


P2SC-ROB-WR-173-20130715 Weekly report #173	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon July 15 to Sun July 21, 2013 24 July 2013 Erik Pylyser Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

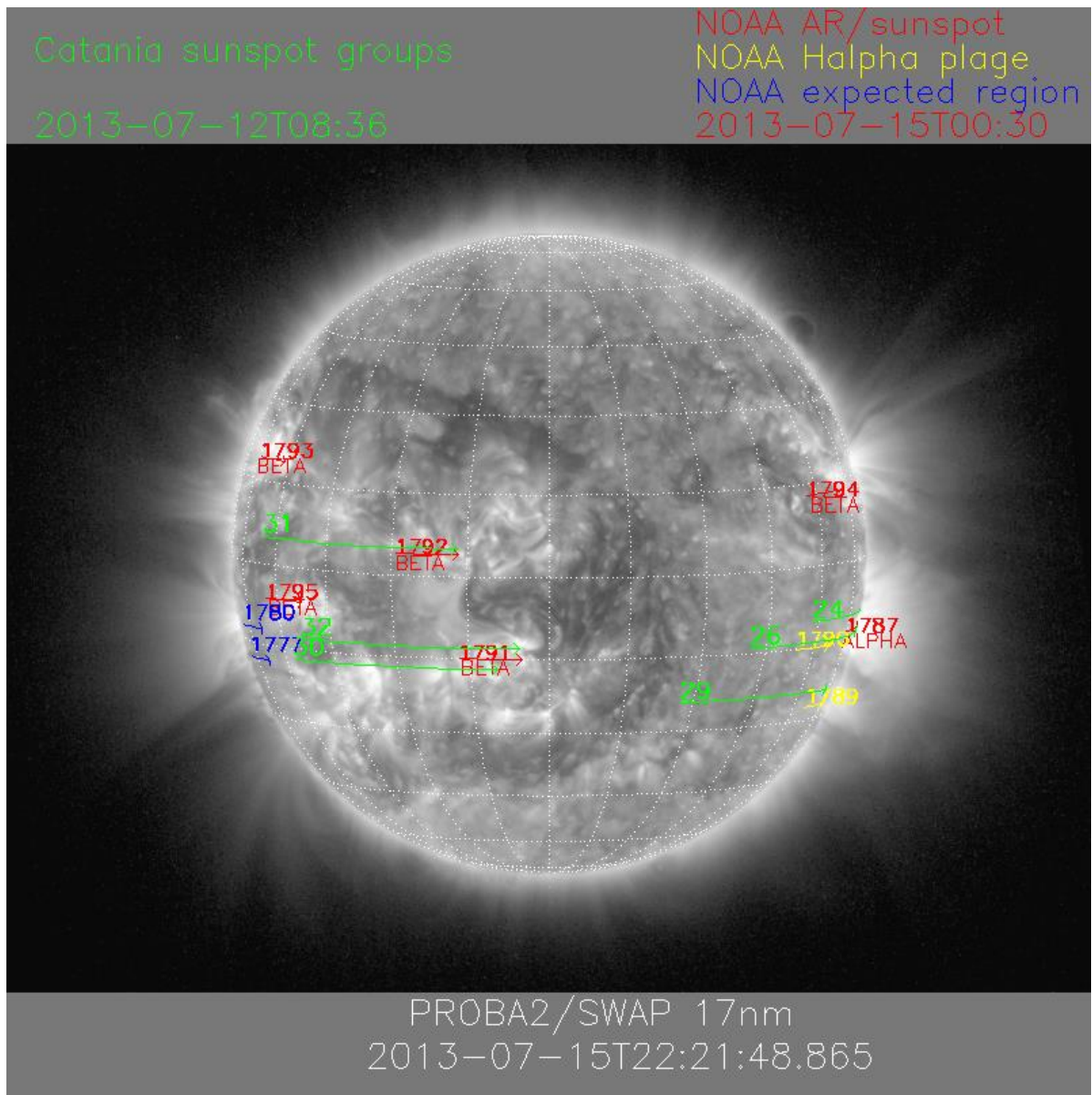
The level of solar activity¹ this week was **low to very low** throughout the week.

