P2SC-ROB-WR-140-20121126 Weekly report #140	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Nov 26 to Sun Dec 03, 2012 05 Dec 2012 Erik Pylyser David Berghmans	Royal Observatory of Belgium PROBA2 Science Center
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1. Science

Solar & Space weather events

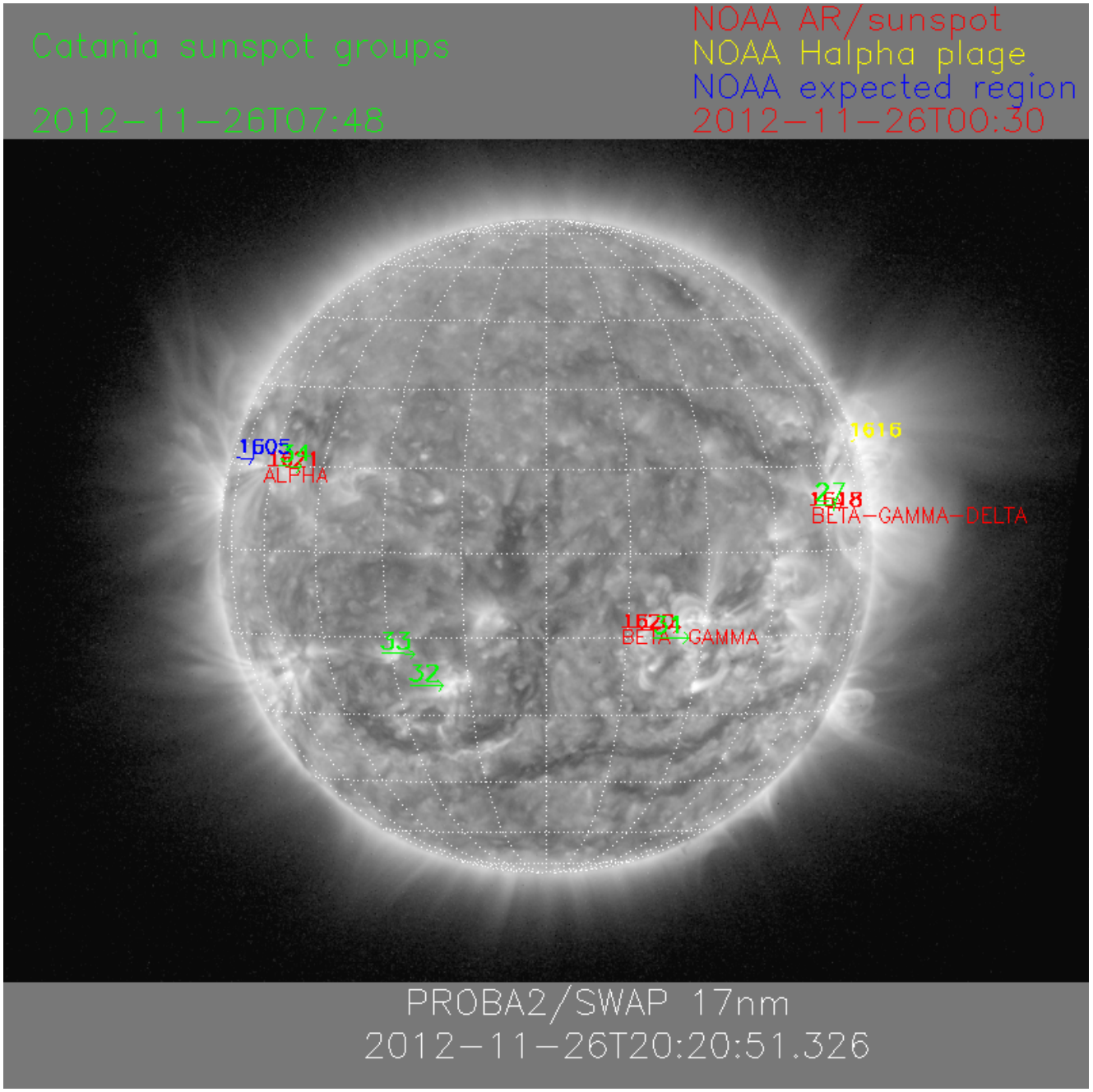
Overview

The level of solar activity[1] this week and associated M- and X-flares:

