P2SC-ROB-WR-200 - 20140120 Weekly report #200	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Jan 20 to Sun Jan 26, 2014 29 Jan 2014 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

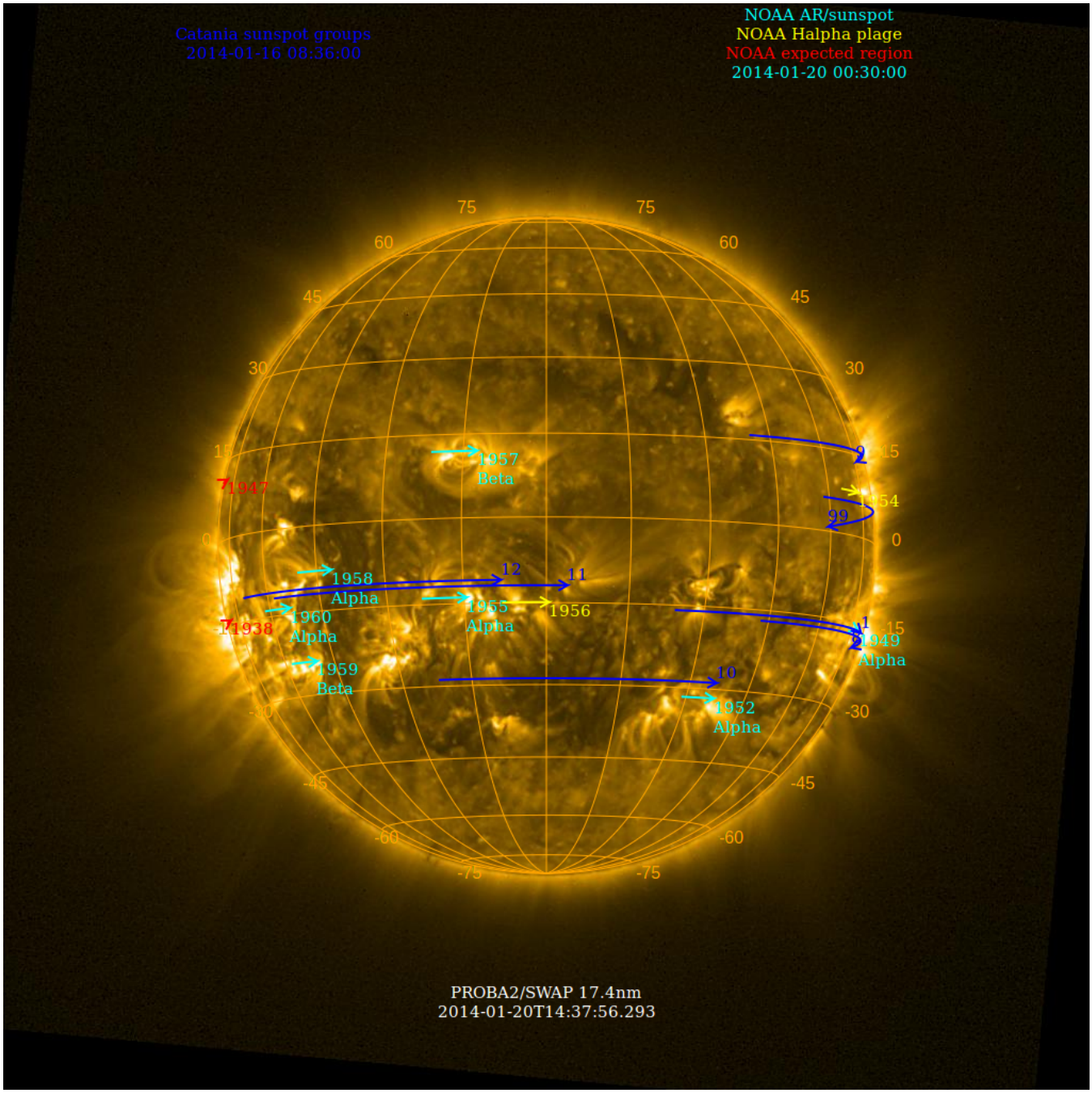
The level of solar activity[1] fluctuated between **very low** and **low** this week.

