P2SC-ROB-WR-132-20121001 Weekly report #132	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Oct 01 to Sun Oct 07, 2012 10 Oct 2012 Erik Pylyser David Berghmans	Royal Observatory of Belgium PROBA2 Science Center
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1. Science

Solar & Space weather events

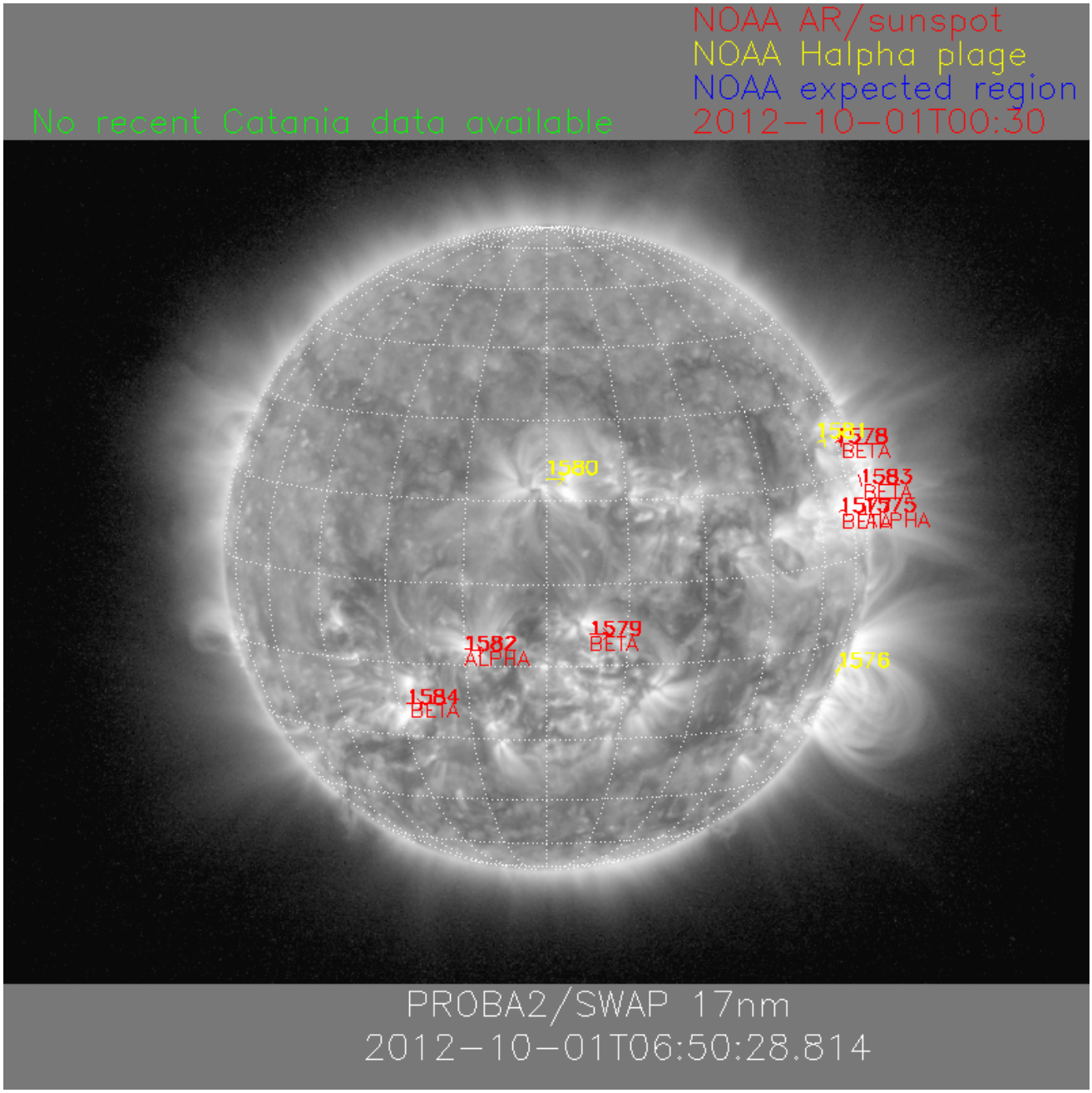
Overview

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