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

	Monday 15 Jul	Tuesday 16 Jul	Wednesday 17 Jul	Thursday 18 Jul	Friday 19 Jul	Saturday 20 Jul	Sunday 21 Jul
Activity	low	low	low	low	very low	low	low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

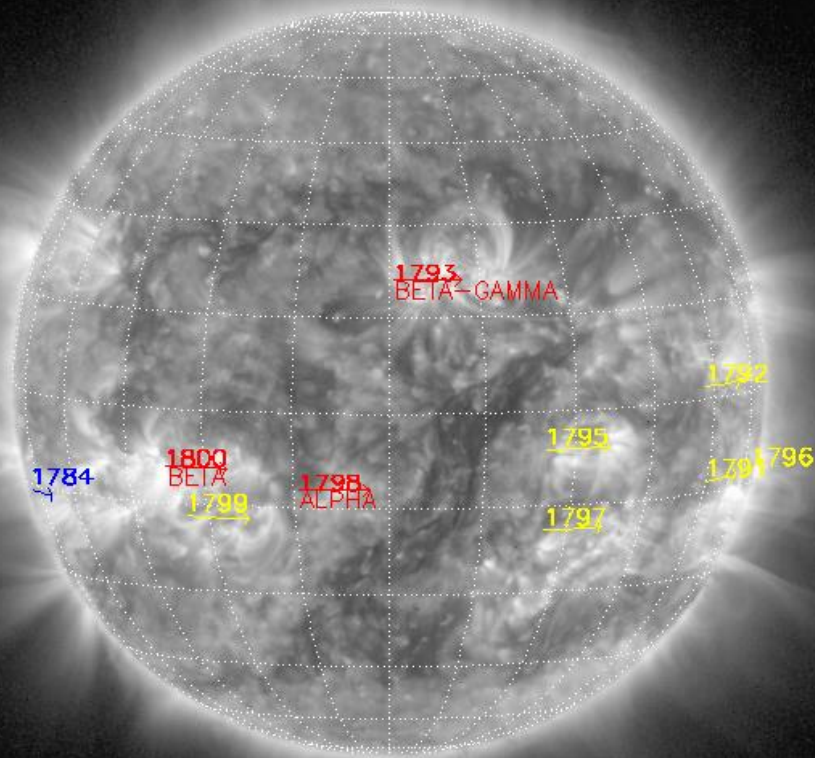
The SWAP images of July 15 and July 21 are shown below, with annotated active regions.



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

No recent Catania data available

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2013-07-21T00:30



PROBA2/SWAP 17nm
2013-07-21T20:36:18.228

Solar Activity

Solar (flaring) activity was low to very low throughout the week.

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](#) (SWAP174/AIA304 combination; HelioViewer.org).

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

Thursday July 18th:



Prominence Eruption on South West limb @ 08:34 - SWAP difference image

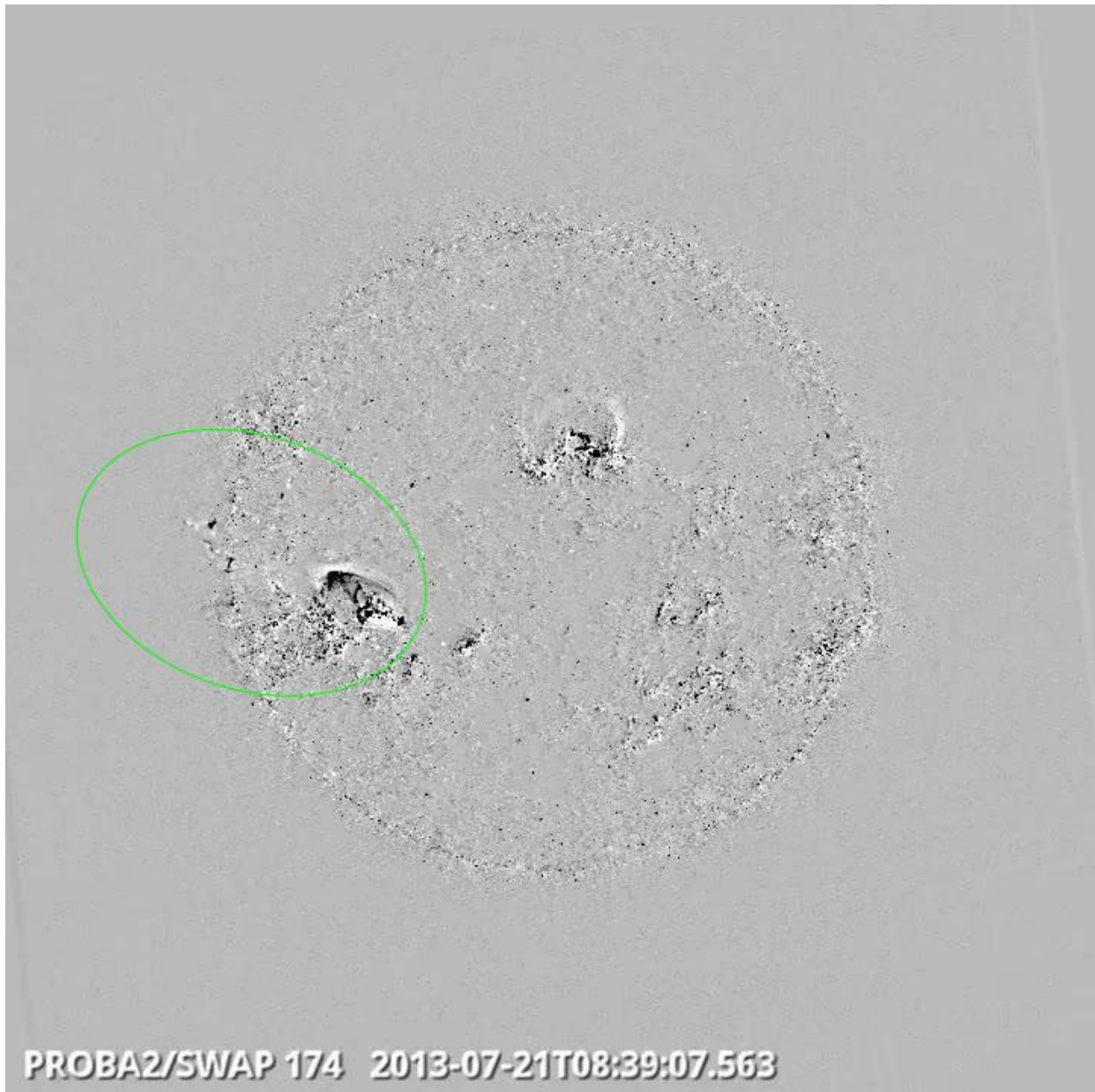
Find a movie of the event [here](#) (SWAP difference movie)

Saturday July 20th:



Prominence Eruption on North West Limb @ 14:46 - SWAP difference image
Find a movie of the event [here](#) (SWAP difference movie)

Sunday July 21th:



**Prominence Eruption on East limb and eruption in South East Quadrant @ 08:39
- SWAP difference image**

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



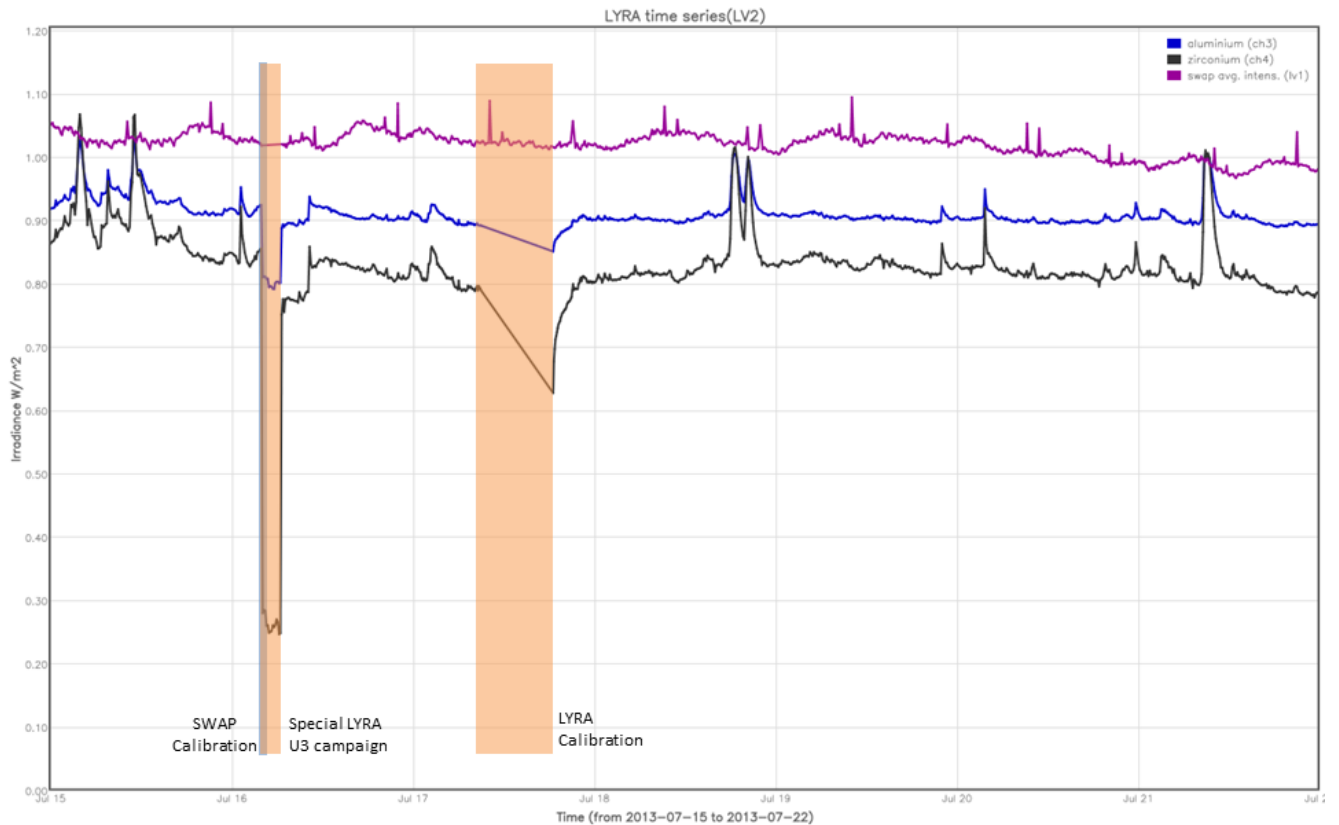
Prominence Eruption on North West Limb @ 21:54 - SWAP difference image

