P2SC-ROB-WR-249 - 20140129 Weekly report #249	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Dec 29, 2014 to Sun Jan 04, 2015 07 Jan 2015 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

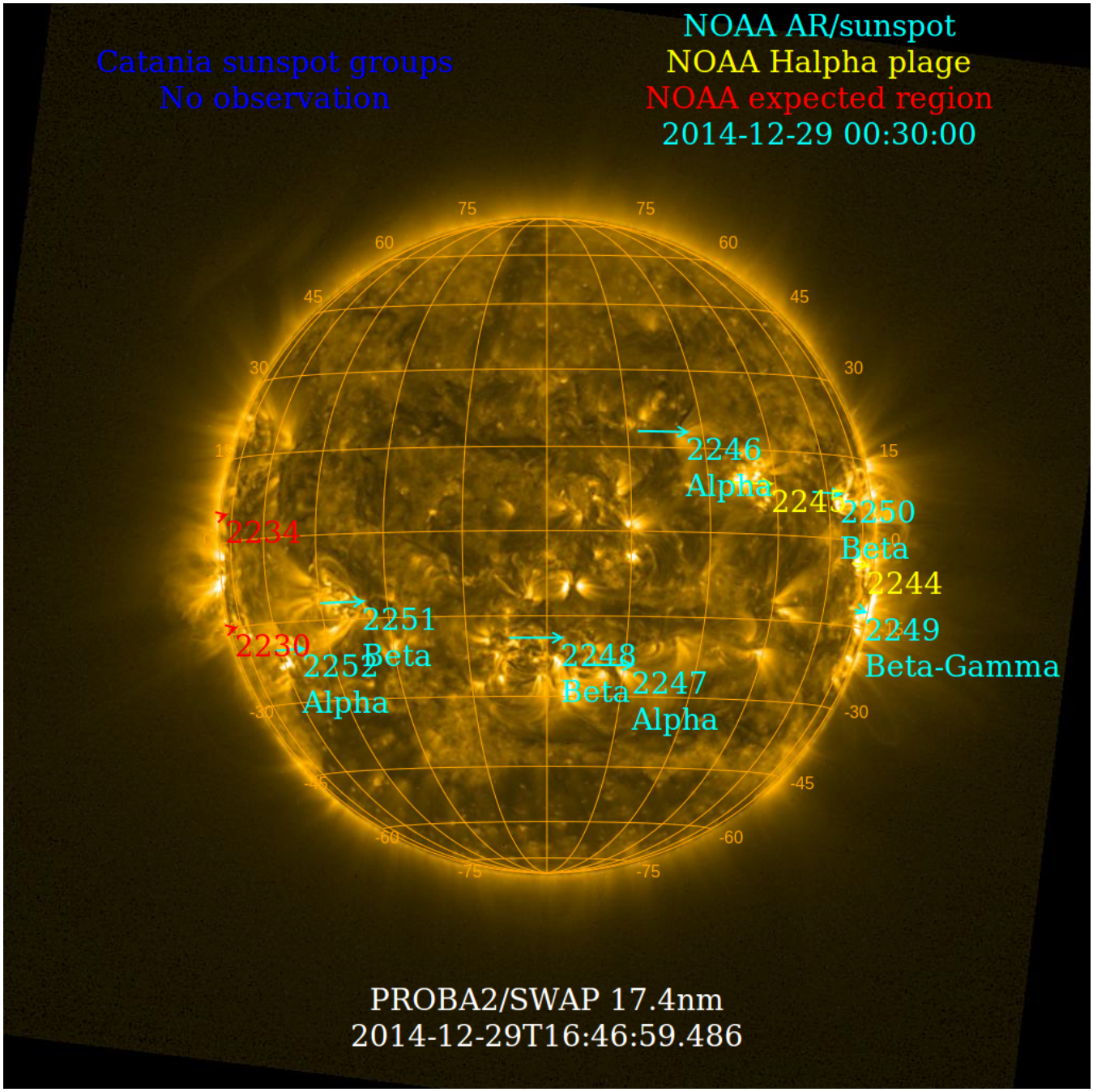
The level of solar activity[1] fluctuated between **low** and **moderate** this week.