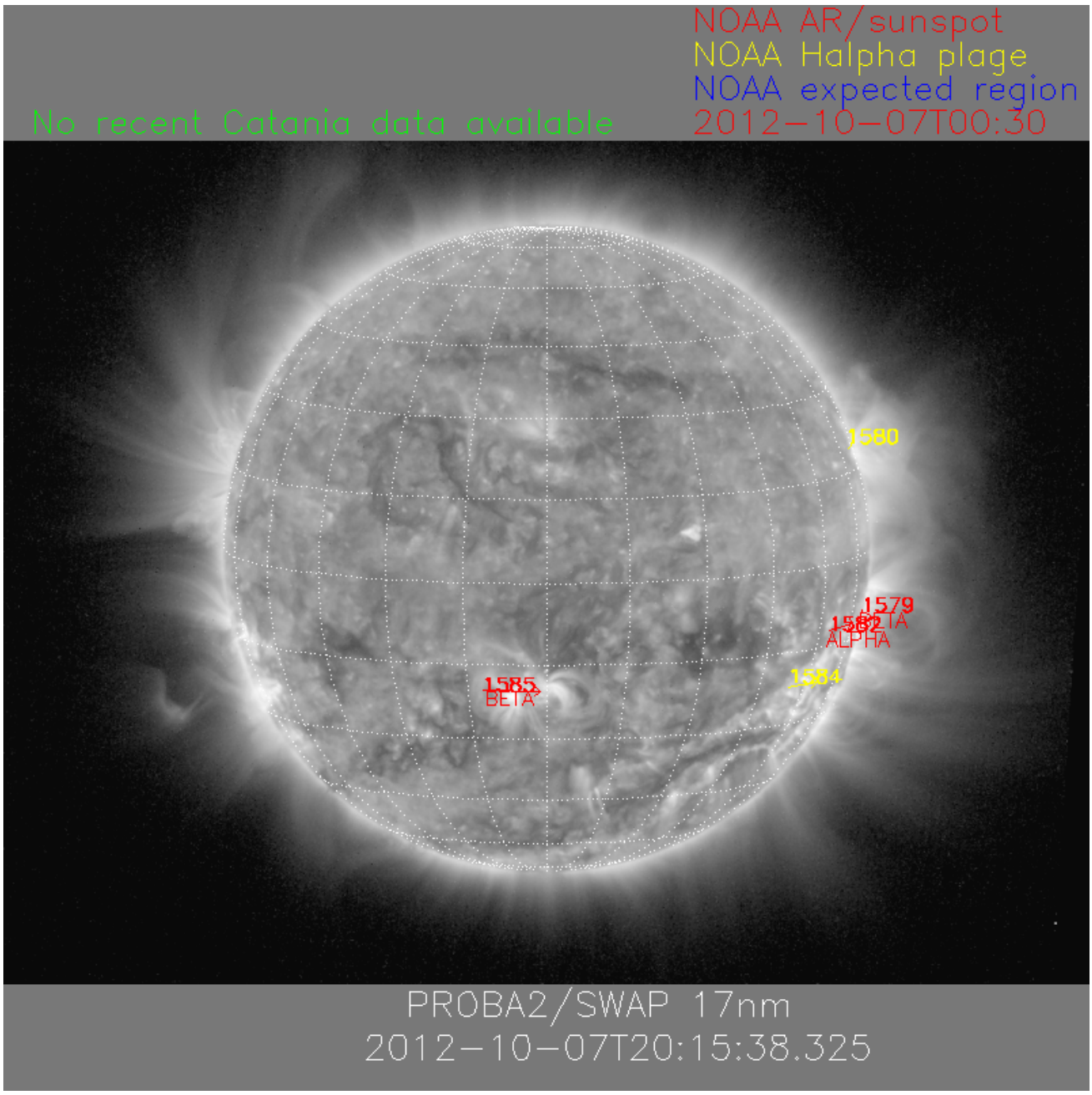
	Monday 01 Oct	Tuesday 02 Oct	Wednesday 03 Oct	Thursday 04 Oct	Friday 05 Oct	Saturday 06 Oct	Sunday 07 Oct
Activity	low	low	very low	very low	very low	very low	low
Flares	-	-	-	-	-	-	-

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

The SWAP images of Oct 01 and Oct 07 are shown below, with annotated active regions.



