


P2SC-ROB-WR-221- 20140616 Weekly report #221	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Jun 16 to Sun Jun 22, 2014 25 Jun 2014 Erik Pilyser Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

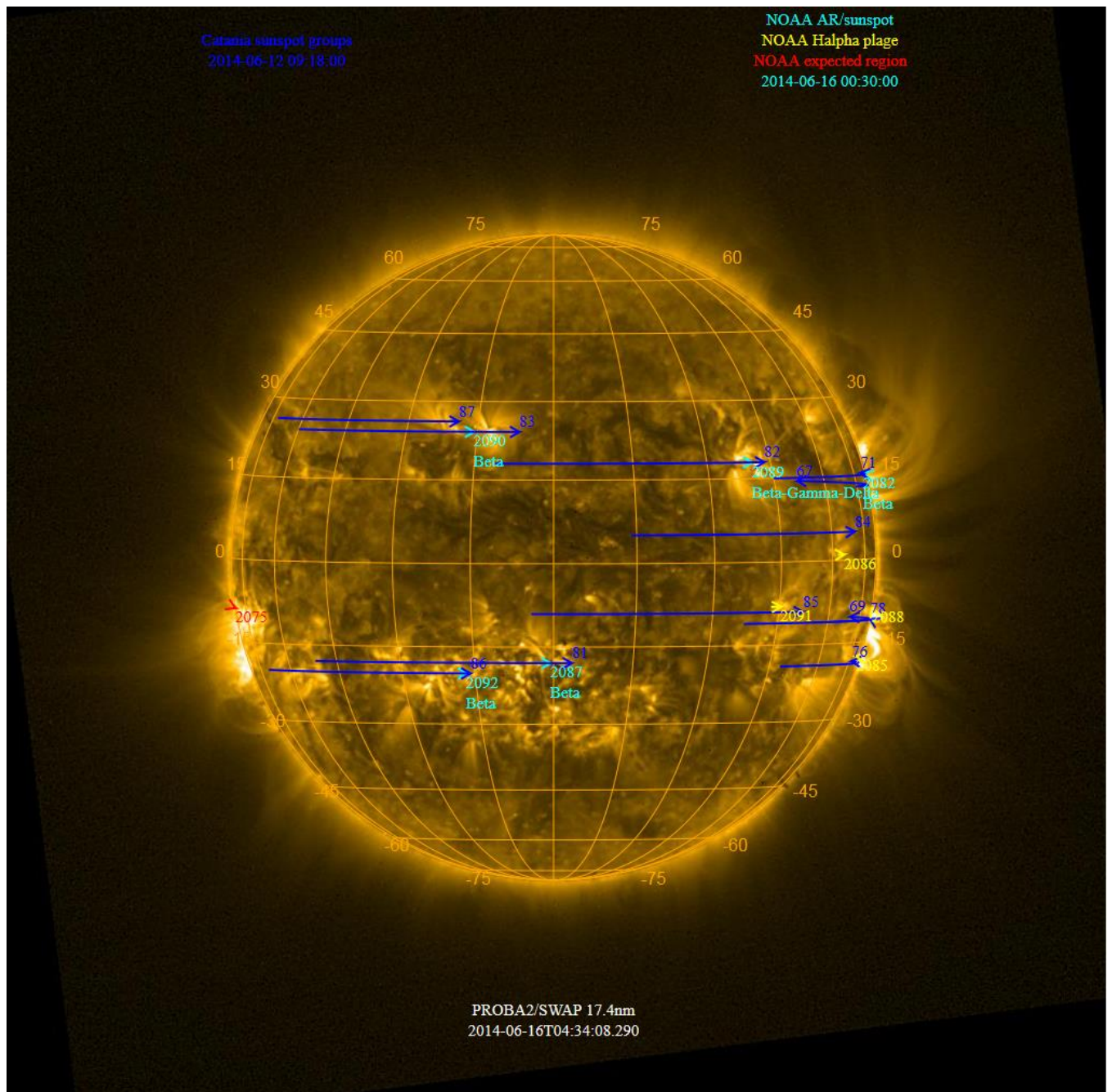
This week, the level of solar activity¹ decreased from **moderate** on Monday, mostly **low** during the week and **very low** on Sunday.

