P2SC-ROB-WR-127-20120827 Weekly report #127	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Aug 27 to Sun Sep 02, 2012 05 Sep 2012 Erik Pylyser David Berghmans	Royal Observatory of Belgium PROBA2 Science Center
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1. Science

Solar & Space weather events

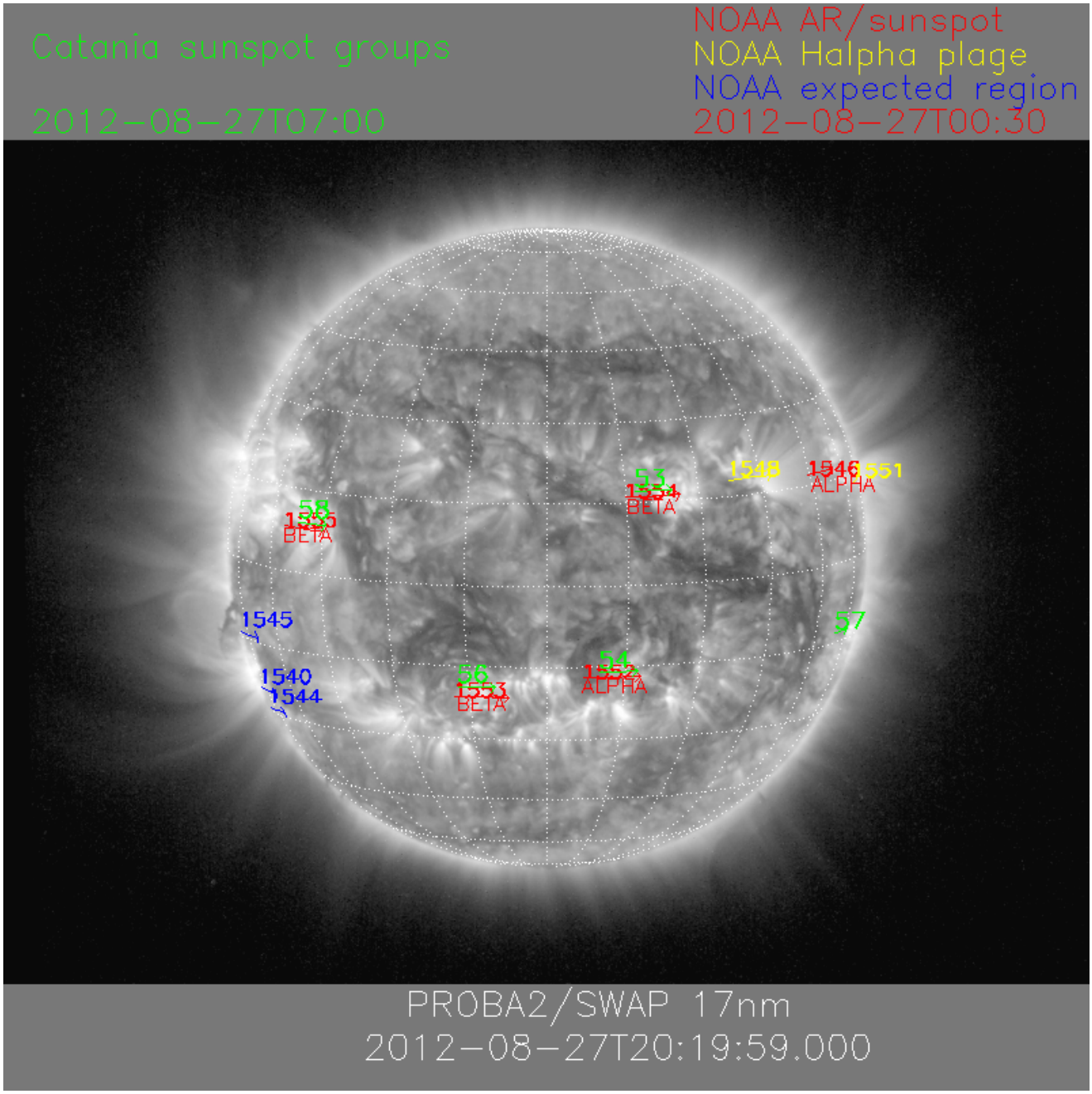
Overview

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