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


NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
No recent Catania data available
2012-10-07T00:30
1580
1579
BETA
1582
ALPHA
1584
1585
BETA
PROBA2/SWAP 17nm
2012-10-07T20:15:38.325

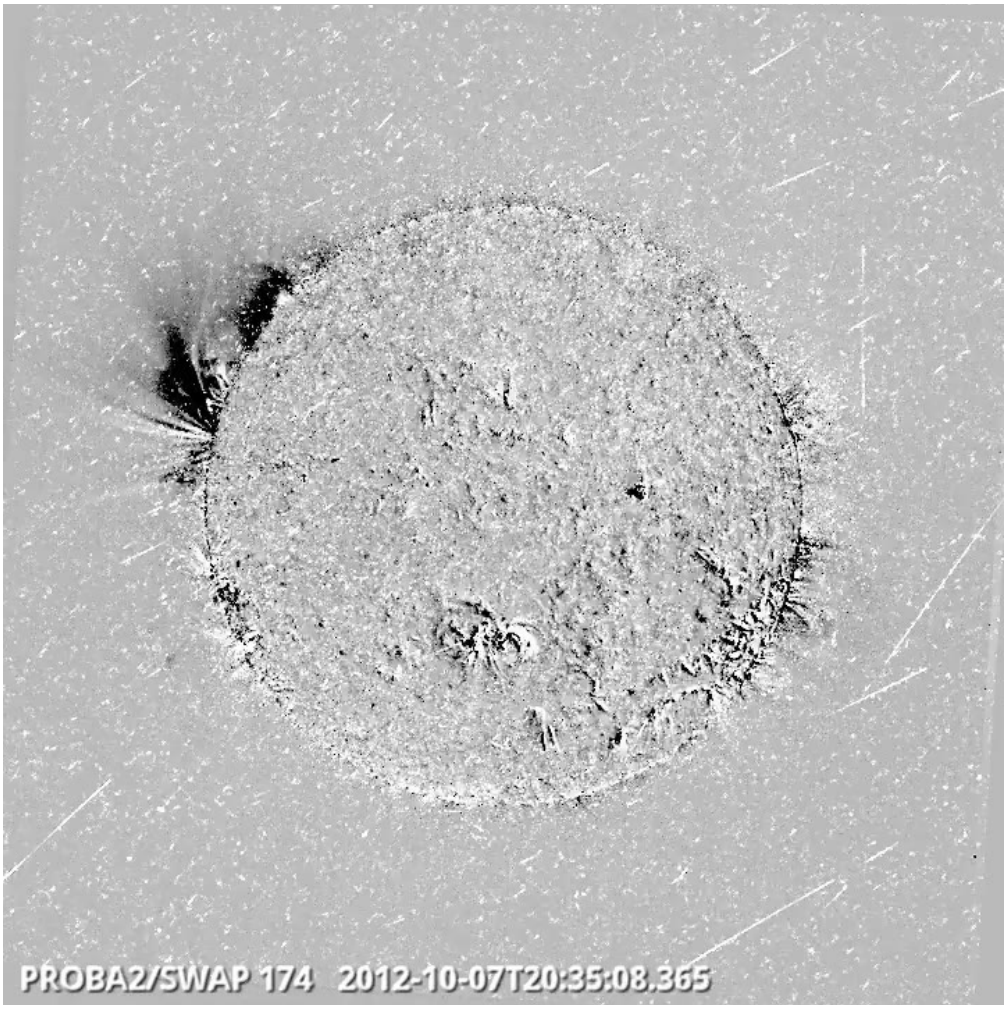
Solar Activity
This week, the Sun's activity level was *Low*, evolving to *Very Low* (B-level) since Wednesday. A single low level C-flare occurred on the north-east limb on Sunday (*Low*). It may indicate more active days ahead.

On Thursday, October 4th, an eruption occurred, slightly North of the equator and slightly West of the meridian. It impacted shortly the magnetic fieldlines southward, and then propagated in north-western direction, along the existing AR-train, up to the north-west limb.

Below is shown an image extracted from the SWAP 'difference movie', during the north-western propagation of the effect of the eruption. A movie showing the evolution of this event is here.