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

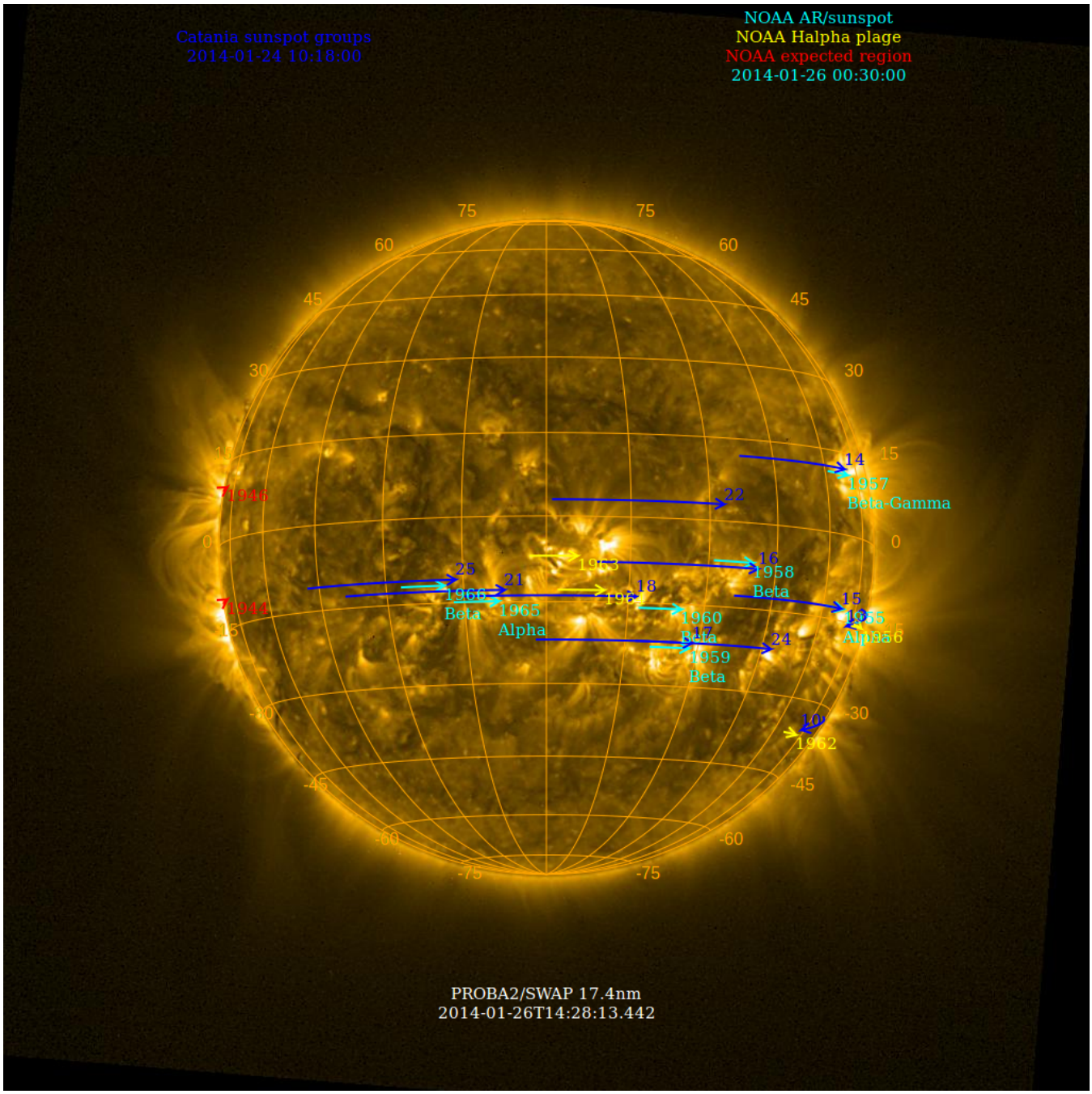
	Monday 20 Jan	Tuesday 21 Jan	Wednesday 22 Jan	Thursday 23 Jan	Friday 24 Jan	Saturday 25 Jan	Sunday 26 Jan
Activity	low	low	low	very low	low	low	low
Flares	-	-	-	-	-	-	-