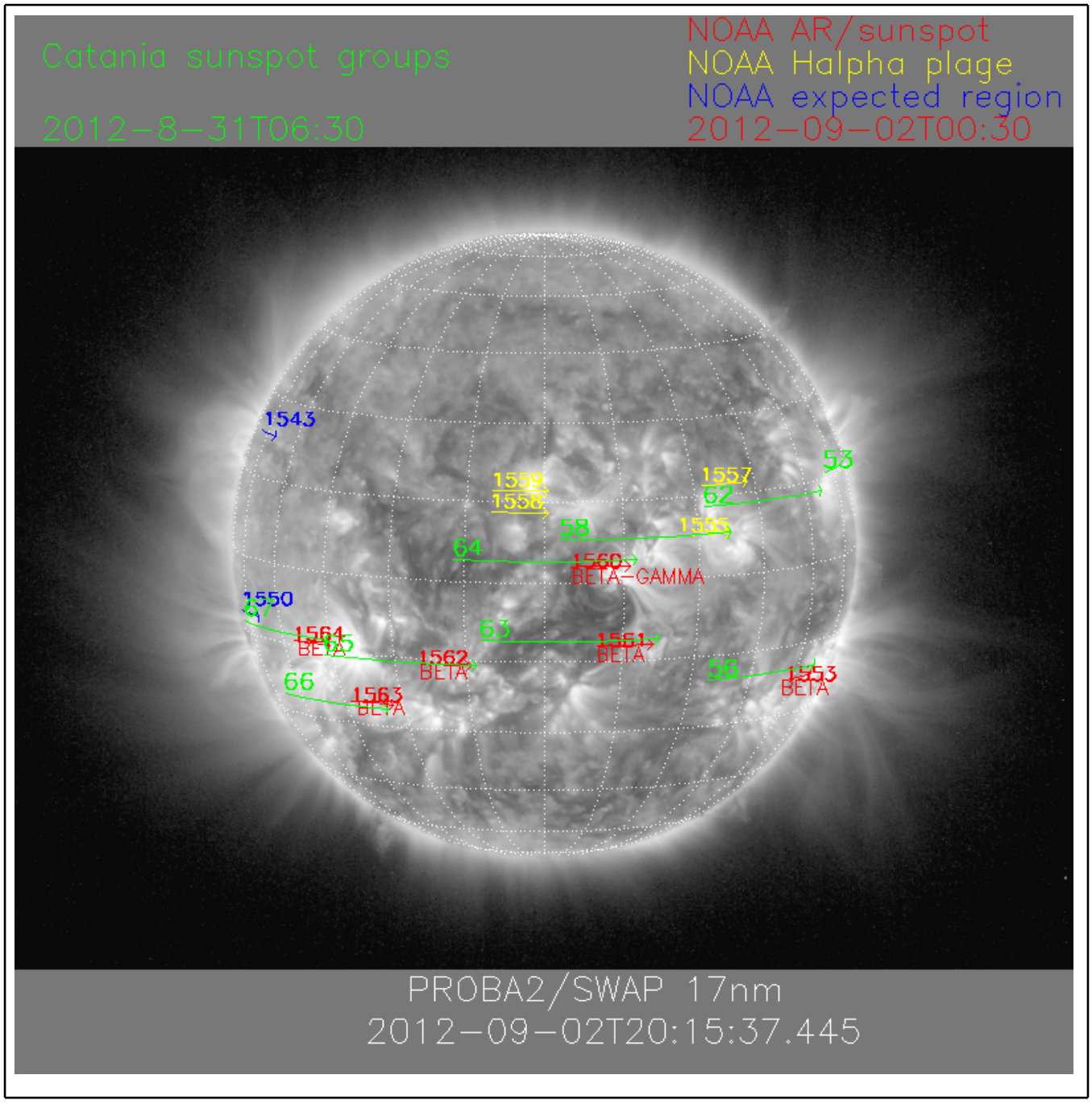
	Monday 27 Aug	Tuesday 28 Aug	Wednesday 29 Aug	Thursday 30 Aug	Friday 31 Aug	Saturday 01 Sep	Sunday 02 Sep
Activity	very low	very low	low	moderate	low	low	low
Flares	-	-	-	**M1.3@12:02**	-	-	-

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

The SWAP images of Aug 27 and Sep 02 are shown below, with annotated active regions.