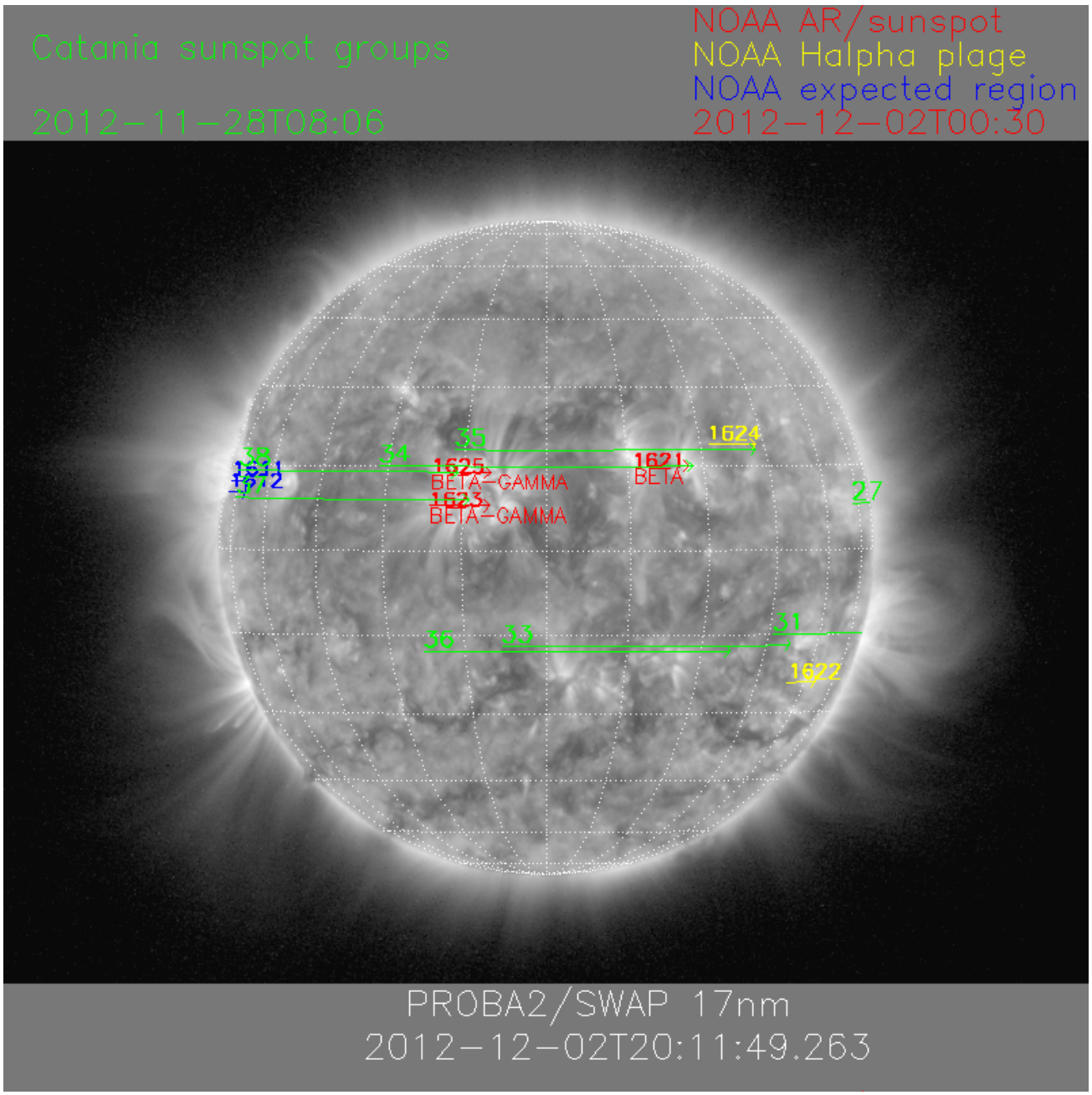
	Monday 26 Nov	Tuesday 27 Nov	Wednesday 28 Nov	Thursday 29 Nov	Friday 30 Nov	Saturday 01 Dec	Sunday 02 Dec
Activity	low	moderate	moderate	low	low	low	very low
Flares	-	**M1.6@15:52** **M1.1@21:05**	**M2.2@21:20**	-	-	-	-