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

The SWAP images of Jan 20 and Jan 26 are shown below, with annotated active regions.



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


Catania sunspot groups
2014-01-24 10:18:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2014-01-26 00:30:00
75
60
45
30
15
0
-15
-30
-45
-60
-75
1946
1944
14
1957
Beta-Gamma
22
25
1966
Beta
21
1965
Alpha
1963
18
1964
16
1958
Beta
15
1960
Beta
24
1959
Beta
15
1955
Alpha
10
1962
PROBA2/SWAP 17.4nm
2014-01-26T14:28:13.442

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 200).

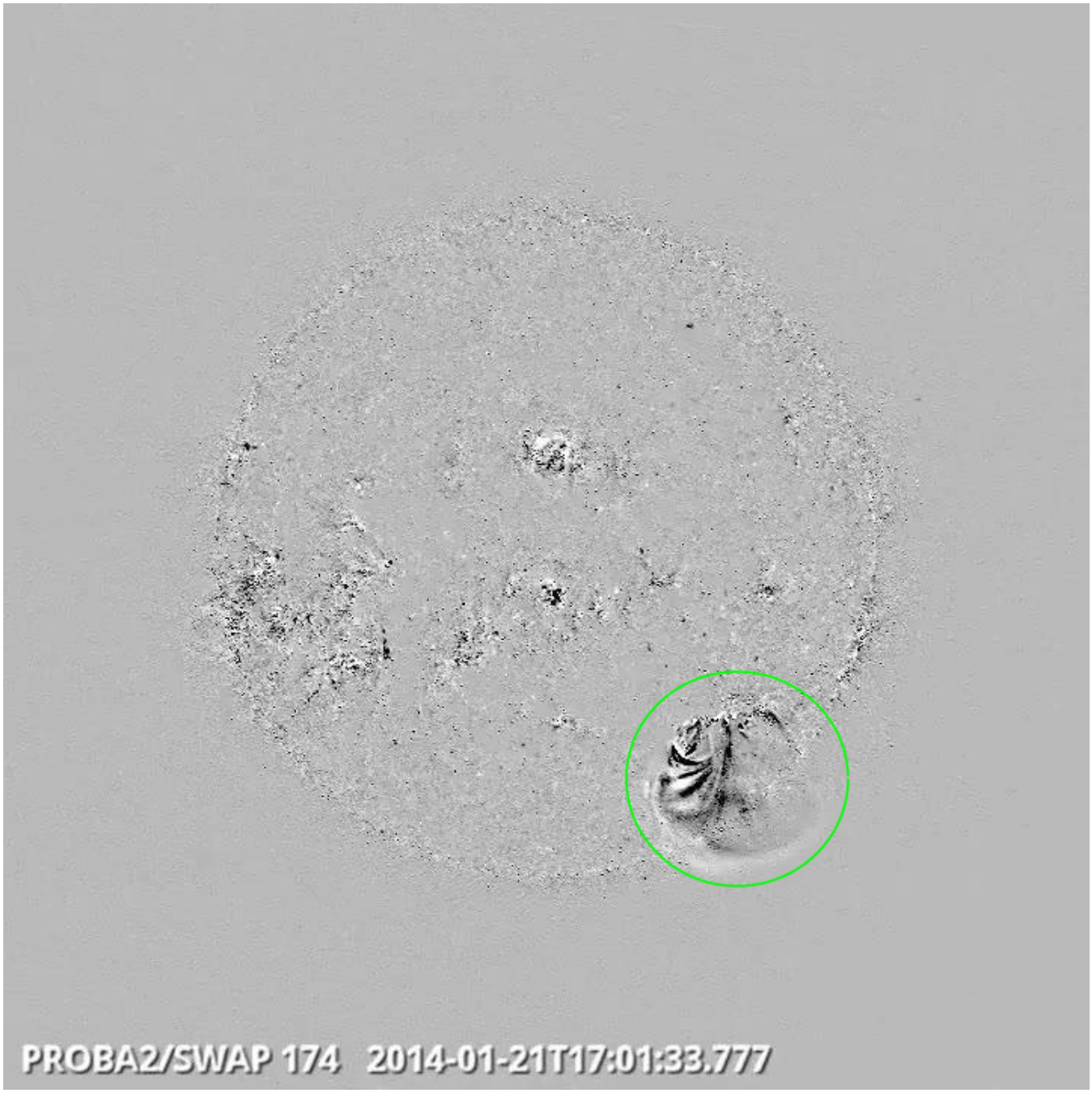
Details about some of this week's events, can be found further below.

