


P2SC-ROB-WR-223- 20140630 Weekly report #223	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Jun 30 to Sun Jul 06, 2014 09 Jul 2014 Erik Pyllyser Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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cc:	ROB DIR, ronald@oma.be ESA REDU, Etienne.Tilmans@esa.int ESA D/SRE, Joe.Zender@esa.int ESA D/TEC, Juha-Pekka.Luntama@esa.int	

1. Science

Solar & Space weather events

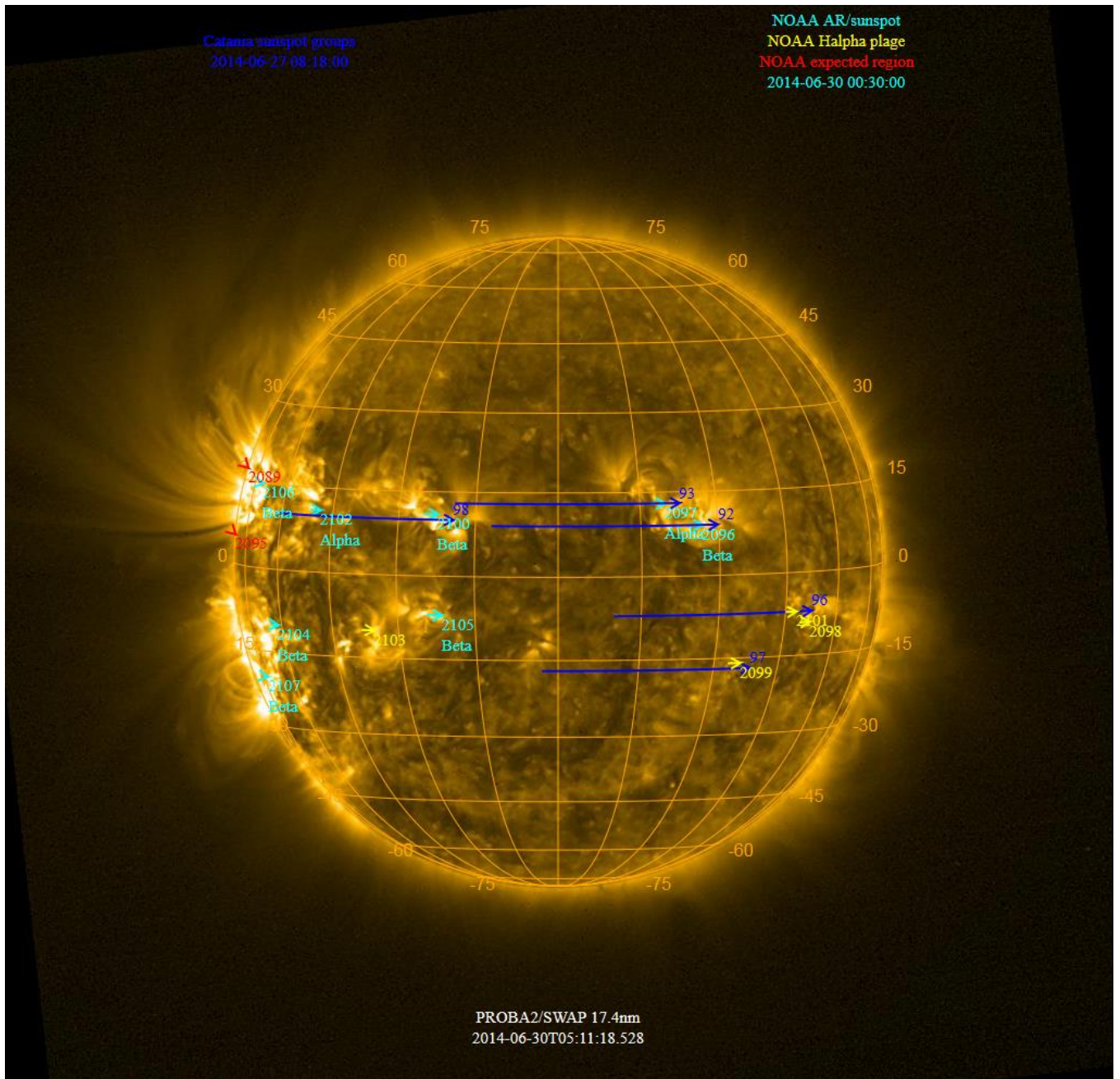
The level of solar activity¹ was mostly **low** during this week, **moderate** on Tuesday (M1.4 flare).