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

	Monday 16 Jun	Tuesday 17 Jun	Wednesday 18 Jun	Thursday 19 Jun	Friday 20 Jun	Saturday 21 Jun	Sunday 22 Jun
Activity	moderate	low	low	low	low	low	very low
Flares	M1.0@00:01	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

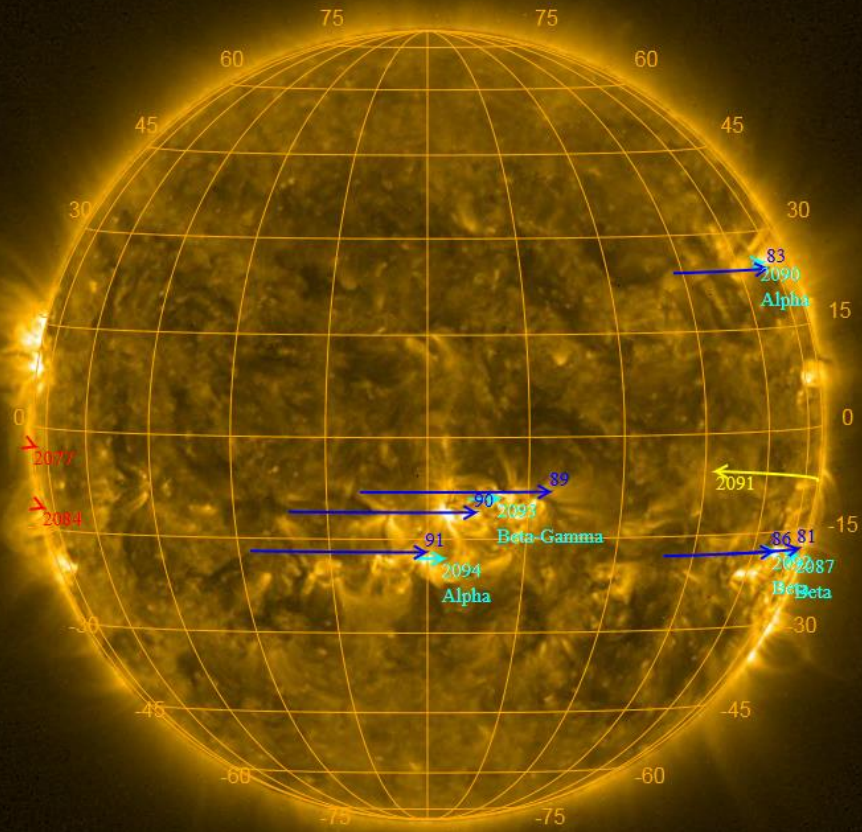
The SWAP images of June 16 and June 22 are shown below, with annotated active regions.



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

Catania sunspot groups
2014-06-20 09:36:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2014-06-22 00:30:00