Monday Jan 20:

Eruption on the east limb @ 21:50 - SWAP difference image

Find a movie of the events **here** (SWAP difference movie)

Tuesday Jan 21:



Eruption on the south west quad @ 17:01 - SWAP difference image

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

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

Friday Jan 24:

Eruption on the south west quad @ 06:21 - SWAP difference image

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

Sunday Jan 26:

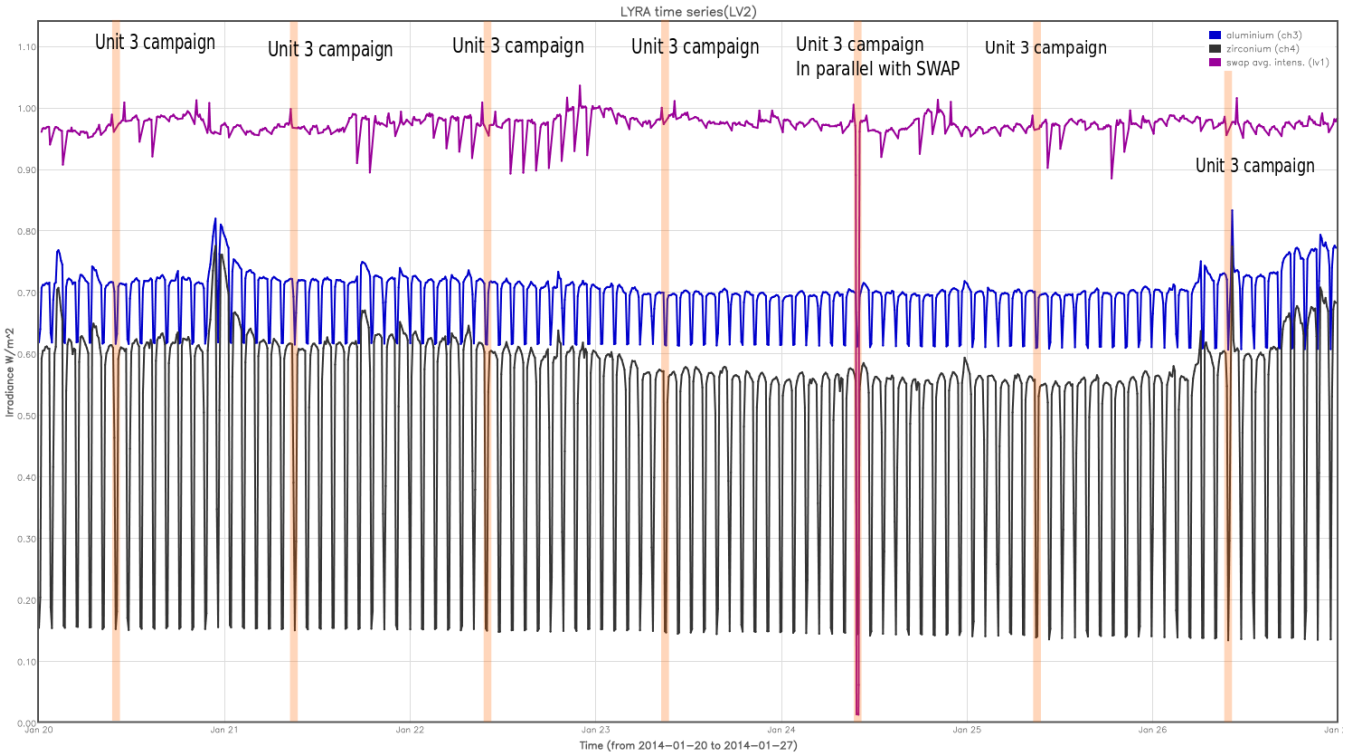
Eruption on the south west quad @ 02:39 - SWAP difference image