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

The SWAP images of Nov 26 and Dec 02 are shown below, with annotated active regions.



http://sidc.be/html/CmapPage.html

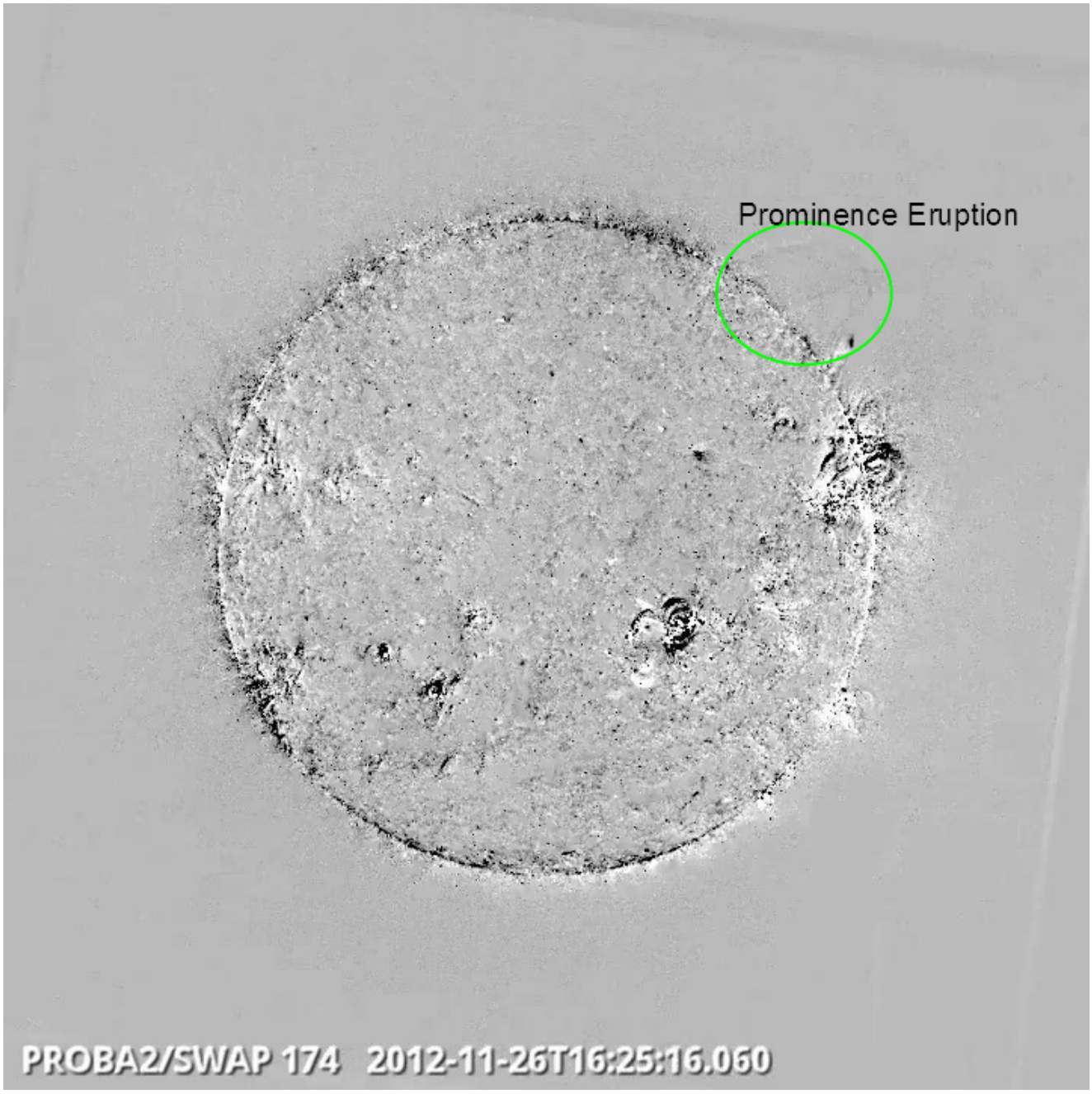

Catania sunspot groups
2012-11-28T08:06
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2012-12-02T00:30
35
1624
34
1621
BETA
BETA-GAMMA
BETA-GAMMA
27
31
33
1622
PROBA2/SWAP 17nm
2012-12-02T20:11:49.263

Solar Activity

This week, the Sun's activity level increased to *moderate* with the further development of AR 11620 (M1.0 and M2.2) and a contribution of AR 11618 (M1.6), on Tuesday/Wednesday Subsequently, activity decreased towards a *very low* level on Sunday.