PROBA2/SWAP 17.4nm
2014-06-22T07:49:07.156

Solar Activity

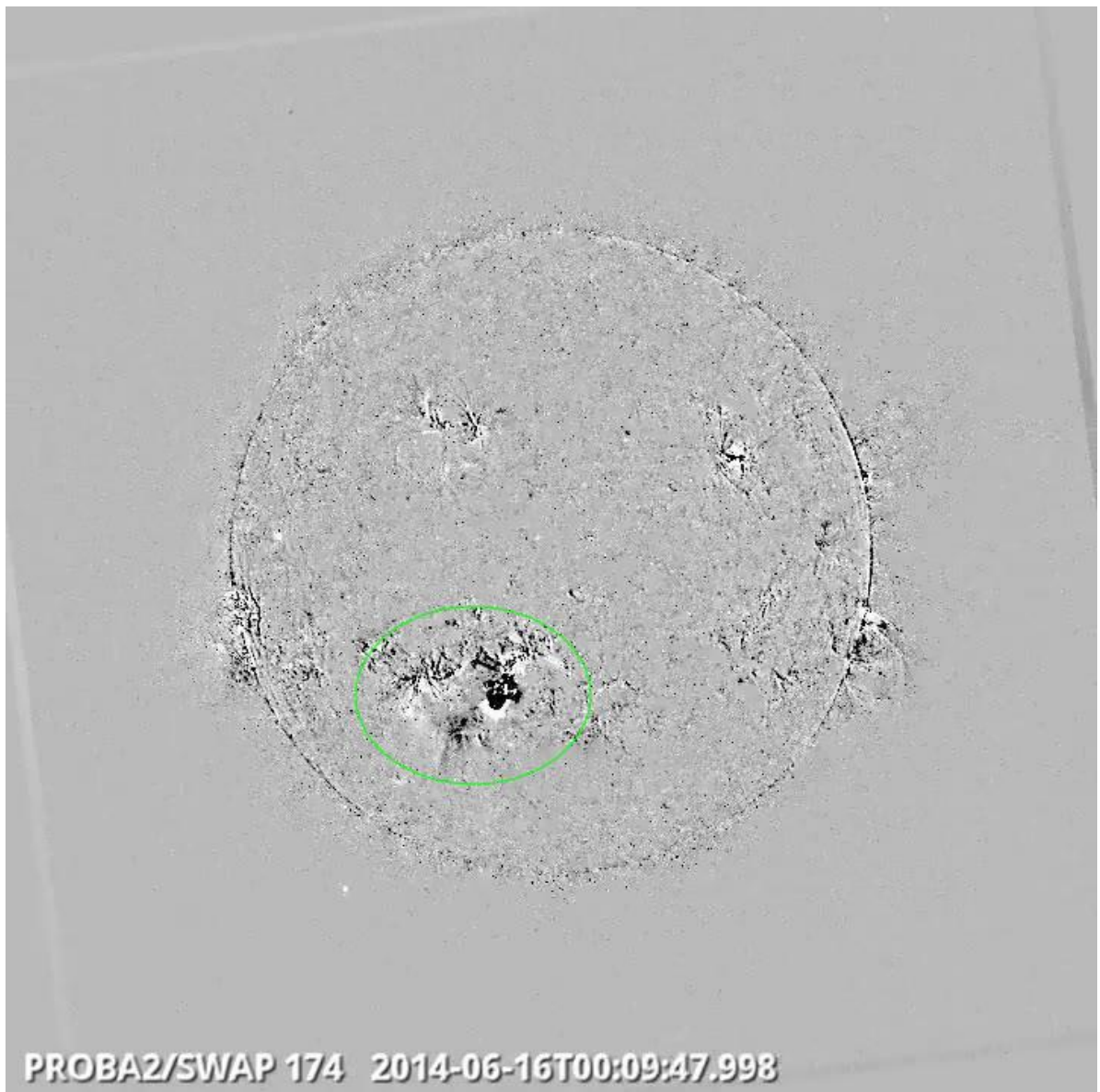
This week, the level of solar activity decreased from **moderate** on Monday, mostly **low** during the week and **very low** on Sunday.

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 221).