Only M- and X-flares are mentioned, the most energetic one(s) per day are presented in **bold**:

	Monday 30 Jun	Tuesday 01 Jul	Wednesday 02 Jul	Thursday 03 Jul	Friday 04 Jul	Saturday 05 Jul	Sunday 06 Jul
Activity	low	moderate	low	low	low	low	low
Flares	-	M1.4@11:23	-	-	-	-	-

¹ See appendix. All timings are given in UT.

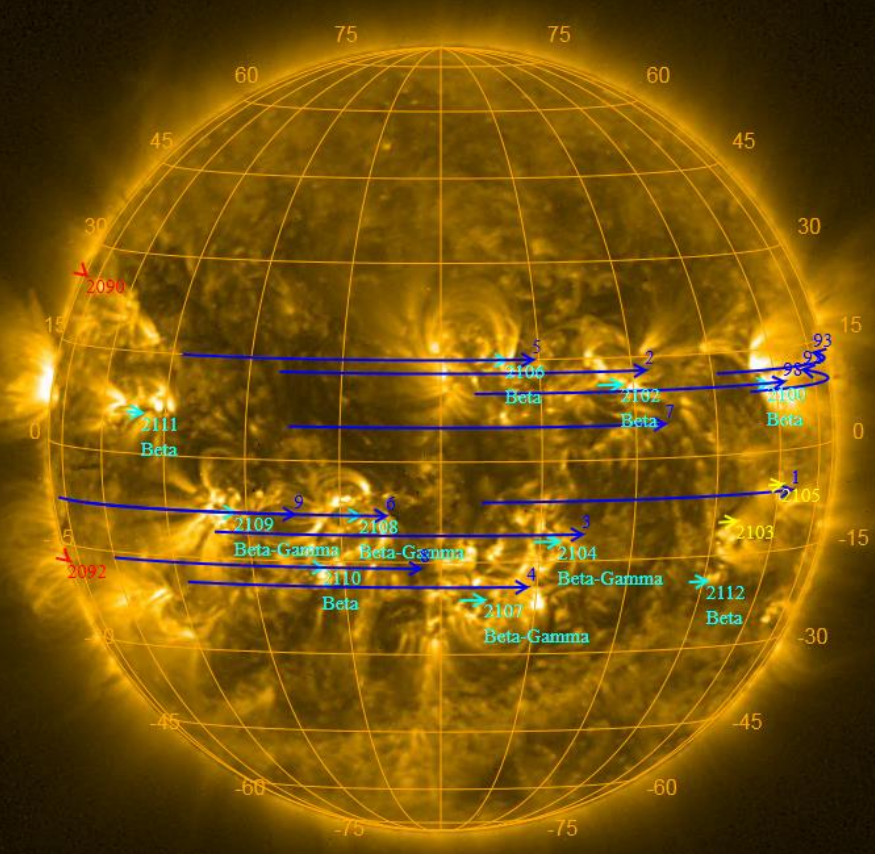
The SWAP images of June 30 and July 06 are shown below, with annotated active regions.



<http://sidc.be/soteria/soteria.php>

Catania sunspot groups
2014-07-02 08:06:00

NOAA AR/sunspot
NOAA Alpha plage
NOAA expected region
2014-07-06 00:30:00



PROBA2/SWAP 17.4nm
2014-07-06T06:57:21.275

Solar Activity

The level of solar activity was mostly **low** during this week, **moderate** on Tuesday (M1.4 flare).

In order to view the activity of this week in more detail, we suggest going 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](#) (SWAP week 223).