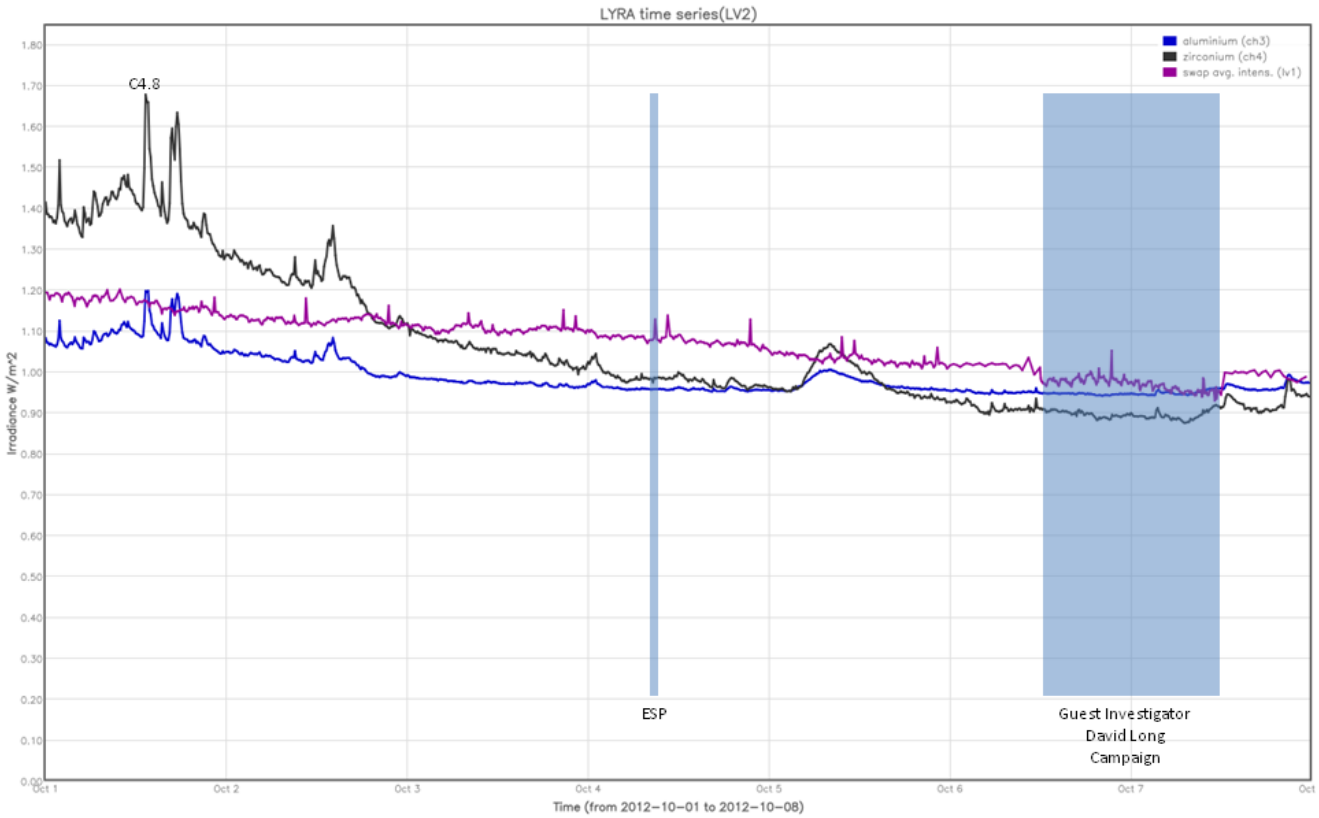
On Sunday 7th, several events took place (a movie covering these can be found here - Helioviewer movie with PROBA2/SWAP and SDO/AIA 304):
- around 02:00, a prominence located at the Southern limb erupted (normal and difference movies of this event can be found here and here, respectively); note that SWAP is able to follow this eruption beyond the AIA 304 field of view
- around 07:00, a feature emerged over the south-east limb, and prominently stayed there until it disappeared in the morning of October 8th.
- around 21:00, an eruption on the north-east limb (see picture below and a movie here).

Note that between Oct 06, 12:00 UT and Oct 07, 12:00, SWAP was off-pointing, focusing on the west limb for David Long's campaign.



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.