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

Monday Jun 16

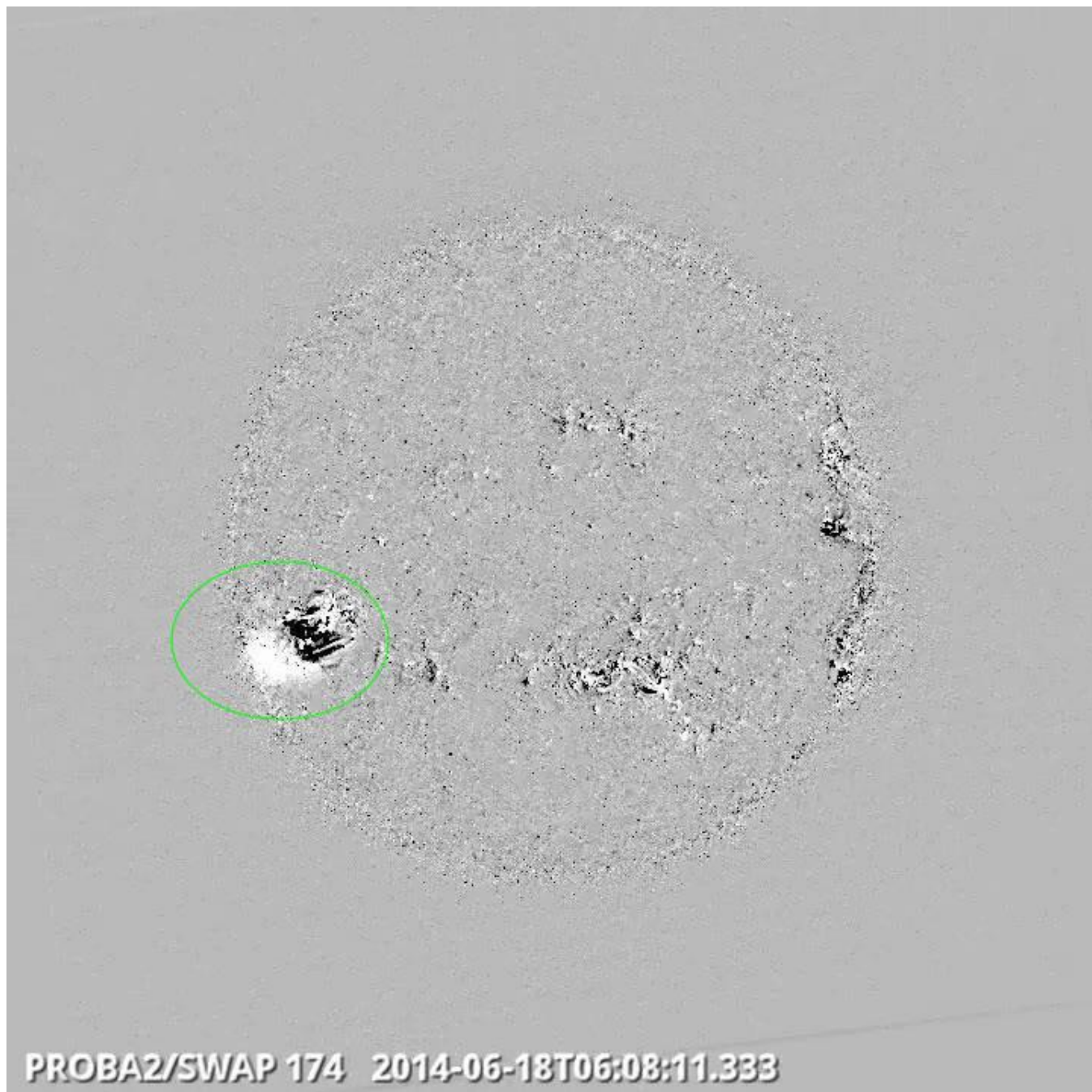


Eruption in the Southeast quadrant @ 00:09 - SWAP difference image



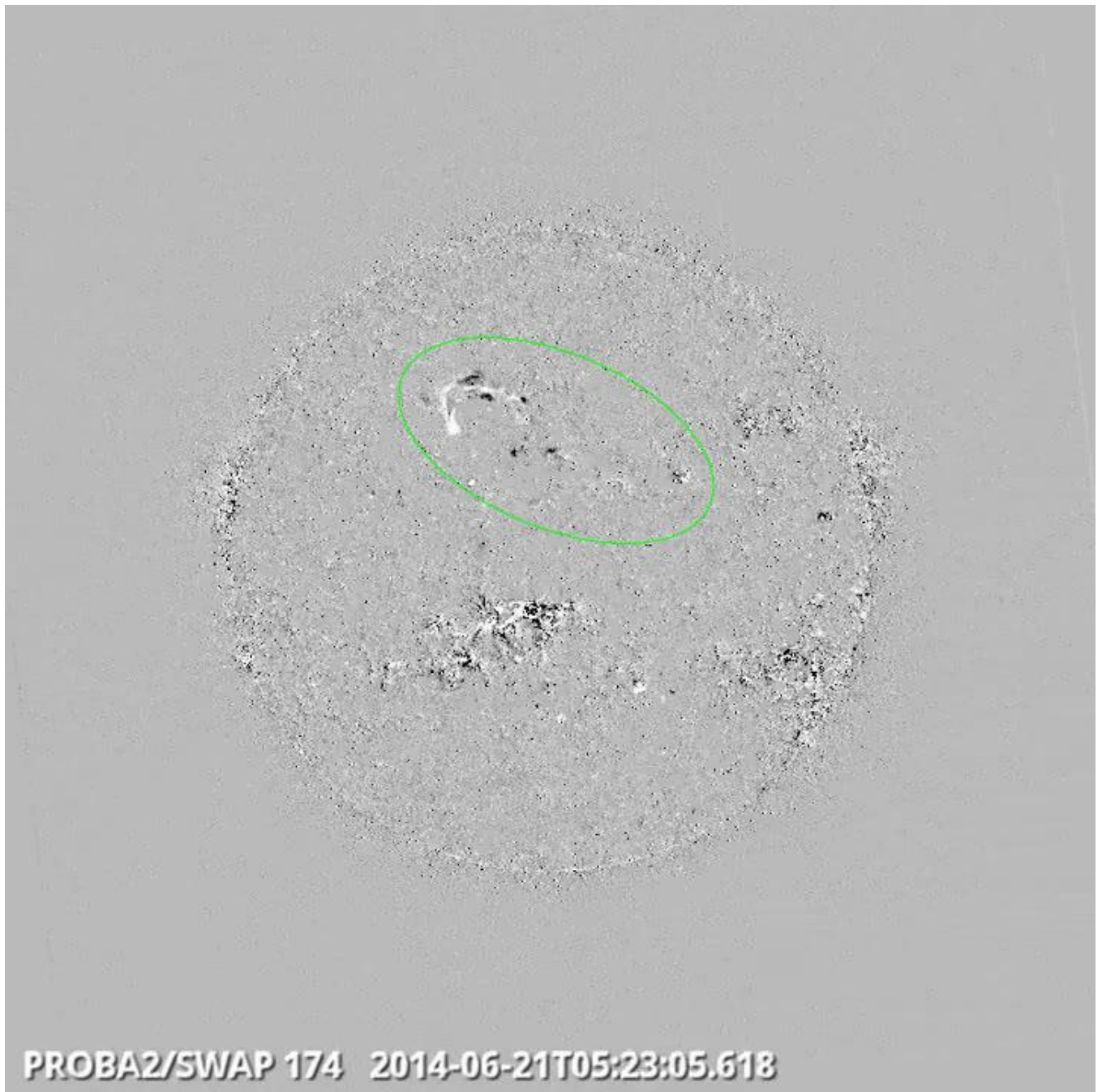
**Eruption on the East limb; Prominence Eruption on the West limb @ 11:43
- SWAP difference image**

