P2SC-ROB-WR-147-20130114 Weekly report #147	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Jan 14 to Sun Jan 20 , 2013 24 Jan 2012 Erik Pylyser David Berghmans	Royal Observatory of Belgium PROBA2 Science Center
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1. Science

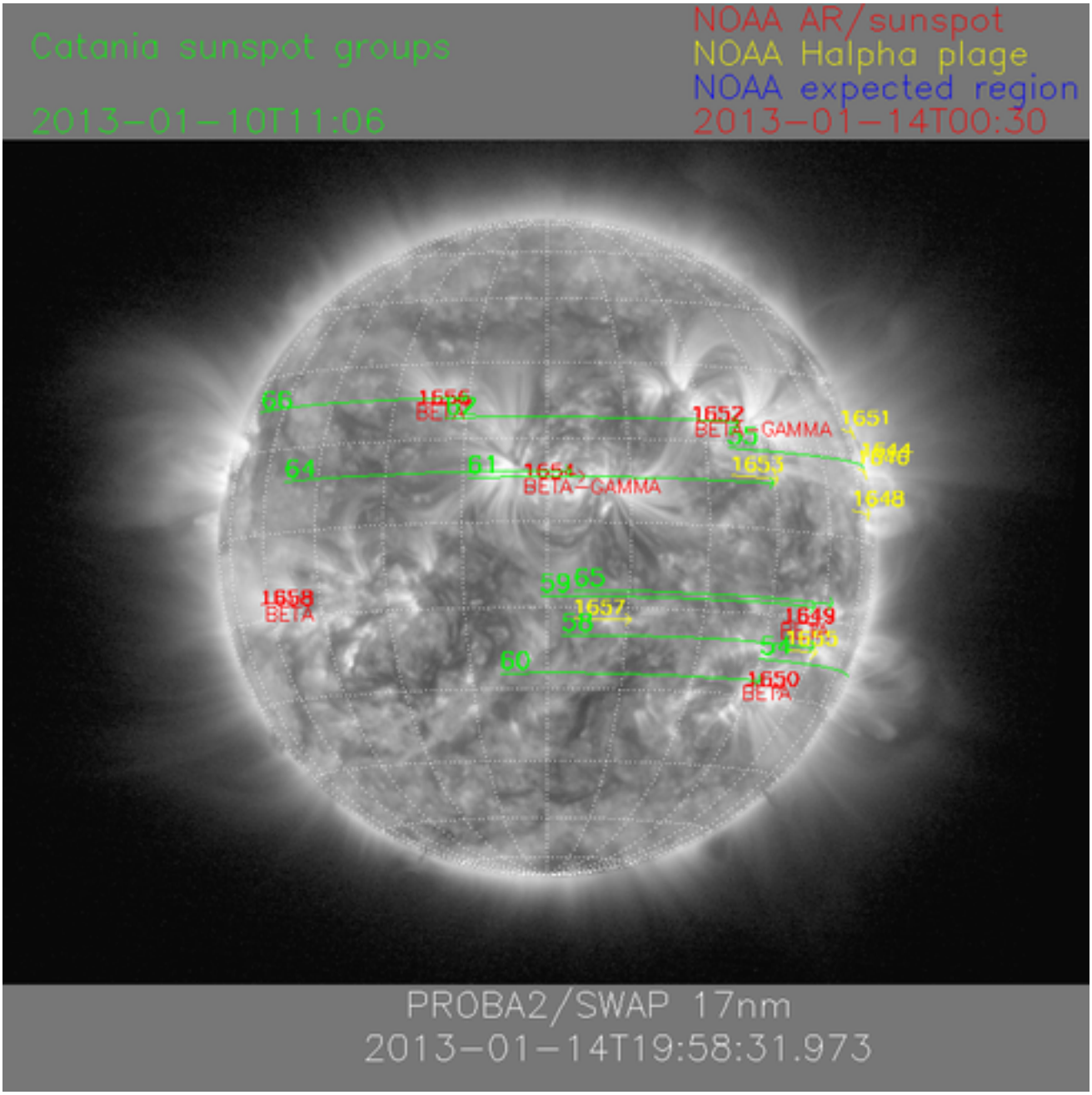
Solar & Space weather events

The level of solar activity[1] this week. Only M- and X-flares are mentioned, the most energetic one(s) are presented in **bold**:

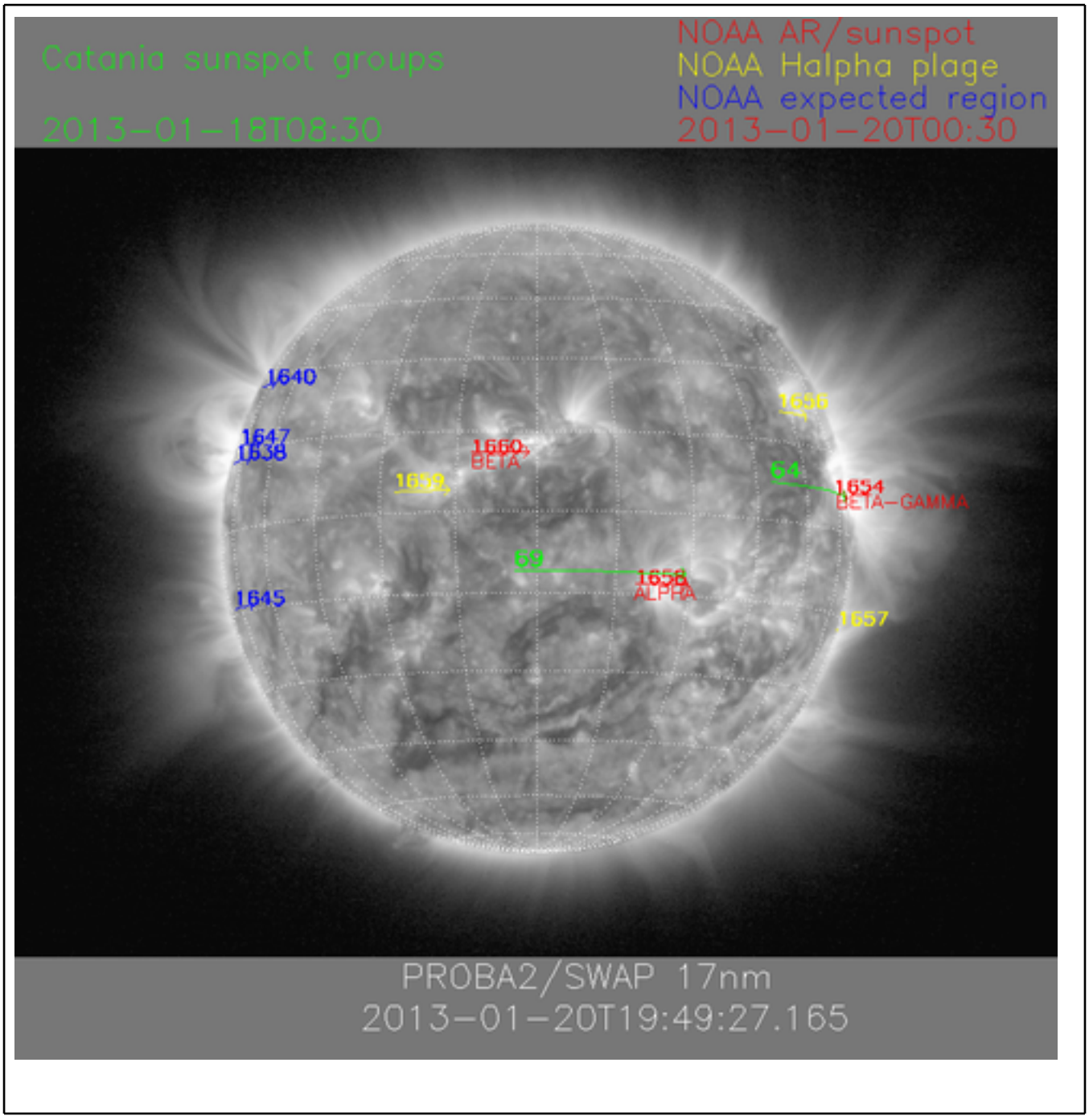
	Monday 14 Jan	Tuesday 15 Jan	Wednesday 16 Jan	Thursday 17 Jan	Friday 18 Jan	Saturday 19 Jan	Sunday 20 Jan
Activity	low	low	low	very low	low	low	low
Flares	-	-	-	-	-	-	-

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

The SWAP images of January 14 and January 20 are shown below, with annotated active regions.



