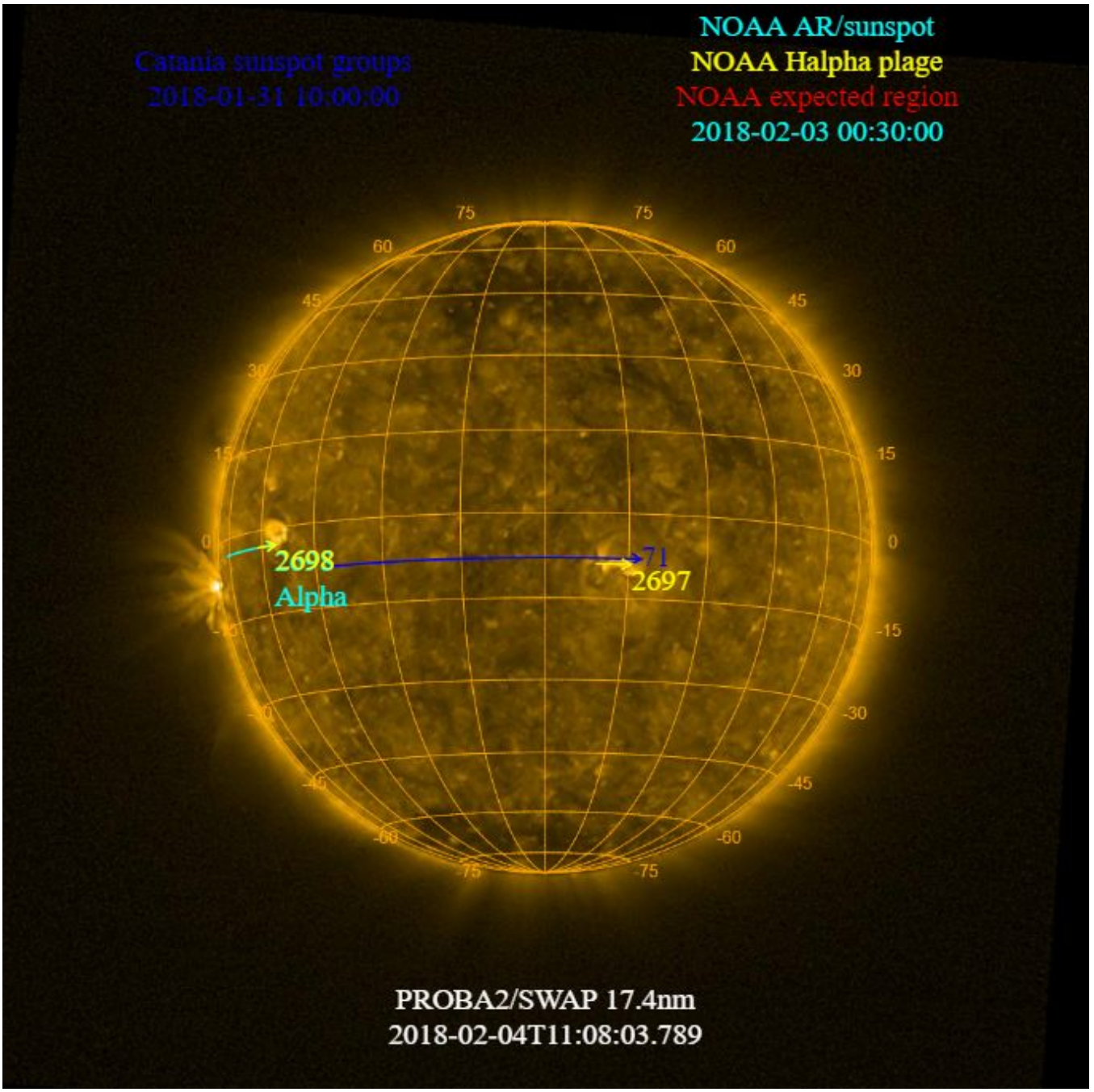
	Monday 29 Jan	Tuesday 30 Jan	Wednesday 31 Jan	Thursday 01 Feb	Friday 02 Feb	Saturday 03 Feb	Sunday 04 Feb
Activity	very low	very low	very low	very low	very low	very low	low
Flares	-	-	-	-	-	-	-

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

The SWAP images of Jan 29 and Feb 04 are shown below, with annotated active regions.