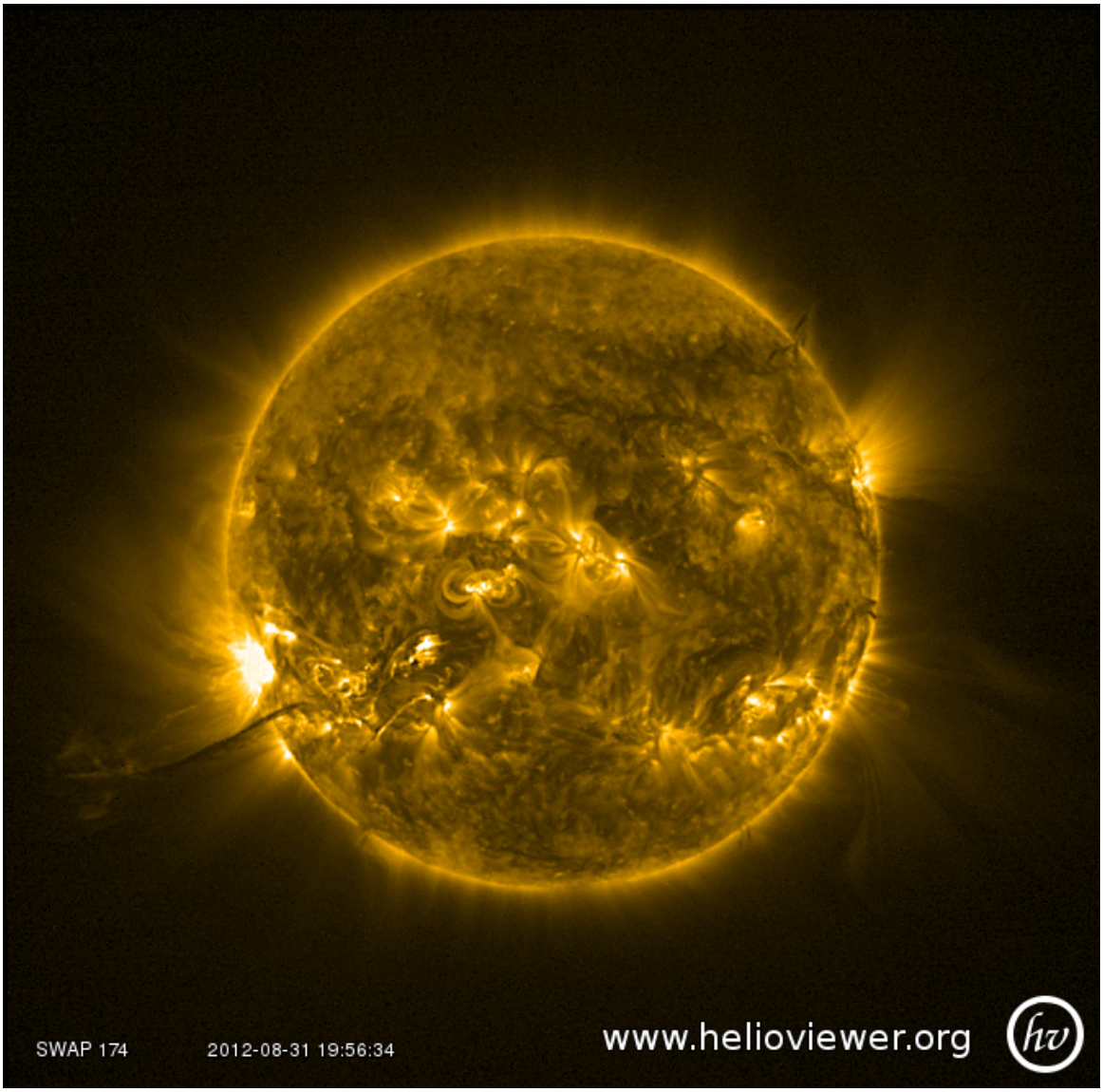
http://sidc.be/html/CmapPage.html


Catania sunspot groups
2012-8-31T06:30
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2012-09-02T00:30
1543
1559
1558
1557
62
53
58
64
BETA-GAMMA
1550
63
1564
BETA
1562
BETA
1561
BETA
56
1553
BETA
66
1563
BETA
PROBA2/SWAP 17nm
2012-09-02T20:15:37.445

Solar Activity
Early this week, the Sun's activity level was *Very Low*. Solar activity started increasing to at the east