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

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 orange shaded periods correspond to, from left to right:

- LYRA unit 3 occultation campaign, 4 times
- Unit 3 occultation campaign in parallel with SWAP
- LYRA unit 3 occultation campaign, 2 times

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).

Two papers were published:

- Kumara, S. T. et al. 2014: "Segmentation of coronal features to understand the solar EUV and UV irradiance variability", A&A, 561, 9.
- Verbeeck, C. et al. 2014: "The SPoCA-suite: Software for extraction, characterization, and tracking of active regions and coronal holes on EUV images", A&A, 561, 29.

We currently have a guest at the Royal observatory working on Proba2 data. Namely Vaibhav Pant who is working on CME detection with CACTus-like algorithms for new datasets

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 20 Jan	Tuesday 21 Jan	Wednesday 22 Jan	Thursday 23 Jan	Friday 24 Jan	Saturday 25 Jan	Sunday 26 Jan
Nominal acquisition + daily U3 LYIOS00367	Nominal acquisition + daily U3 LYIOS00368	Nominal acquisition + daily U3 LYIOS00368	Nominal acquisition + daily U3 LYIOS00368	Nominal acquisition + daily U3 LYIOS00368	Nominal acquisition + daily U3 LYIOS00368	Nominal acquisition + daily U3 LYIOS00368

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 43 and 46.5 °C, taking into account the daily U3 activation periods.

To be explored

- None

3. SWAP instrument status

Calibration

No calibration this week.

MCPM errors

The number of MCPM recoverable errors increased from 15511 to 15726.
The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 20 Jan	Tuesday 21 Jan	Wednesday 22 Jan	Thursday 23 Jan	Friday 24 Jan	Saturday 25 Jan	Sunday 26 Jan
Nominal acquisition IOS00496 576 images	Nominal acquisition IOS00497 577 images	Nominal acquisition IOS00497 580 images	Nominal acquisition IOS00497 579 images	Nominal acquisition + parallel occultation IOS00497 629 images	Nominal acquisition IOS00497 579 images	Nominal acquisition IOS00497 589 images

Special operations for SWAP, this week:

- Parallel occultation campaign with LYRA

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -2.6 and 0.3 °C.

To be explored

- None

4. PROBA2 Science Center Status

The main operator is 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 13163 to 13225) was nominal

Data coverage HK

All HK data files (LYRA_AD) have been received

Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received,

Total number of images between 2014 Jan 20 0UT and 2014 Jan 27 0UT: 4109
Highest cadence in this period: 29 seconds
Average cadence in this period: 147.00 seconds
Number of image gaps larger than 300 seconds: 101
Largest data gap: 29.20 minutes

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received.

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
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
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)