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


Catania sunspot groups
2018-01-31 10:00:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2018-02-03 00:30:00
75
60
45
30
15
0
-15
-30
-45
-60
-75
2698
Alpha
71
2697
PROBA2/SWAP 17.4nm
2018-02-04T11:08:03.789

Solar Activity

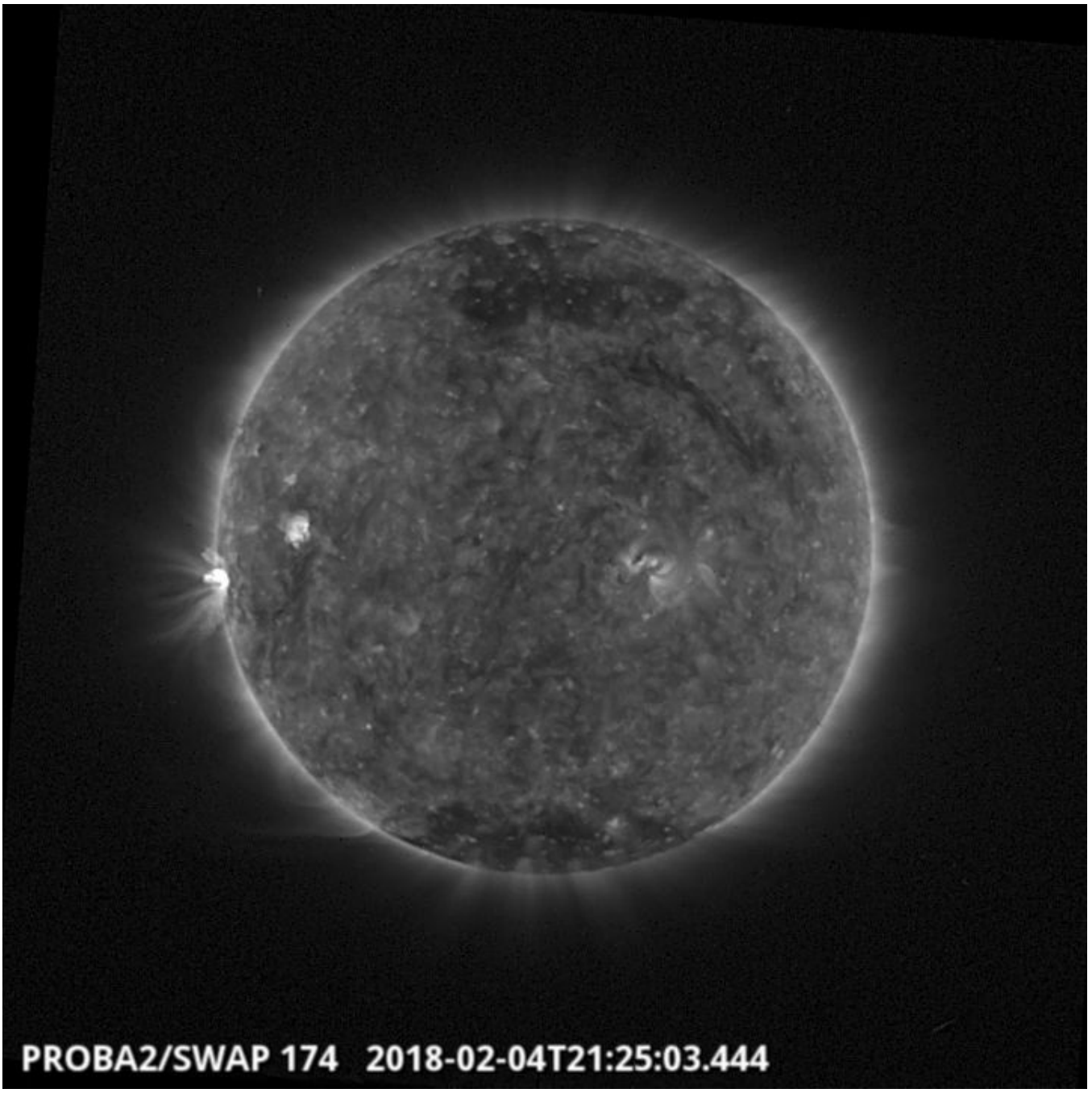
Solar flare activity fluctuated between very low and low during the week.
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: http://proba2.oma.be/ssa
This page also lists the recorded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

A weekly overview movie can be found here (SWAP week 410).