limb on Tuesday, with the appearance of active regions 11563 and 11564. Many C-flares of increasing level occurred (*Low*) up to the end of the week, including a single M-flare on Thursday (*Moderate*). On Friday, a huge filament erupted, as the result of a C8.4 flare (see below).

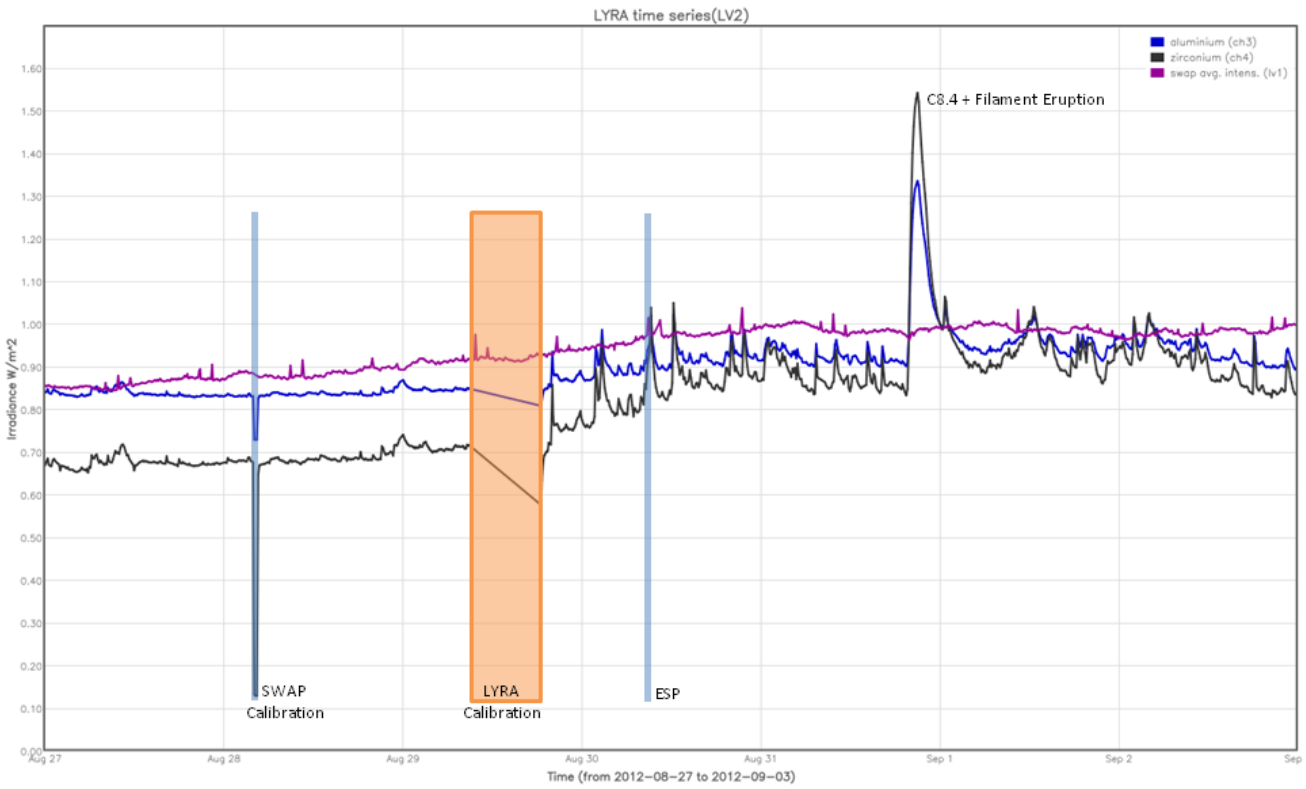
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: http://proba2.oma.be/ssa.
This page also lists the recorded flaring events.