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.

Some of the events of this week are presented below:

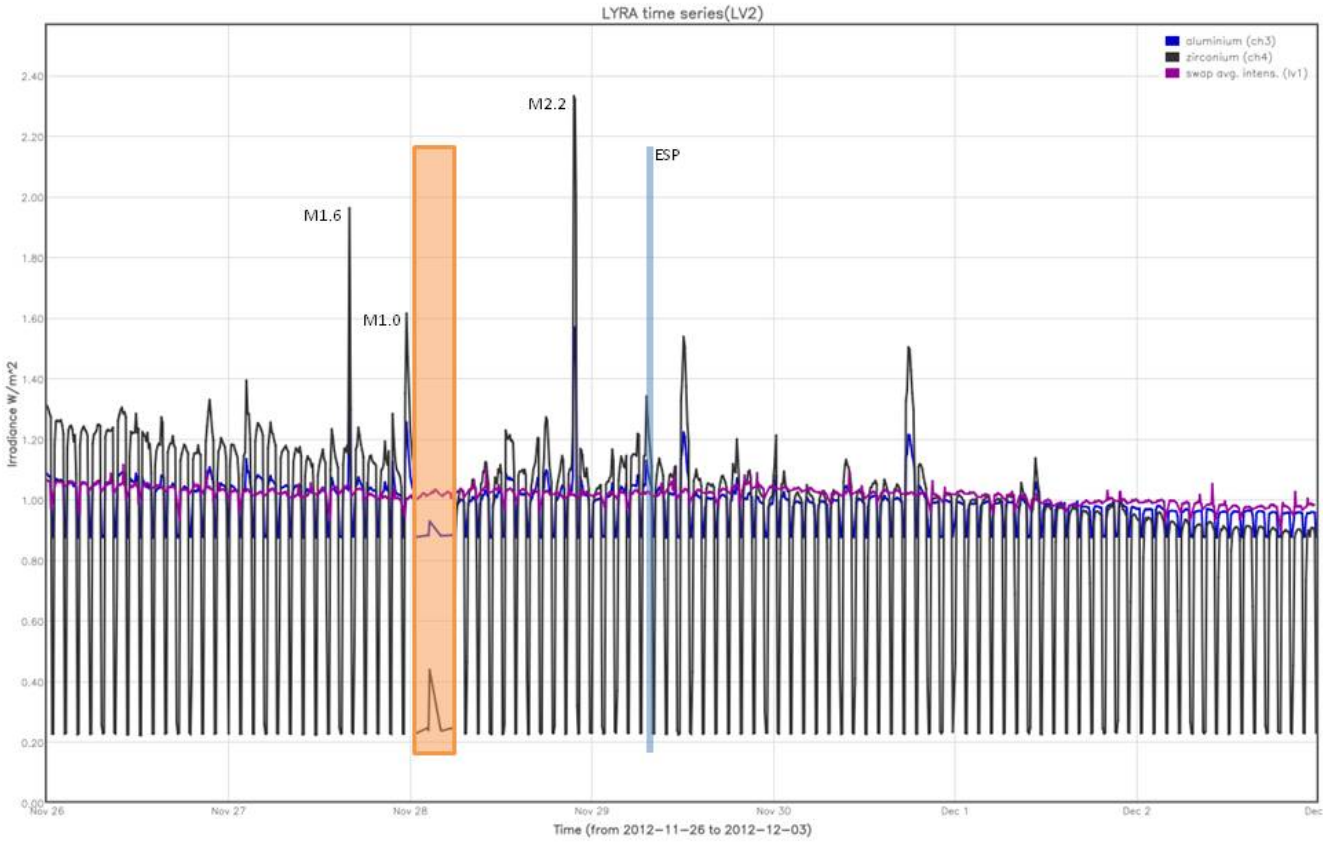



Filament
Eruption
PROBA2/SWAP 174 2012-11-27T02:44:09.734


M1.6
Prominence Eruption
PROBA2/SWAP 174 2012-11-27T15:56:46.366


Backside
Flare
PROBA2/SWAP 174 2012-11-28T19:48:32.906

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 (solar intensity derived from ‘integrated’ SWAP images)



The blue shaded periods correspond to, from left to right:
- ESP experiment on Thursday

The orange shaded periods correspond to, from left to right:
- a special LYRA calibration campaign on Wednesday

The red shaded period corresponds to:
- None

Outreach, papers, presentations, etc.