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

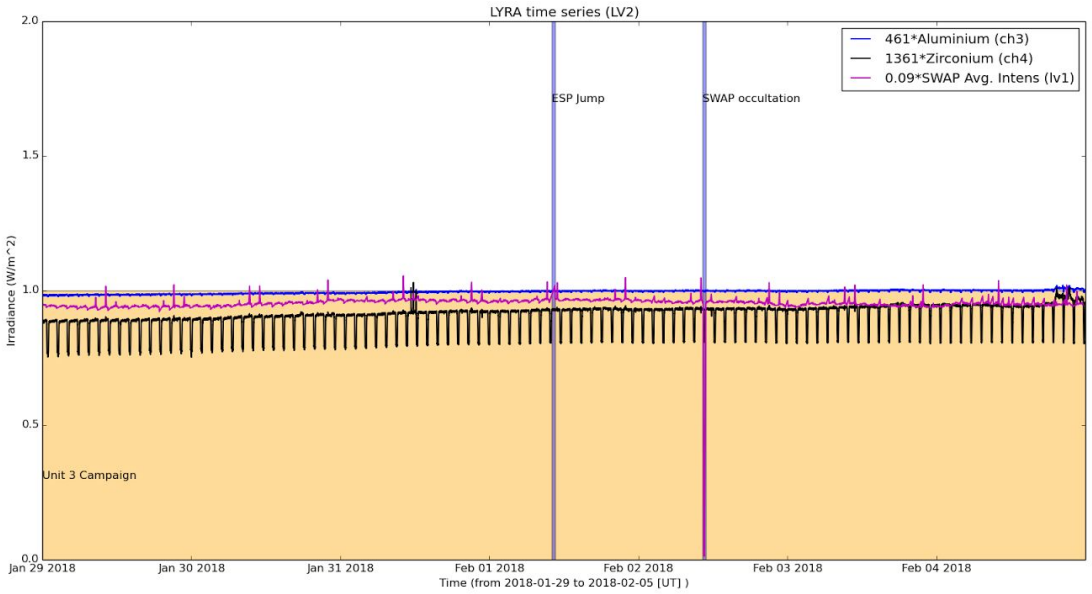
Sunday Feb 04



A C-class (C1.1) flare, associated with NOAA AR 2699 (located in S09E80), was observed by SWAP on 2018-Feb-04. The flare is visible on the east limb of the solar disk in the SWAP image above at 21:25 UT. This flare has been followed by a series of B-class flares.

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:

- ESP jump, 2018-Feb-01
- Occultation campaign, 2018-Feb-02

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

- Unit 3 campaign, from 2018-Jan-29 to 2018-Feb-04.

The red shaded periods related to other issues corresponds to:

- None

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

- Mariana Cécere: Instituto de Astronomìa Teórica y Experimental, CONICET-UNC, Córdoba, Argentina: **A Systematic Study of CME Deflections**

2. LYRA instrument status

Calibration

No calibration campaign during this week.

IOS & operations

Monday 29 Jan	Tuesday 30 Jan	Wednesday 31 Jan	Thursday 01 Feb	Friday 02 Feb	Saturday 03 Feb	Sunday 04 Feb
Nominal acquisition + U3 LYIOS00672	Nominal acquisition + U3 LYIOS00672	Nominal acquisition + U3 LYIOS00672	Nominal acquisition + U3 LYIOS00672	Nominal acquisition + U3 LYIOS00673	Nominal acquisition + U3 LYIOS00673	Nominal acquisition + U3 LYIOS00673

The following science campaigns were performed by LYRA:

- Unit 3 observations campaign all week.

LYRA detector temperature

LYRA detector 2 temperature globally varied between 51.14 and 55.35 °C.

3. SWAP instrument status

Calibration

No calibration campaign during this week.

MCPM errors

The number of MCPM recoverable errors increased from 819 to 1200.
The number of MCPM unrecoverable errors remained at 0.

IOS & operations

29 Jan	Tuesday 30 Jan	Wednesday 31 Jan	Thursday 01 Feb	Friday 02 Feb	Saturday 03 Feb	Sunday 04 Feb
Nominal acquisition IOS00757 707 images	Nominal acquisition IOS00757 746 images	Nominal acquisition IOS00758 697 images	Nominal acquisition IOS00758 720 images	Nominal acquisition+ occultation IOS00758 695 images	Nominal acquisition IOS00758 754 images	Nominal acquisition IOS00759 709 images

Special operations for SWAP, this week:
On 2018-Feb-01

- ESP jump

On 2018-Feb-02

- Occultation campaign

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 0.71 to 4.07 °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 26469 to 26535) 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 29 0UT and 2018 Feb 05 00:00 UT: 5061
Highest cadence in this period: 18 seconds
Average cadence in this period: 119.22 seconds
Number of image gaps larger than 300 seconds: 123
Largest data gap: 55.48 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)
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)