Wednesday Jun 18



Eruption in the Southeast quadrant @ 06:08 - SWAP difference image

Saturday Jun 21



Big Prominence Eruption, Northern Hemisphere @ 05:23 - SWAP difference image

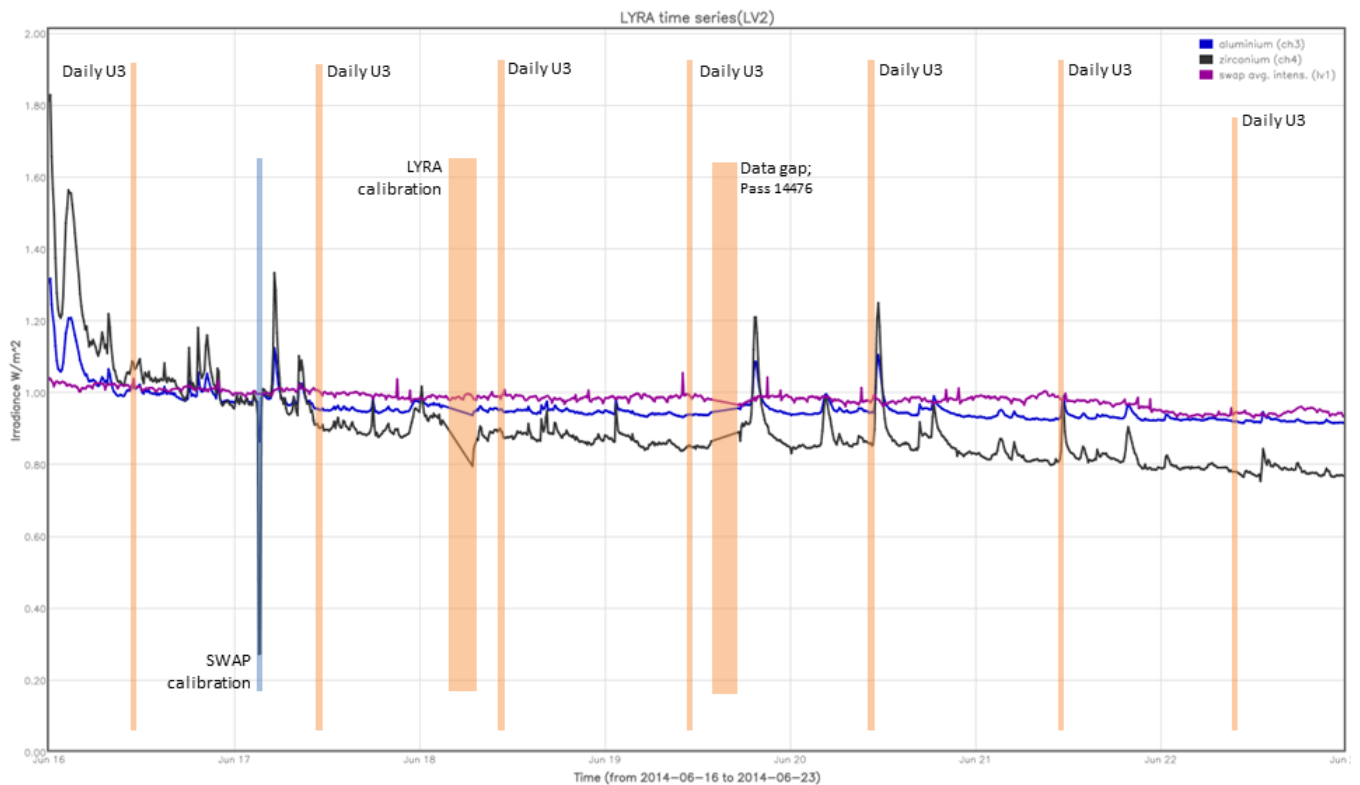
A SWAP difference [movie](#) of this event.