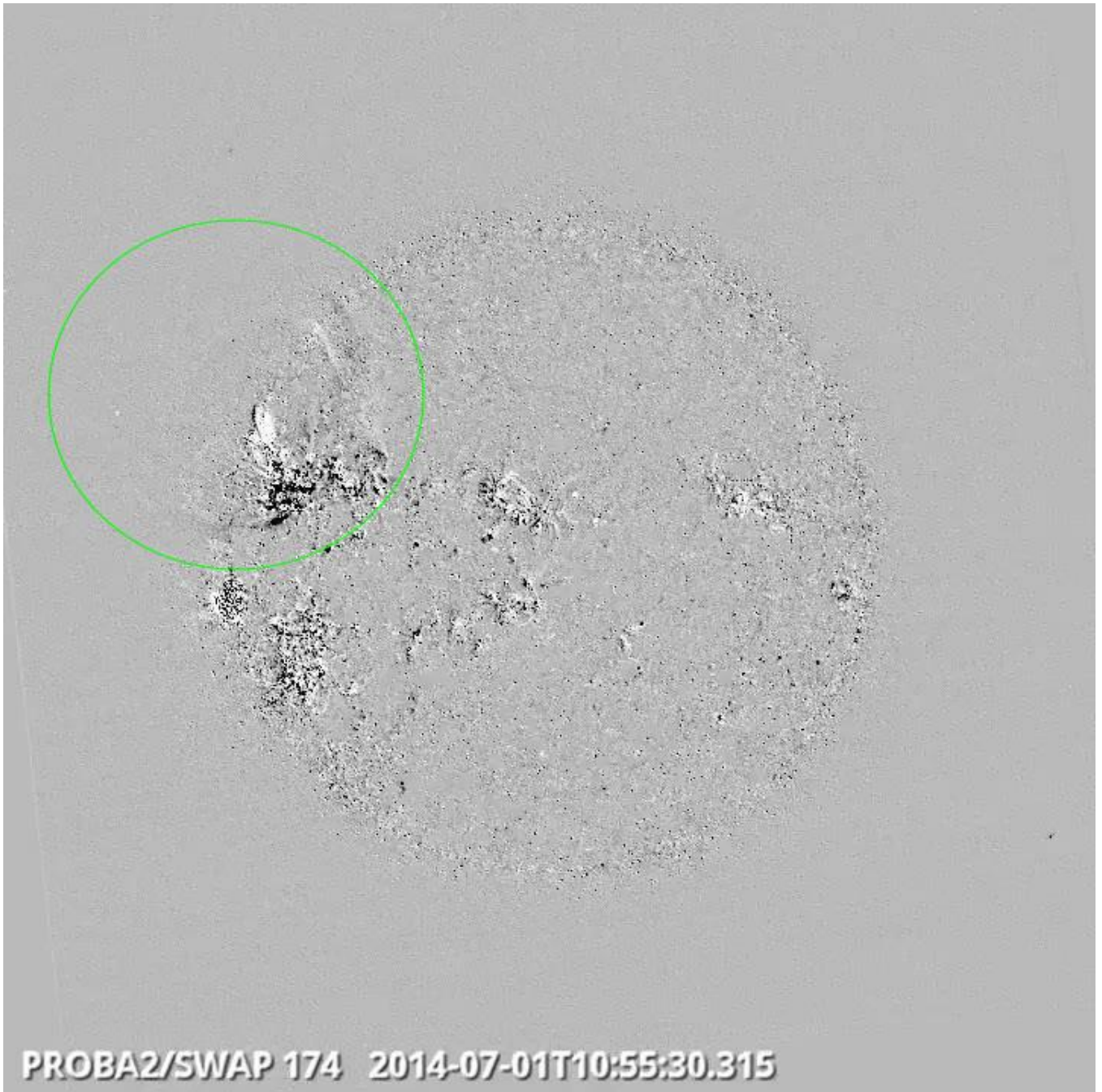
Details about some of this week's events can be found further below.

