


P2SC-ROB-WR-167- 20130603 Weekly report #167	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Jun 03 to Sun Jun 09, 2013 12 June 2013 Erik Pylyser Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

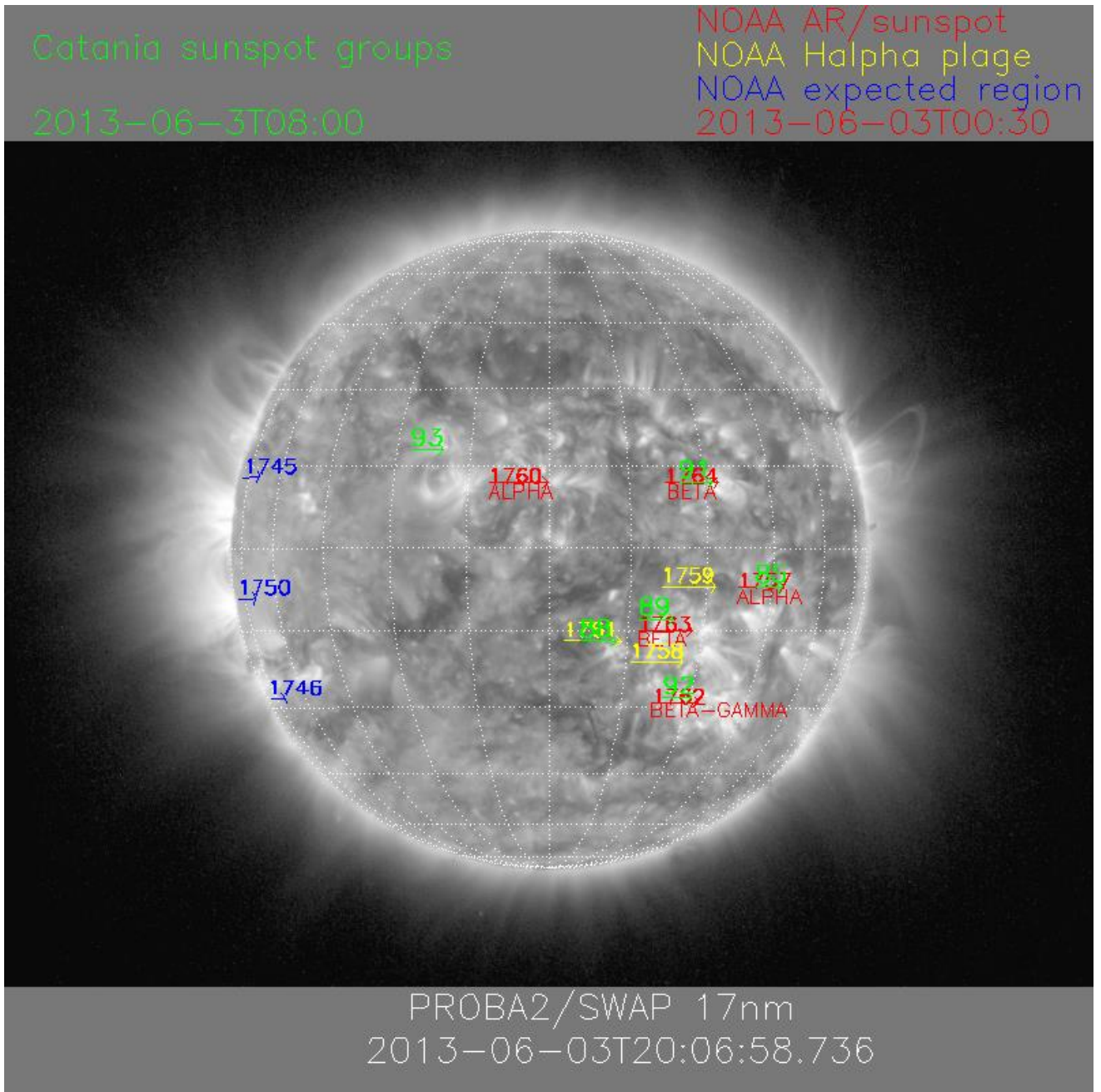
Solar & Space weather events

The level of solar activity¹ this week was **very low** to **moderate**. Only M- and X-flares are mentioned, the most energetic one(s) per day are presented in **bold**:

	Monday 03 Jun	Tuesday 04 Jun	Wednesday 05 Jun	Thursday 06 Jun	Friday 07 Jun	Saturday 08 Jun	Sunday 09 Jun
Activity	low	very low	moderate	very low	moderate	low	low
Flares	-	-	M1.3@08:14	-	M5.9@22:11	-	-

¹ See appendix. All timings are given in UT.