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

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

The orange shaded periods correspond to, from left to right:

- LYRA U3 campaign on Tuesday
- LYRA calibration

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.

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

Guest Investigator Program

- Nandita Srivastava (SWAP/LYRA) - Role of eruptive filaments/prominences in initiation and propagation of CMEs in heliosphere using SWAP & LYRA Observations:
(from June 20 to July 23)

2. LYRA instrument status

Calibration

Calibration on Wednesday this week.

IOS & operations

Monday 15 Jul	Tuesday 16 Jul	Wednesday 17 Jul	Thursday 18 Jul	Friday 19 Jul	Saturday 20 Jul	Sunday 21 Jul
Nominal acquisition + daily U3	Nominal acquisition + daily U3 + special U3 campaign	Nominal acquisition + daily U3 + calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00335	LYIOS00336	LYIOS00336	LYIOS00336	LYIOS00336	LYIOS00336	LYIOS00336

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- special U3 observation campaign during the SWAP calibration off-point period, followed by a 2 hours period of U3 while re-centered on the Sun.

LYRA U3 cover did not close properly, i.e. in an inconsistent state, i.e. 'open' and 'closed' from its daily commanded overture on Sunday 21st to its daily commanded closure on Monday 22nd. There was no need for an 'operational' intervention by the operator.

LYRA detector temperature

LYRA detector 2 temperature globally varied between 46.2 and 47.7 degrees C, taking into account the daily U3 activation periods; the latter result in a temperature increase of about 0.6 degrees C. During the special (U3) campaign on Tuesday, temperature rose to 49.1 degrees. During calibration temperature decreased to 45.4 degrees.

To be explored

- None

3. SWAP instrument status

Calibration

Calibration on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 9639 to 9920.

The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 15 Jul	Tuesday 16 Jul	Wednesday 17 Jul	Thursday 18 Jul	Friday 19 Jul	Saturday 20 Jul	Sunday 21 Jul
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00469 514 images	IOS00470 561 images	IOS00470 610 images	IOS00470 588 images	IOS00470 575 images	IOS00470 567 images	IOS00470 556 images

Special operations for SWAP, this week:

- None.

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.60 and -0.72 degrees C. During the LYRA special campaign on Tuesday, temperature of SWAP rose slightly up to around 0.50 degrees.

To be explored

- None

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 11542 to 11602) was nominal, except for:

- None

At the end of pass 11577, a bad data reception period occurred, resulting in the loss of 5 images.

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 Jul 15 0UT and 2013 Jul 22 0UT: 4024

Highest cadence in this period: 0 seconds

Average cadence in this period: 150.29 seconds

Number of image gaps larger than 300 seconds: 13

Largest data gap: 11.67 minutes

Data coverage LYRA

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

- 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
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)