Monday Jun 30



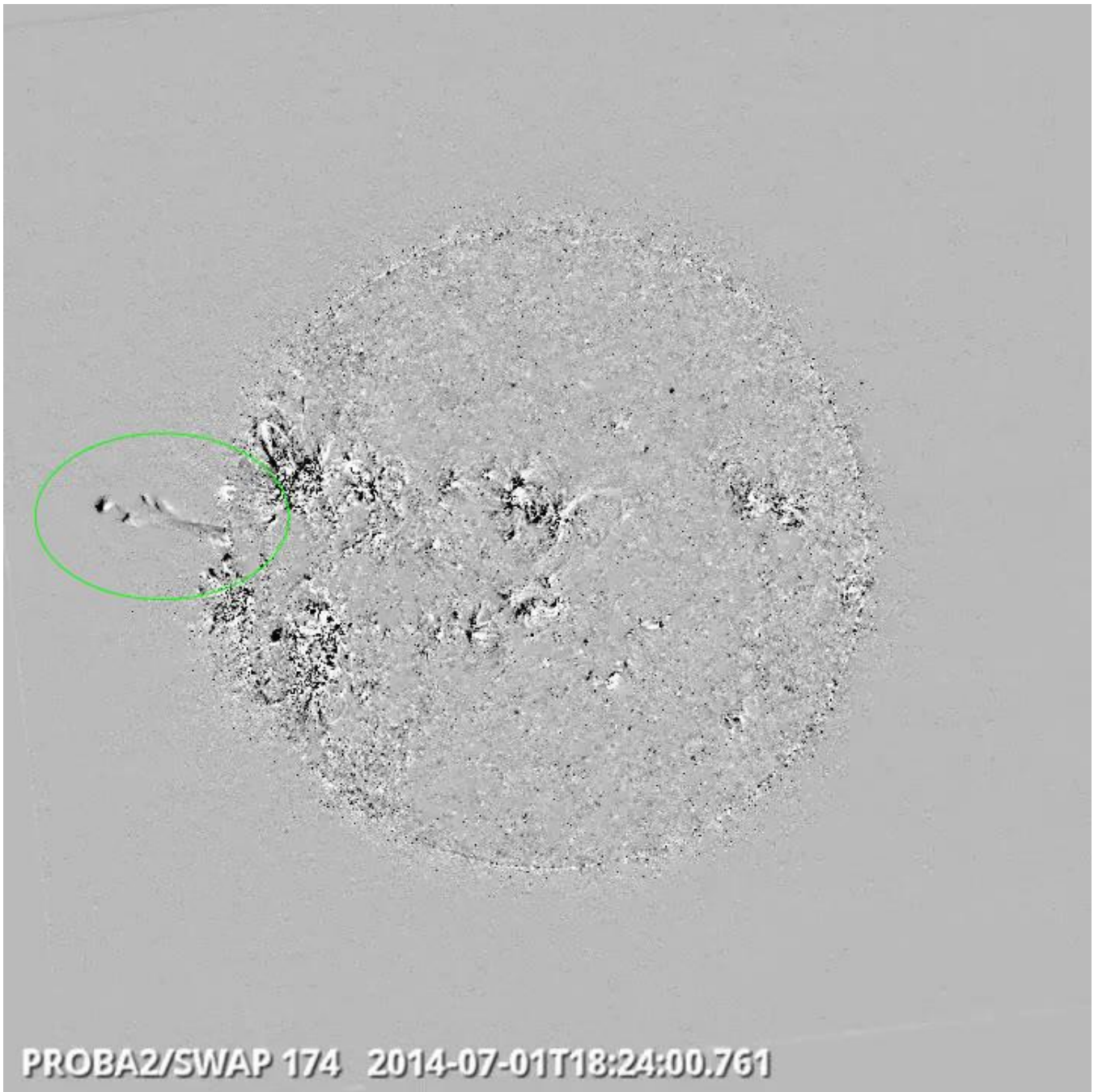
Eruption on the Southwest Limb @ 18:11 - SWAP difference image

Tuesday Jul 01



**M1.4 flare in the Northeast Quadrant @ 10:55
- SWAP difference image**

A movie of this occurrence can be viewed [here](#).