The SWAP images of June 03 and June 09 are shown below, with annotated active regions.

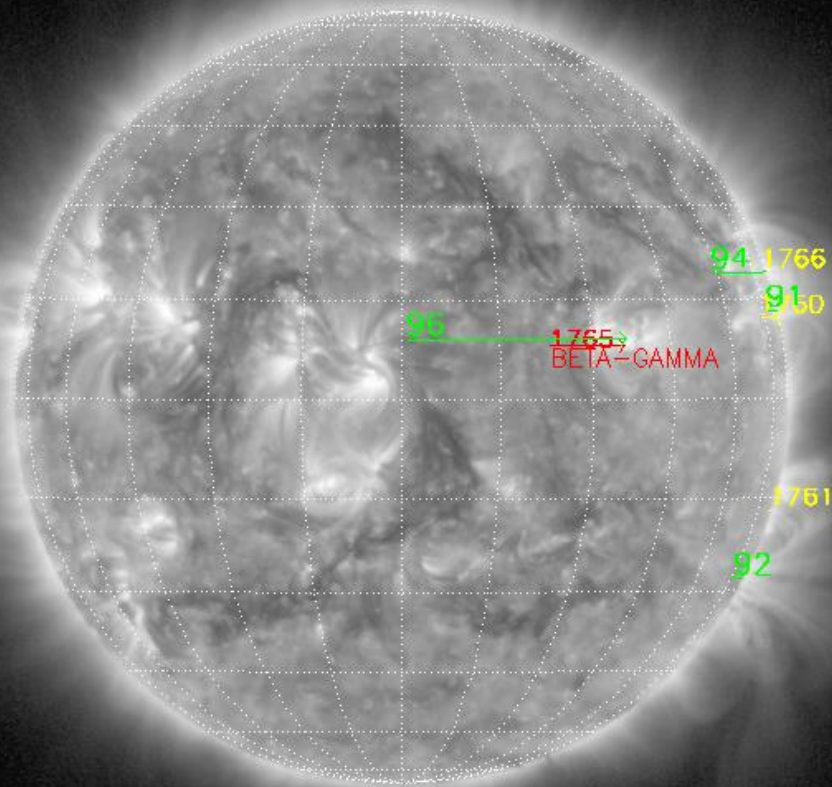


<http://sidc.be/html/CmapPage.html>

Catania sunspot groups

2013-06-07T08:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2013-06-09T00:30



PROBA2/SWAP 17nm
2013-06-09T23:13:17.438

Solar Activity

Solar (flaring) activity was very low to moderate this week. 2 M1.0 flares occurred, an M1.3 on Wednesday 5th and an M5.9 on Friday 7th, both originating from AR 11762. The latter went behind the West limb during the week-end.

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).