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

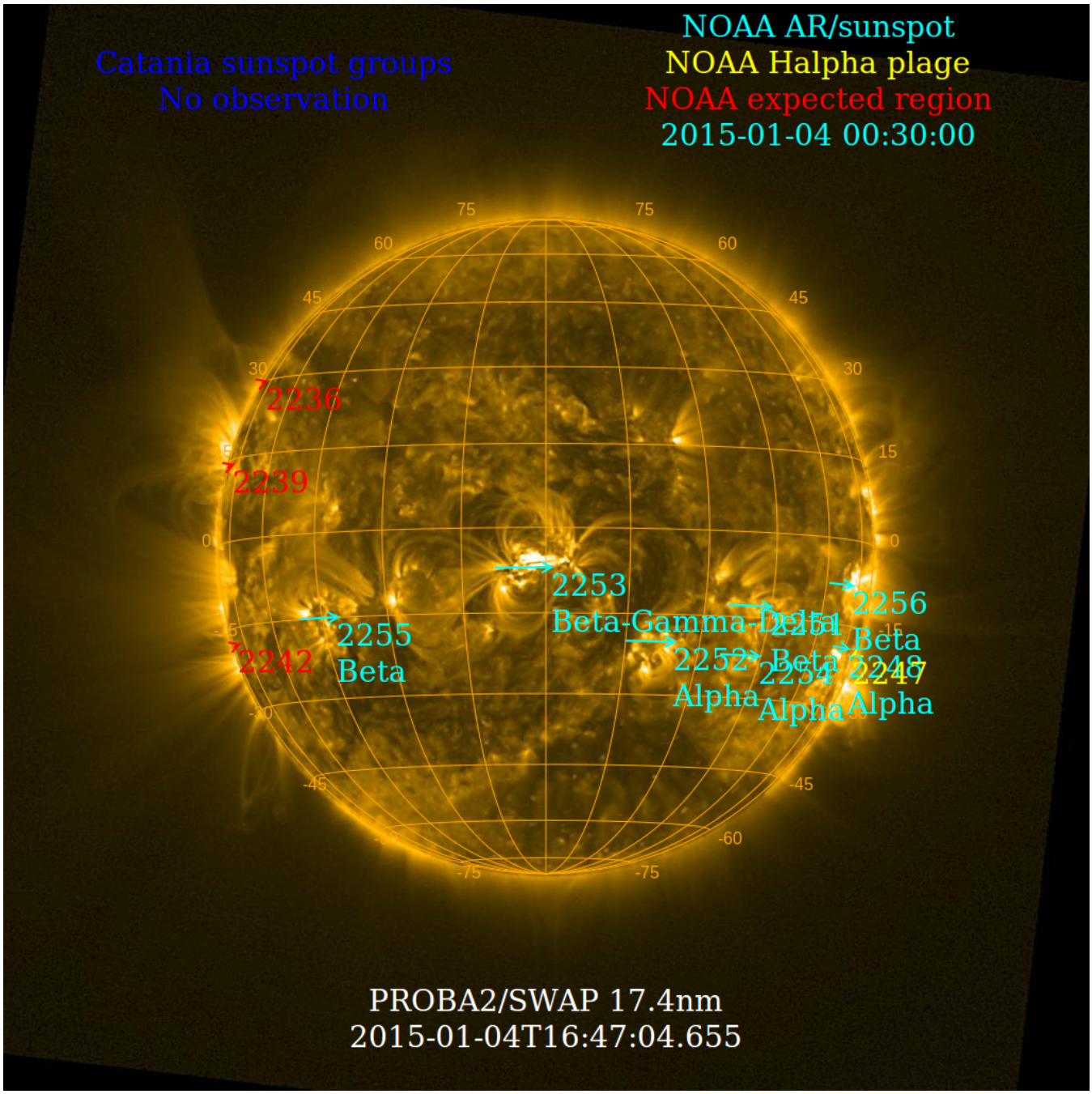
	Monday 29 Dec	Tuesday 30 Dec	Wednesday 31 Dec	Thursday 01 Jan	Friday 02 Jan	Saturday 03 Jan	Sunday 04 Jan
Activity	low	low	low	low	low	moderate	moderate
Flares	-	-	-	-	-	**M1.1@09:47**	**M1.3@15:36**

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

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



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


Catania sunspot groups
No observation
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2015-01-04 00:30:00
75
60
45
30
15
0
-15
-30
-45
-60
-75
2236
2239
2242
2253
Beta-Gamma-Delta
2255
Beta
2256
Beta
2252
Beta
2254
Alpha
2247
Alpha
PROBA2/SWAP 17.4nm
2015-01-04T16:47:04.655