Jet-like Eruption on the East limb @ 18:24 - SWAP difference image
(several of such eruptions occurred during a period of about 2 days)

Sunday Jul 06



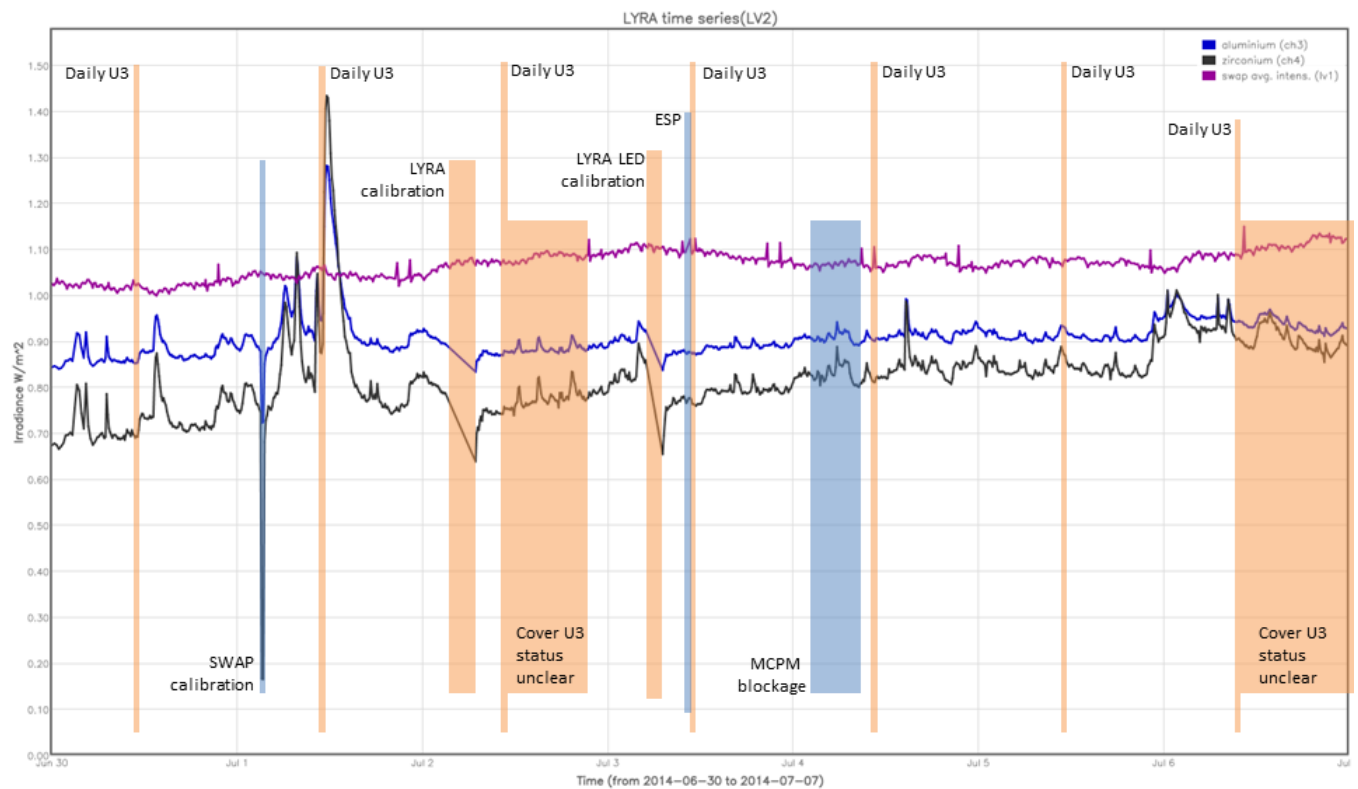
PROBA2/SWAP 174 2014-07-06T19:31:22.078

Prominence Eruption, Northern Hemisphere @ 19:31 - 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: Aluminum Channel of LYRA Unit 2
- purple: SWAVINT (SWAP Average Intensity; integrated solar intensity per SWAP image pixel)



The (LYRA related) orange shaded periods correspond to, from left to right (see also section 2):