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
- 24 hr SWAP campaign, coordinated with Hinode/EIS,during the week-end (for GI David Long).

The orange shaded periods correspond to, from left to right:
- None

The red shaded period corresponds to:
- None

Outreach, papers, presentations, etc.

‘Space weather data and services at ROB/SIDC’ (invited lecture); I. Dammasch; Romania, 01 Oct 2012 (International Conference "Solar and Heliospheric Influences on the Geospace", Bucharest).

‘Observation of flares with LYRA on PROBA2’ (invited talk); I. Dammasch; Romania, 02 Oct 2012 (International Conference "Solar and Heliospheric Influences on the Geospace", Bucharest).

‘The SWAP EUV Imaging Telescope Part I: Instrument Overview and Pre-Flight Testing’; D. Seaton; published - available as 'Online First' on SpringerLink

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

This week, no Guest Investigators were present at the Royal Observatory of Belgium.

In response to a request of GI David Long, as part of his 2011-2012 program, the P2SC implemented a special campaign of SWAP image sequences between Saturday 6th, 12:00 UT and Sunday 7th, 12:00 UT.

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 01 Oct	Tuesday 02 Oct	Wednesday 03 Oct	Thursday 04 Oct	Friday 05 Oct	Saturday 06 Oct	Sunday 07 Oct
Nominal acquisition + daily U3 LYIOS00270	Nominal acquisition + daily U3 LYIOS00270	Nominal acquisition + daily U3 LYIOS00271	Nominal acquisition + daily U3 LYIOS00271	Nominal acquisition + daily U3 LYIOS00272	Nominal acquisition+ daily U3 LYIOS00272	Nominal acquisition+ daily U3 LYIOS00272

- Except for the daily U3 campaign, no particular science campaigns this week.

LYRA detector temperature

LYRA detector 2 temperature fluctuated between 47.9 and 48.8 degrees, including the daily U3 activation periods. The latter result in a temperature increase of about 0.4 degrees.

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 3807 to 4019.

The number of MCPM unrecoverable errors is still 0.

IOS & operations

Monday 01 Oct	Tuesday 02 Oct	Wednesday 03 Oct	Thursday 04 Oct	Friday 05 Oct	Saturday 06 Oct	Sunday 07 Oct
Nominal acquisition IOS00415 574 images	Nominal acquisition IOS00415 639 images	Nominal acquisition IOS00416 665 images	Nominal acquisition + ESP IOS00416 598 images	Nominal acquisition IOS00417 637 images	Nominal acquisition + David Long campaign IOS00417 1208 images	Nominal acquisition + David Long campaign IOS00417 1537 images

Special operations for SWAP, this week:
- A coordinated off-point campaign with Hinode/EIS (part of David Long GI campaign) was executed during the week-end (Saturday noon to Sunday noon).

SWAP detector temperature

The SWAP Cold Finger Temperature, under nominal operations, increased generally, fluctuating between - 0.11 and 0.87 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:
Complete Update of Repository
01/10/2012: r4578
02/10/2012: r4581
04/10/2012: r4592

LMAT-UI
04/10/2012: r4585 Improve visibility of Submit button.

OPSWEB
04/10/2012: r4586 update link to development wiki after migration of the wiki to a virtual server.

PPT/TLE
01/10/2012: libperl r4577

5. Data reception & discussions with MOC

Passes

The delivery of the passes for this week (passes 9086 to 9146) was nominal, except for:
- Pass 9090: 30 SWAP images lost due to BBE5 problem (Svalbard).
- Pass 9091: 52 SWAP images lost due to BBE5 problem (Svalbard).
- Pass 9120: 6 images lost. No action taken.

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:
- in BINSWAP_9090, 30 images lost between 10:16:13 and 10:19:21
- in BINSWAP_9091, 52 images lost between 13:36:12 and 13:42:02

These events do not create 'gaps', but a lower cadence of SWAP images between about 07:00 and 13:00 UT on Monday October 1st.

Total number of images between 2012 Oct 01 0UT and 2012 Oct 08 0UT: 5858
Highest cadence in this period: 20 seconds
Average cadence in this period: 103.24 seconds
Number of image gaps larger than 300 seconds: 52
Largest data gap: 6.50 minutes

The large gap is due to the ESP experiment on Thursday.

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?)