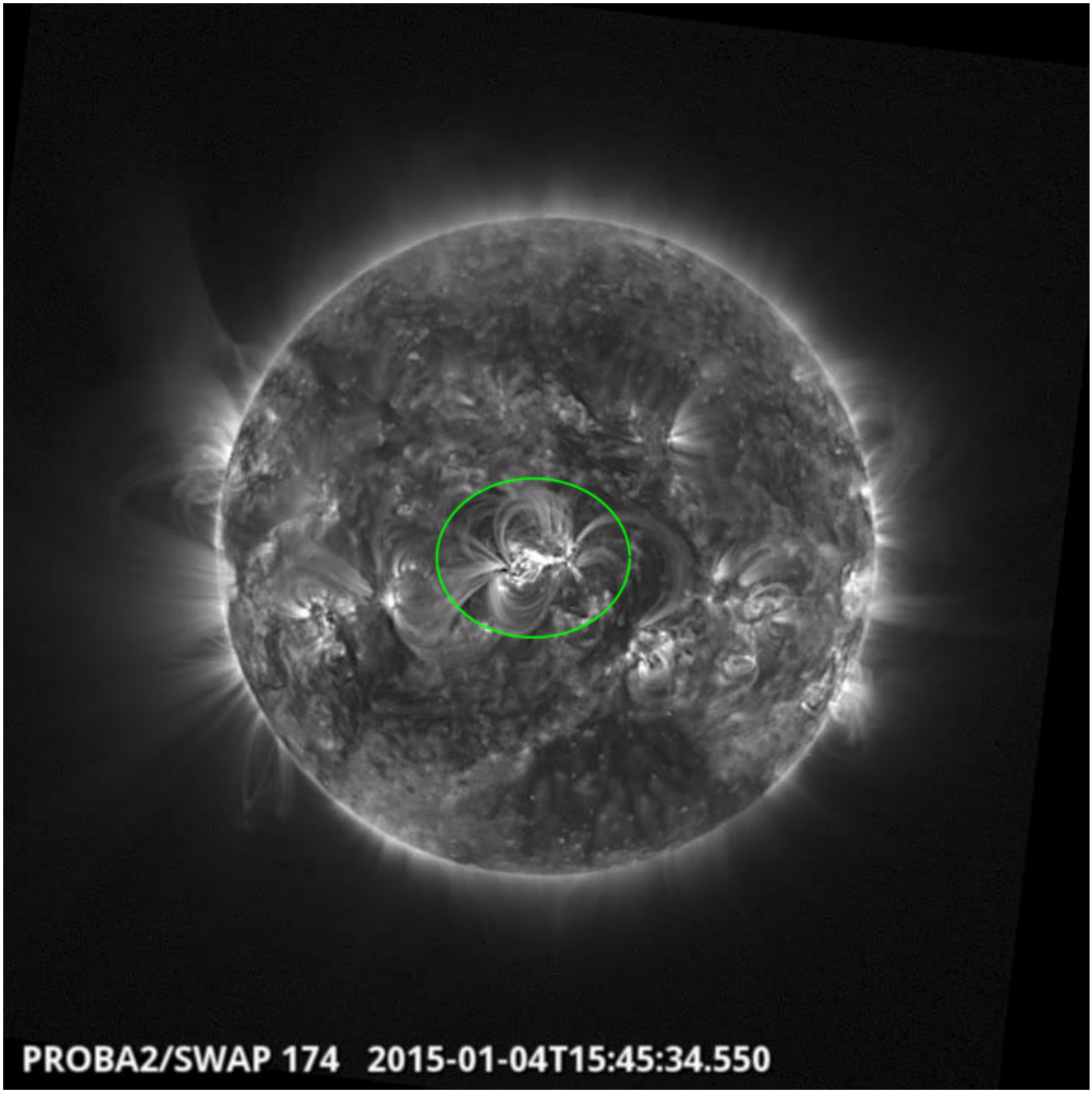
Solar Activity

Solar flare activity fluctuated between low and moderate 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 249).