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


Catania sunspot groups
2013-01-18T08:30
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2013-01-20T00:30
1640
1647
1638
1660
BETA
1659
1656
64
1654
BETA-GAMMA
69
1658
ALPHA
1645
1657
PROBA2/SWAP 17nm
2013-01-20T19:49:27.165

Solar Activity

Solar (flaring) activity was **low** during the whole week. On Wednesday it was **very low**. Back-ground EUV radiation decreased steadily 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.

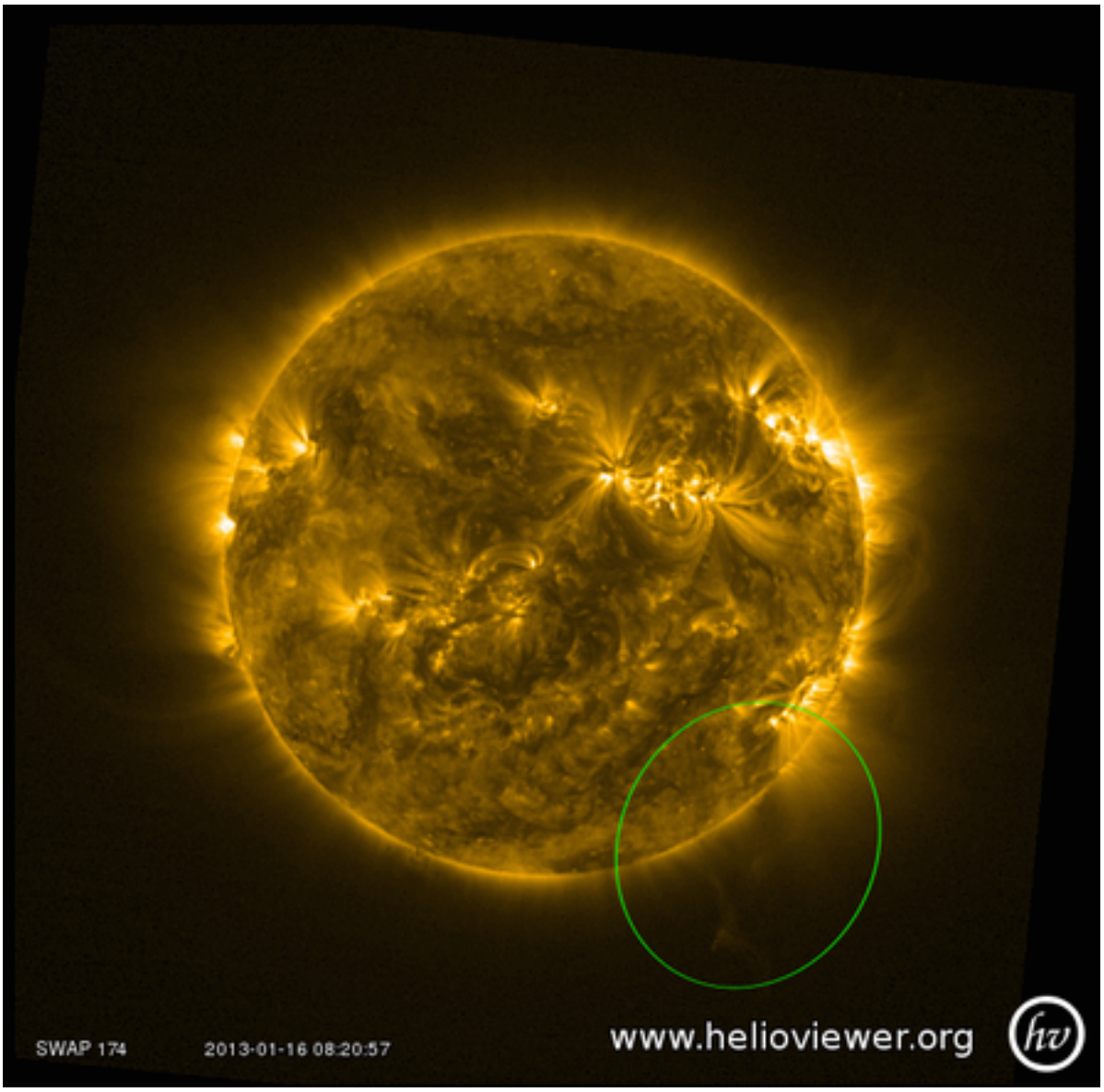
A weekly overview movie can be found here (SWAP174/AIA304 combination; HelioViewer.org).
Details about some of the events in this movie can be found further below.