- SWAP data have been incorporated into SolarSoft package FESTIVAL. The associated website is http://www.ias.u-psud.fr/stereo/festival/. Currently, this website is not up to date.

Please also 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.

Guest Investigator Programme

Farid Gorayev will leave P2SC on December 4th.

2. LYRA instrument status

Calibration

Special LYRA calibration on Wednesday.

IOS & operations

Monday 26 Nov	Tuesday 27 Nov	Wednesday 28 Nov	Thursday 29 Nov	Friday 30 Nov	Saturday 01 Dec	Sunday 02 Dec
Nominal acquisition + daily U3 LYIOS00289	Nominal acquisition + daily U3 LYIOS00289	Nominal acquisition + daily U3 + special calibration LYIOS00290	Nominal acquisition + daily U3 LYIOS00290	Nominal acquisition + daily U3 LYIOS00290	Nominal acquisition + daily U3 LYIOS00291	Nominal acquisition + daily U3 LYIOS00291

The following science campaigns were performed by LYRA:
- the daily U3 campaign.

LYRA detector temperature

LYRA detector 2 temperature fluctuated between 41.7 and 39.2 degrees C, including the daily U3 activation periods. The latter result in a temperature increase of about 0.4 degrees.
During the special calibration campaign, temperature dropped to 37.4 degrees C.

To be explored
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3. SWAP instrument status

Calibration

No calibration this week.

MCPM errors

The number of MCPM recoverable errors increased from 5338 to 5375.

The number of MCPM unrecoverable errors increased from 1127 to 1127.

IOS & operations

Monday 26 Nov	Tuesday 27 Nov	Wednesday 28 Nov	Thursday 29 Nov	Friday 30 Nov	Saturday 01 Dec	Sunday 02 Dec
Nominal acquisition IOS00428 562 images	Nominal acquisition IOS00428 566 images	Nominal acquisition IOS00429 559 images	Nominal acquisition + ESP IOS00429 546 images	Nominal acquisition IOS00429 554 images	Nominal acquisition IOS00430 566 images	Nominal acquisition IOS00430 549 images

Special operations for SWAP, this week:
- Occultation jumps
- ESP jump

SWAP detector temperature

The SWAP Cold Finger Temperature, under nominal operations, increased generally, fluctuating between - 2.9 and - 4.5 degrees Celsius.

LAR delays were missed on the following occasions:
- None

causing each time a temporary increase of temperature of an estimated 0.6-0.7 degrees.

To be explored

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4. PROBA2 Science Center Status

The main operator is Koen Stegen.

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 9568 to 9625) was nominal, except for:
- None

Data coverage HK

All HK data files (LYRA_AD) have been received, except for:
- None

Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received, except for:
- None

Total number of images between 2012 Nov 26 0UT and 2012 Dec 03 0UT: 3902
Highest cadence in this period: 110 seconds
Average cadence in this period: 154.57 seconds
Number of image gaps larger than 300 seconds: 103
Largest data gap: 31.98 minutes

The large gap is due to the ESP experiment on Thursday.
The number of (smaller) gaps is due to the implementation of the SWAP occultation jumps.

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received, except for:
- 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
EIT	Extreme ultraviolet Imaging Telescope
FITS	Flexible Image Transport System
FOV	Field Of View FPA Focal Plane Assembly
FPGA	Field Programmable Gate Arrays
GPS	Global Positioning System
HAS	High Accuracy Star tracker
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
OBET	On board Elapsed Time
OBSW	On board Software
PE	Proximity Electronics
PI	Principal Investigator
P2SC	PROBA2 Science Center
ROB	Royal Observatory of Belgium
SAA	South Atlantic Anomaly
SEU	Single Event Upset
SOHO	Solar and Heliospheric Observatory
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

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)
(+ extreme?)