It is also nicely visible in the SWAP daily [movie](#).

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 (2 consecutive days)
- Data gap in LYRA data (on Thursday; see also section 5)
- Daily LYRA unit 3 campaign (3 consecutive days)

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

- bi-weekly SWAP calibration campaign on Tuesday.

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

- The deadline for proposals for the GI program 2014-2015 expired on Monday 16/06/2014; 00:00:00.
- On Friday 21st June, Guest Investigator Adam Kobelski joined the P2SC team for 'Studying AR-AR Reconnection after Flux Emergence'.

Other Visitors

- None

2. LYRA instrument status

Calibration

LYRA calibration on Tuesday.

IOS & operations

Monday 16 Jun	Tuesday 17 Jun	Wednesday 18 Jun	Thursday 19 Jun	Friday 20 Jun	Saturday 21 Jun	Sunday 22 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
LYIOS00402	LYIOS00403	LYIOS00403	LYIOS00403	LYIOS00403	LYIOS00403	LYIOS00403

The following science campaigns were performed by LYRA:

- Daily LYRA unit 3 campaign (7 consecutive days)

LYRA detector temperature

During normal operations, the LYRA detector 2 temperature varied between 46.8 °C and 47.8 °C, taking into account the small daily U3 activation temperature peaks. During the bi-weekly calibration campaign, temperature dropped to 45.7 °C.

3. SWAP instrument status

Calibration

SWAP calibration on Wednesday.

MCPM errors

The number of MCPM **recoverable** errors increased from 19394 to 19583.

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

IOS & operations

Monday 16 Jun	Tuesday 17 Jun	Wednesday 18 Jun	Thursday 19 Jun	Friday 20 Jun	Saturday 21 Jun	Sunday 22 Jun
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00523 527 images	IOS00524 647 images	IOS00524 665 images	IOS00524 604 images	IOS00524 563 images	IOS00524 534 images	IOS00524 623 images

Special SWAP operations this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature varied between -0.17 °C and -1.04 °C.

4. PROBA2 Science Center Status

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

The following changes were made to the P2SC:

Complete update of Repository:

- 19/06/2014: r5114
- 18/06/2014: r5094

SWBSDG:

- 18/06/2014: r5094
- 19/06/2014: r5114

5. Data reception & discussions with MOC

Passes

The delivery of the passes for this week (passes 14445 and 14504) was nominal, except for:

- pass 14476 not received.

Data coverage HK

All HK data files (LYRA_AD) have been received, except for:

- pass 14476

Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received, except for:

- pass 14476

Despite missing the data from pass 14476, there is no complete 'SWAP data gap'. The on-board SWAP data downlink scheme ensures that we have nevertheless images about every 6.5 minutes, in case of an occasional downlink failure.

Total number of images between 2014 Jun 16 0UT and 2014 Jun 23 0UT: 4163

Highest cadence in this period: 30 seconds

Average cadence in this period: 145.26 seconds

Number of image gaps larger than 300 seconds: 24

Largest data gap: 6.50 minutes

Data coverage LYRA

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

- pass 14476

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)