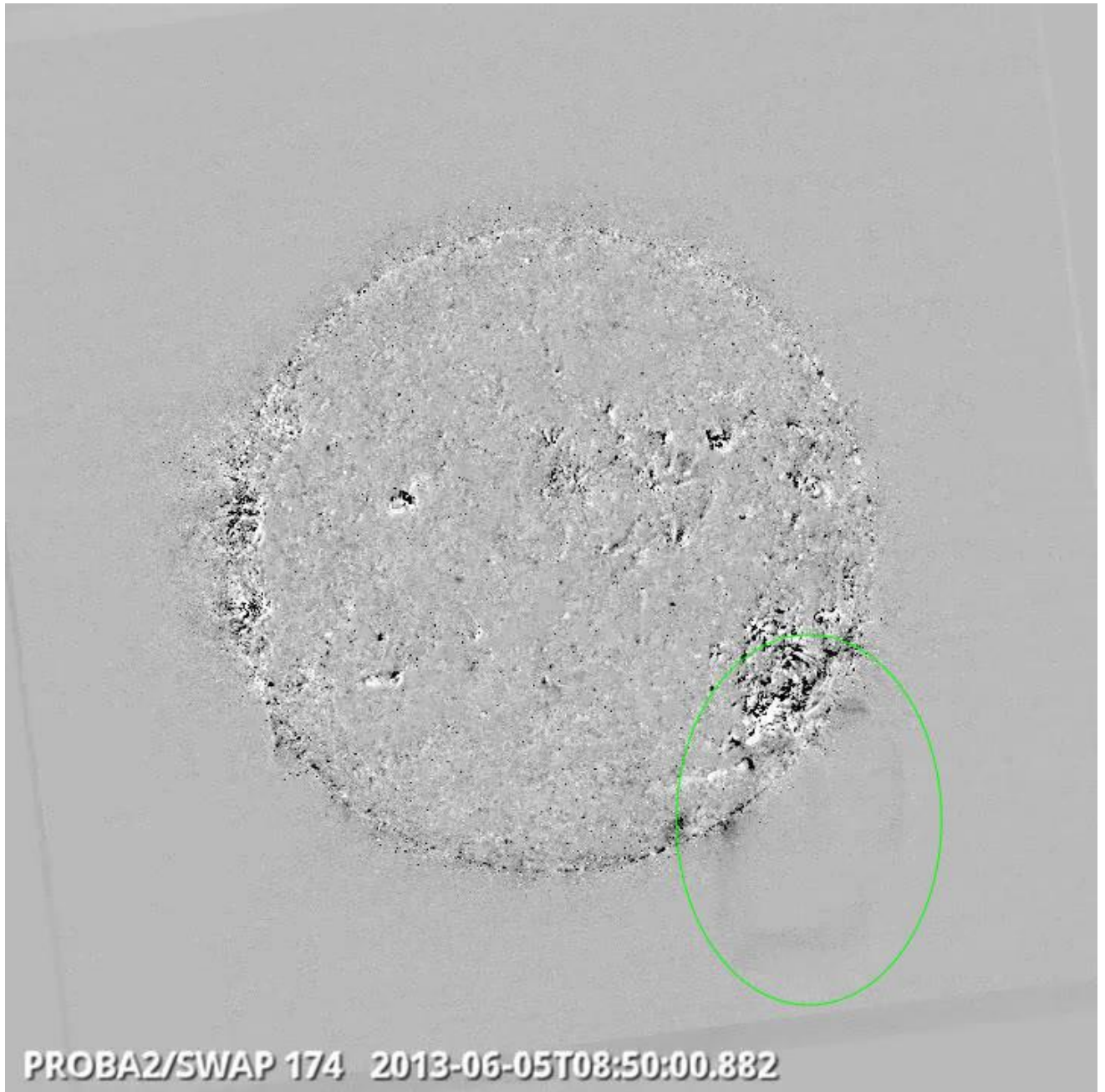
Details about some of this week's events can be found further below.

Tuesday June 4th:



Eruption North East limb @ 15:30 - SWAP difference image
Find a movie of this event [here](#) (SWAP difference movie)

Wednesday June 5th:



M1.3 flare South West limb @ 07:39 - SWAP difference image

Find a movie of this event [here](#) (SWAP difference movie)