A magnificent filament eruption occurred on Friday 31st around 19:40 (see picture below; movies of the whole eruption can be found here). The erupting filament can be seen traveling in the South-East direction. At the time of this image, the erupting filament is extending out of the SDO/AIA field of view.



Jan Janssens, a member of SIDC, generated an explicative movie here.

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
- ESP experiment on Thursday

The orange shaded periods correspond to, from left to right:
- LYRA Calibration

The red shaded period corresponds to:
- None

Scientific campaigns

LYRA

The following scientific LYRA campaign was performed this week:

- None

SWAP

The following scientific SWAP campaign was performed this week:

- None

Interesting, campaign associated, solar activity:

- None

Outreach, papers, presentations, etc.

- Specific interesting science topics (from section 1 above) are published in the weekly STCE bulletin.

- The future 'reference paper' for the SWAP instrument:
"The SWAP EUV Imaging Telescope Part I: Instrument Overview and Pre-Flight Testing";
Seaton et al., 2012; in press; Topical Issue; http://adsabs.harvard.edu/cgi-bin/bib_query?arXiv:1208.4631

- "Study of CME properties using high resolution data",
Fainshtein, V. G. and Egorov, Ya. I., 2012; in press; Solar Physics; http://esoads.eso.org/abs/2012arXiv1208.2071F.
(Egorov was GI in 2012).

2. LYRA instrument status

Calibration

Calibration performed on Wednesday.

IOS & operations

Monday 27 Aug	Tuesday 28 Aug	Wednesday 29 Aug	Thursday 30 Aug	Friday 31 Aug	Saturday 01 Sep	Sunday 02 Sep
Nominal acquisition + daily U3 LYIOS00264	Nominal acquisition + daily U3 LYIOS00265	Nominal acquisition + daily U3 + Calibration LYIOS00265	Nominal acquisition + daily U3 LYIOS00265	Nominal acquisition + daily U3 LYIOS00265	Nominal acquisition+ daily U3 LYIOS00265	Nominal acquisition+ daily U3 LYIOS00265

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

LYRA detector temperature

LYRA detector 2 temperature fluctuated between 45.7 and 46.9 degrees (including the daily U3 activation periods). During LYRA's calibration on Thursday, temperature decreased to 44.6.

To be explored

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3. SWAP instrument status

Calibration

Calibration performed on Tuesday.

MCPM errors

The number of MCPM recoverable errors increased from 2929 to 3080.

The number of MCPM unrecoverable errors is still 0.

IOS & operations

Monday 27 Aug	Tuesday 28 Aug	Wednesday 29 Aug	Thursday 30 Aug	Friday 31 Aug	Saturday 01 Sep	Sunday 02 Sep
Nominal acquisition IOS00410 586 images	Nominal acquisition + Calibration IOS00410 651 images	Nominal acquisition IOS00410 653 images	Nominal acquisition + ESP IOS00411 511 images	Nominal acquisition IOS00411 665 images	Nominal acquisition IOS00411 546 images	Nominal acquisition IOS00411 569 images

SWAP detector temperature

The SWAP Cold Finger Temperature fluctuated between - 1.10 and - 1.97 degrees Celsius, under nominal operations.

A LAR delay was missed on Thursday 30th, around 04:30, causing an 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 8783 to 8844) 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 Aug 27 0UT and 2012 Sep 03 0UT: 4222
Highest cadence in this period: 30 seconds
Average cadence in this period: 143.23 seconds
Number of image gaps larger than 300 seconds: 2
Largest data gap: 34.33 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?)