1. Eruption in AR11657 on Monday 14th. See here for a movie.

2. Prominence Eruption on Monday 15th (see also here for a movie):

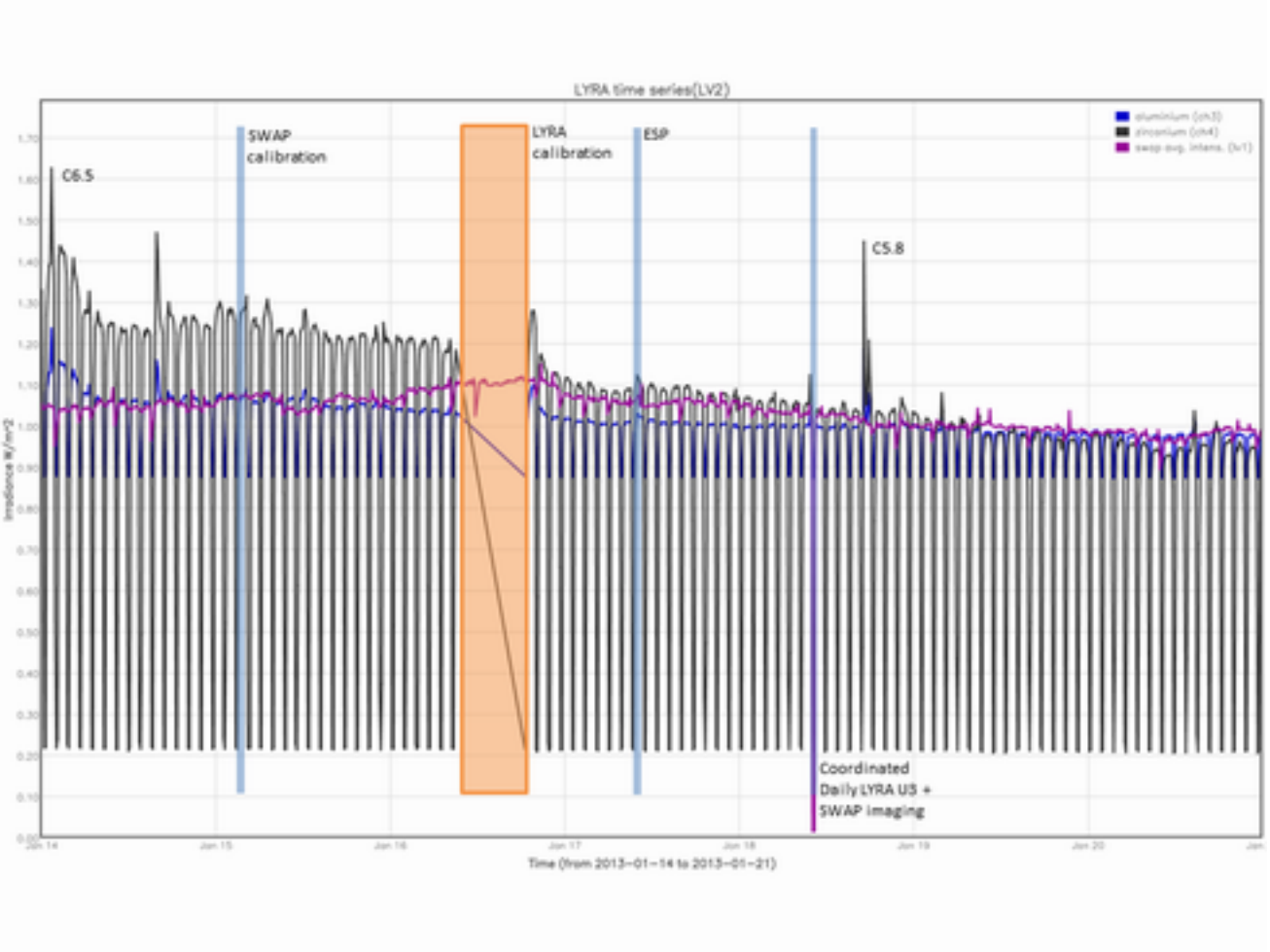
SWAP difference image

3. Prominence Eruption on Wed 16th (for a movie - see here) - Note in this movie how far out the prominence is moving - it can be seen in the SWAP image, going beyond the AIA field of view.



SWAP normal image (extracted from HelioViewer.org)

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:
- SWAP calibration on Tuesday
- ESP experiment on Thursday
- Coordinated imaging campaign with LYRA daily U3 campaign on Friday.

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

The red shaded period corresponds to:
- None

Outreach, papers, presentations, etc.

- The scientific part of the contents of the “Solar Activity” section above is published in this week’s STCE Bulletin (see http://www.stce.be/newsletter/newsletter.php)

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 Program

Guest Investigator Muzhou Lu arrived at P2SC on January 03, 2013. His stay will last until February 2nd, 2013. The topic of his program is ‘Observations and Modeling of Solar Coronal Structures Using High-Resolution Eclipse Images and Space-based telescopes with Wide FOV’.

2. LYRA instrument status

Calibration

LYRA calibration on Wednesday.

IOS & operations

Monday 14 Jan	Tuesday 15 Jan	Wednesday 16 Jan	Thursday 17 Jan	Friday 18 Jan	Saturday 19 Jan	Sunday 20 Jan
Nominal acquisition + daily U3 LYIOS00300	Nominal acquisition + daily U3 LYIOS00300	Nominal acquisition + daily U3 + calibration LYIOS00300	Nominal acquisition + daily U3 LYIOS00300	Nominal acquisition + daily U3 LYIOS00301	Nominal acquisition + daily U3 LYIOS00301	Nominal acquisition + daily U3 LYIOS00301