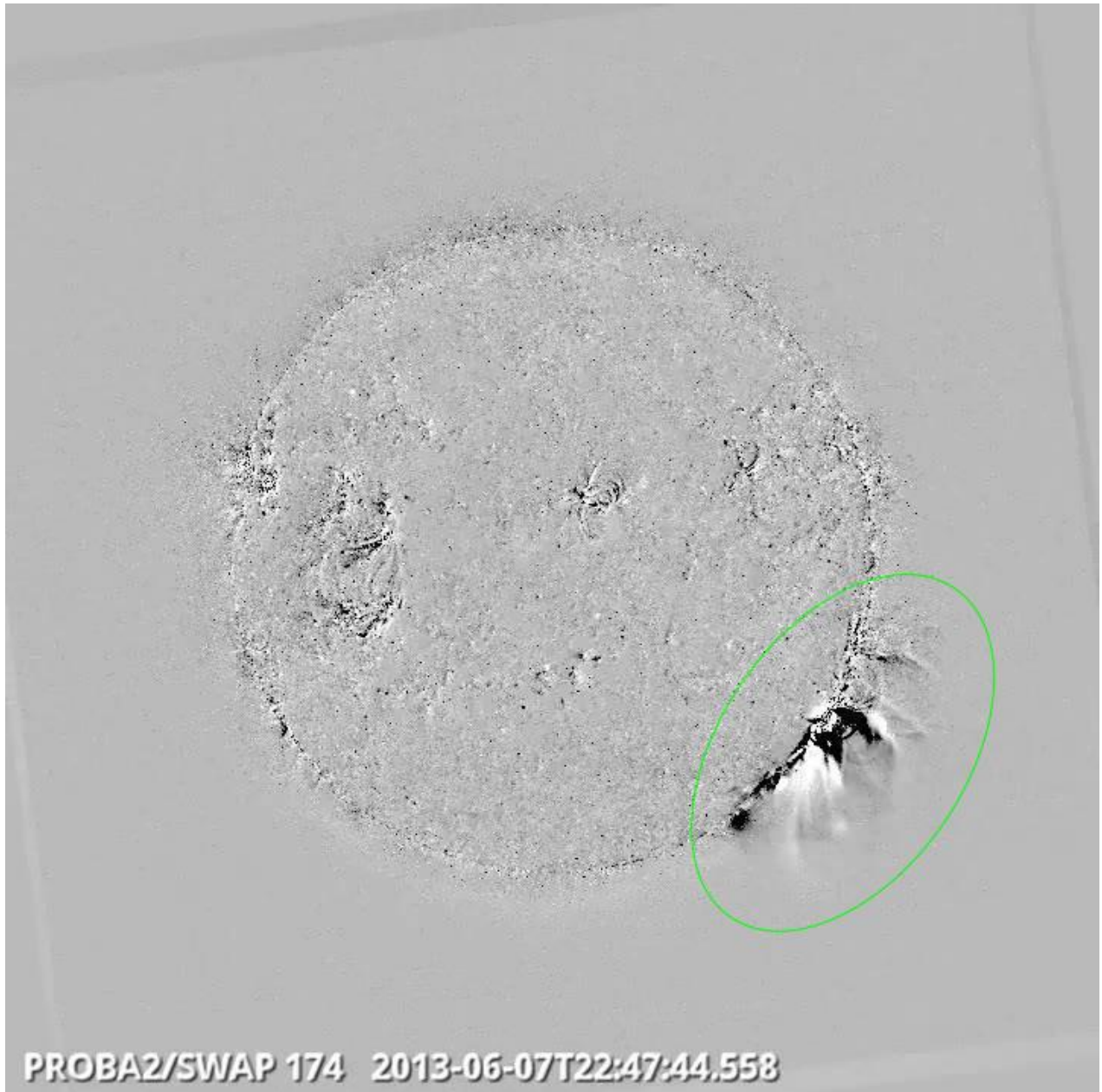
The down-leg of the M1.3 flare was missed by LYRA, because of the start of its bi-weekly calibration campaign.

Friday June 7th:



Prominence Eruption North West limb @ 11:27 - SWAP difference image

Find a movie of this event [here](#) (SWAP difference movie)



M5.9 flare Eruption South West limb @ 22:11 - SWAP difference image

Find a movie of this event [here](#) (SWAP difference movie)

Sunday June 9th:

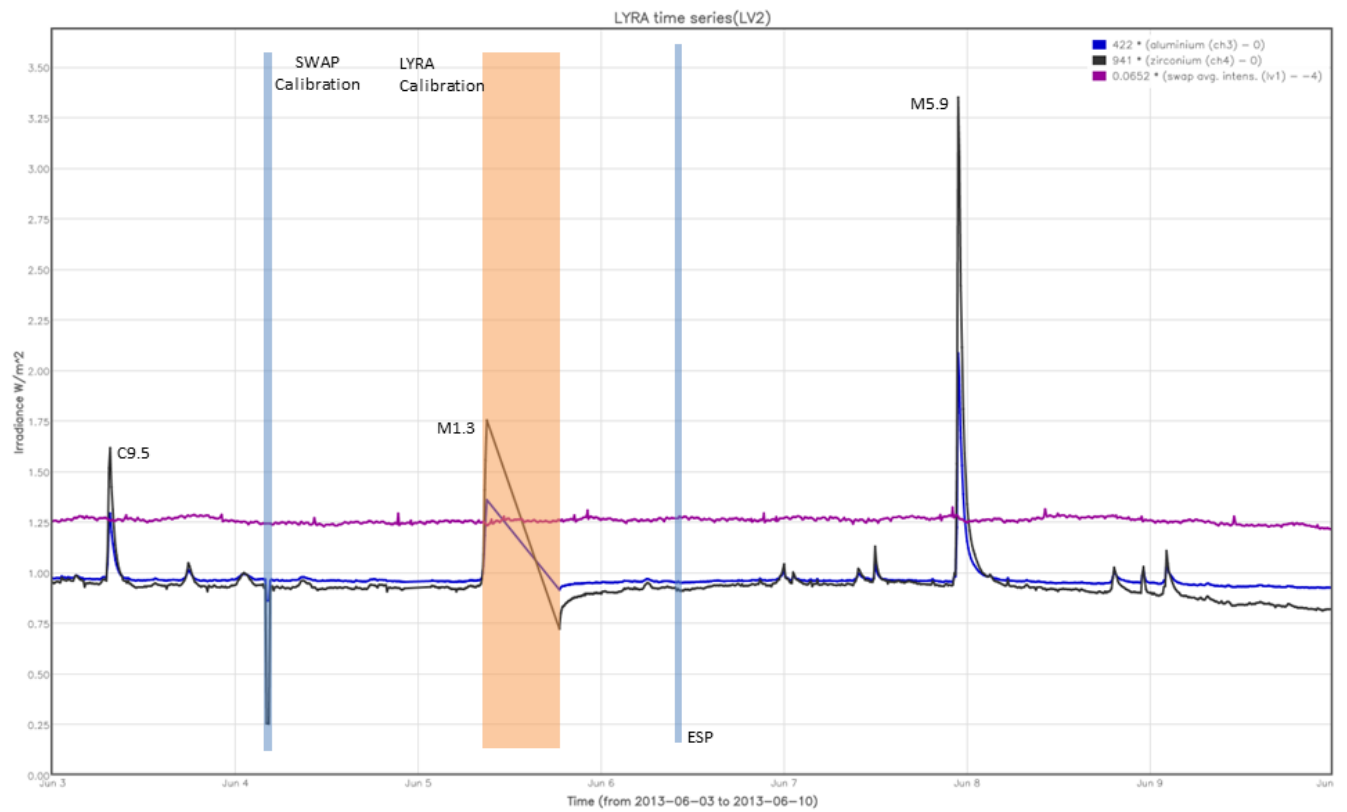


Prominence Eruption North West limb @ 10:24 - SWAP difference image

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

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.

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.

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 03 Jun	Tuesday 04 Jun	Wednesday 05 Jun	Thursday 06 Jun	Friday 07 Jun	Saturday 08 Jun	Sunday 09 Jun
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00333	LYIOS00333	LYIOS00333	LYIOS00333	LYIOS00333	LYIOS00333	LYIOS00333

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 46.2 and 47.3 degrees C, taking into account the daily U3 activation periods; the latter result in a temperature increase of about 0.6 degrees C. During calibration, temperature dropped to 45.4 degrees.

To be explored

- None

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 8160 to 8400.

The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 03 Jun	Tuesday 04 Jun	Wednesday 05 Jun	Thursday 06 Jun	Friday 07 Jun	Saturday 08 Jun	Sunday 09 Jun
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition + ESP	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00467 538 images	IOS00467 572 images	IOS00467 561 images	IOS00467 500 images	IOS00467 598 images	IOS00467 536 images	IOS00467 488 images

Special operations for SWAP, this week:

- ESP jump on Thursday

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.68 and -0.33 degrees C.

To be explored

- None

4. PROBA2 Science Center Status

The main operator is Koen Stegen.

The following changes were made to the P2SC:

LY-TAF

- 03/06/2013: r4788; Add South Atlantic Anomaly event type.
- 04/06/2013: r4797; Add solar flare event type.
- 05/06/2013: r4802; Attempt to serve the correct newline to the user.

5. Data reception & discussions with MOC

Passes

The delivery of the passes for this week (passes 11182 to 11239) 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 2013 Jun 03 0UT and 2013 Jun 10 0UT: 3931

Highest cadence in this period: 30 seconds

Average cadence in this period: 153.87 seconds

Number of image gaps larger than 300 seconds: 1

Largest data gap: 34.33 minutes

The largest gap is due to the ESP campaign on Thursday.

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received, except:

- None

Due to less optimal space-to-ground data transfer, the file BINLYRA_11198 was corrupted, and could not be processed at P2SC. This is a P2SC issue, which will be solved in the near future. This occurrence had no incidence.

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
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)
- (+ extreme?)