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

Sunday Jan 04

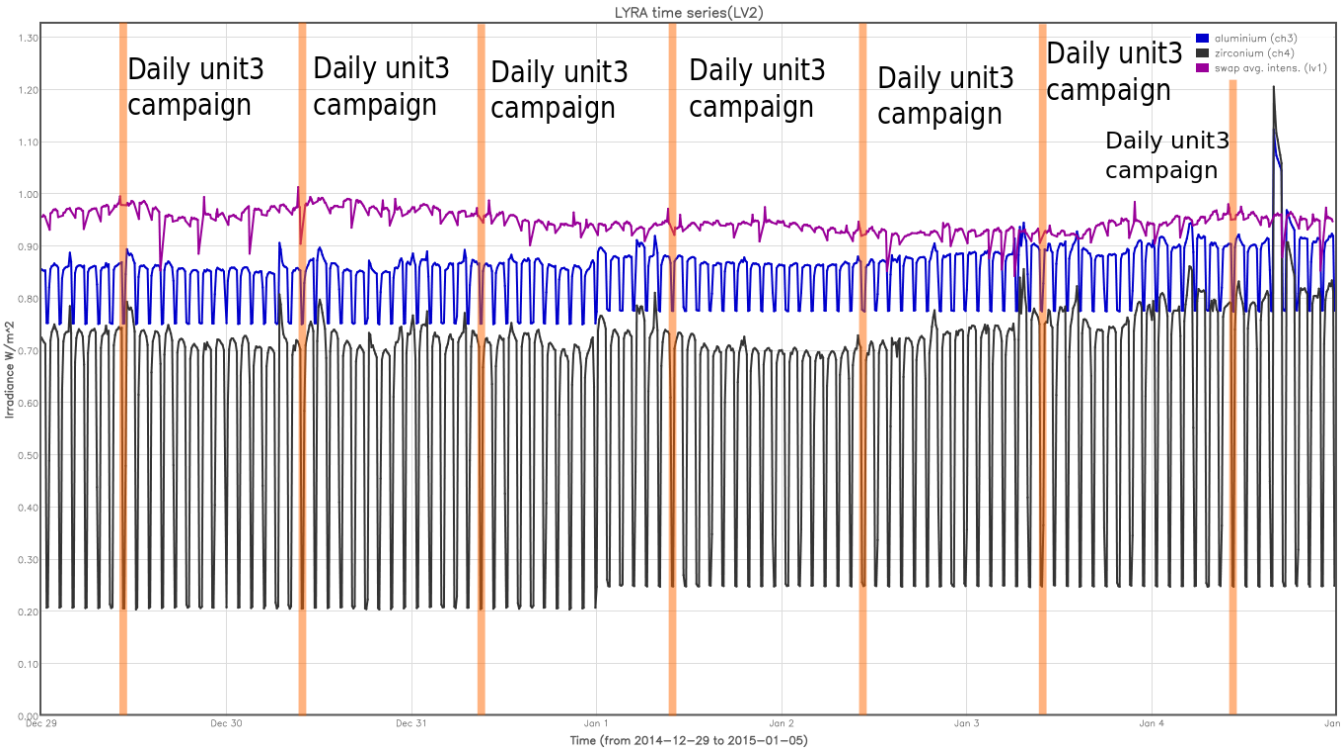


M-flare in the Sun's centre @ 15:45 - SWAP image

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:

- Daily unit 3 campaigns, seven 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).

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 29 Dec	Tuesday 30 Dec	Wednesday 31 Dec	Thursday 01 Jan	Friday 02 Jan	Saturday 03 Jan	Sunday 04 Jan
Nominal acquisition + daily U3 LYIOS00443	Nominal acquisition + daily U3 LYIOS00443	Nominal acquisition + daily U3 LYIOS00443	Nominal acquisition + daily U3 LYIOS00443	Nominal acquisition + daily U3 LYIOS00443	Nominal acquisition + daily U3 LYIOS00443	Nominal acquisition + daily U3 LYIOS00443

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- dark current measurements with unit 3

LYRA detector temperature

LYRA detector 2 temperature globally varied between 41.8 and 44 °C, taking into account the daily U3 activation periods.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 24995 to 25212.
The number of MCPM unrecoverable errors increased from 3413 to 3581.

IOS & operations

Monday 29 Dec	Tuesday 30 Dec	Wednesday 31 Dec	Thursday 01 Jan	Friday 02 Jan	Saturday 03 Jan	Sunday 04 Jan
Nominal acquisition IOS00558 655 images	Nominal acquisition IOS00558 664 images	Nominal acquisition IOS00558 641 images	Nominal acquisition IOS00558 684 images	Nominal acquisition IOS00558 616 images	Nominal acquisition IOS00558 517 images	Nominal acquisition IOS00558 536 images

Special operations for SWAP, this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -3.9 and -2.25 °C.

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 16164 to 16223) 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 2014 Dec 29 0UT and 2015 Jan 05 0UT: 4313
Highest cadence in this period: 0 seconds
Average cadence in this period: 139.83 seconds
Number of image gaps larger than 300 seconds: 101
Largest data gap: 31.95 minutes

The data gap is due to the occultation jumps

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
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)