- Daily LYRA unit 3 campaign (2 consecutive days)
- Bi-weekly LYRA calibration campaign on Wednesday
- Daily LYRA unit 3 campaign (once)
- Period of unclear Unit 3 cover status (Wednesday)
- Special LYRA LED calibration campaign (Thursday)
- Daily LYRA unit 3 campaign (4 times)
- Period of unclear Unit 3 cover status (from Sunday to Monday)

The (SWAP related) blue shaded periods correspond to, from left to right (see also section 3)

- bi-weekly SWAP calibration campaign on Tuesday.
- SWAP support to monthly ESP campaign ('ESP jump')
- MCPM blockage (no image downloads)

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.

The science section of this weekly report is also published in the weekly STCE newsletter (<http://www.stce.be/newsletter/newsletter.php>).

SWAP & LYRA data is being provided to the VENUS EXPRESS mission, in support of their upcoming operations to aerobrake the orbiter into Venus' atmosphere (see also this ESA [link](#)). This type of information is provided on a daily basis and can be found on this [website](#).

Guest Investigator Program

- None

Other Visitors

- None

2. LYRA instrument status

Calibration

Normal bi-weekly LYRA calibration on Tuesday.

An additional specific LYRA LED calibration campaign was performed on Thursday, 05:00.

IOS & operations

Monday 30 Jun	Tuesday 01 Jul	Wednesday 02 Jul	Thursday 03 Jul	Friday 04 Jul	Saturday 05 Jul	Sunday 06 Jul
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + calibration	Nominal acquisition + daily U3 + special calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00404	LYIOS00405	LYIOS00407	LYIOS00407	LYIOS00407	LYIOS00407	LYIOS00407

The following science campaigns were performed by LYRA:

- Daily LYRA unit 3 campaign (7 consecutive days)

LYRA encountered two periods of unclear status for the U3 cover, occurring after the daily U3 campaign:

- Wednesday 02/07 from 10:07 to 19:35 (status restored after sending IOS 407)
- Sunday 06/07 from 09:41 until the next daily campaign of Monday 07/07

LYRA detector temperature

During normal operations, the LYRA detector 2 temperature varied between 47.6 and 46.6 °C, taking into account the small daily U3 activation temperature peaks. During the bi-weekly calibration campaign, temperature dropped to 45.4 °C.

3. SWAP instrument status

Calibration

SWAP calibration on Wednesday.

MCPM errors

The number of MCPM **recoverable** errors increased from 19772 to 19950.

The number of MCPM **unrecoverable** errors remained at 1657.

IOS & operations

Monday 30 Jun	Tuesday 01 Jul	Wednesday 02 Jul	Thursday 03 Jul	Friday 04 Jul	Saturday 05 Jul	Sunday 06 Jul
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition + ESP 'jump'	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00524 525 images	IOS00525 656 images	IOS00525 636 images	IOS00525 563 images	IOS00525 661 images	IOS00525 589 images	IOS00525 574 images

Special SWAP operations this week

- SWAP support to ESP campaign on Thursday

SWAP data was not downlinked, due to a period of MCPM blockage on Friday 4th:

- between 02:48 (pass 14601) and 09:18 (pass 14603, unblocking procedure by REDU)

SWAP detector temperature

The SWAP Cold Finger Temperature varied between -0.40 °C and -1.36 °C.

4. PROBA2 Science Center Status

The main operator is Erik Pylyser, supported by Robbe Vansintjan.

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 14568 and 14625) was nominal, except for:

- passes 14568, 14569 and (part of) 14570

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:

- 14568, 14569 and (part of) 14570
- 14602 (MCPM blockage)

Total number of images between 2014 Jun 30 0UT and 2014 Jul 07 0UT: 4204

Highest cadence in this period: 30 seconds

Average cadence in this period: 143.84 seconds

Number of image gaps larger than 300 seconds: 1

Largest data gap: 34.33 minutes

The large data gap is due to the SWAP support for the monthly ESP campaign. During that period, no images are taken.

Data coverage LYRA

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

- pass 14568

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)