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

LYRA detector temperature

LYRA detector 2 temperature globally increased between 41.6 and 44.6 degrees C, including the daily U3 activation periods. The latter result in a temperature increase of about 0.4 degrees C. During calibration, temperature decreased to 40.7 degrees C.

To be explored

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3. SWAP instrument status

Calibration

SWAP calibration on Tuesday.

MCPM errors

The number of MCPM recoverable errors increased from 5814 to 5956.

The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 14 Jan	Tuesday 15 Jan	Wednesday 16 Jan	Thursday 17 Jan	Friday 18 Jan	Saturday 19 Jan	Sunday 20 Jan
Nominal acquisition IOS00443 563 images	Nominal acquisition + calibration IOS00443 617 images	Nominal acquisition IOS00443 565 images	Nominal acquisition + ESP IOS00443 564 images	Nominal acquisition + SWAP/LYRA coord. camp. IOS00444 618 images	Nominal acquisition IOS00444 585 images	Nominal acquisition IOS00444 537 images

Special operations for SWAP, this week:
- Occultation jumps
- ESP jump
- Coordinated imaging campaign with LYRA daily U3 campaign on Friday.

SWAP detector temperature

The SWAP Cold Finger Temperature, under nominal operations, increased overall, fluctuating between -3.2 and -1.0 degrees Celsius.

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 9982 to 10039) 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 2013 Jan 14 0UT and 2013 Jan 21 0UT: 4084
Highest cadence in this period: 29 seconds
Average cadence in this period: 148.09 seconds
Number of image gaps larger than 300 seconds: 102
Largest data gap: 31.83 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
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

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?)