


P2SC-ROB-WR-220 - 20140609 Weekly report #220	P2SC Weekly report	
Period covered: Date:	Mon Jun 09, 2014 to Sun Jun 15, 2014 19 Jun 2014	Royal Observatory of Belgium -
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1. Science

Solar & Space weather events

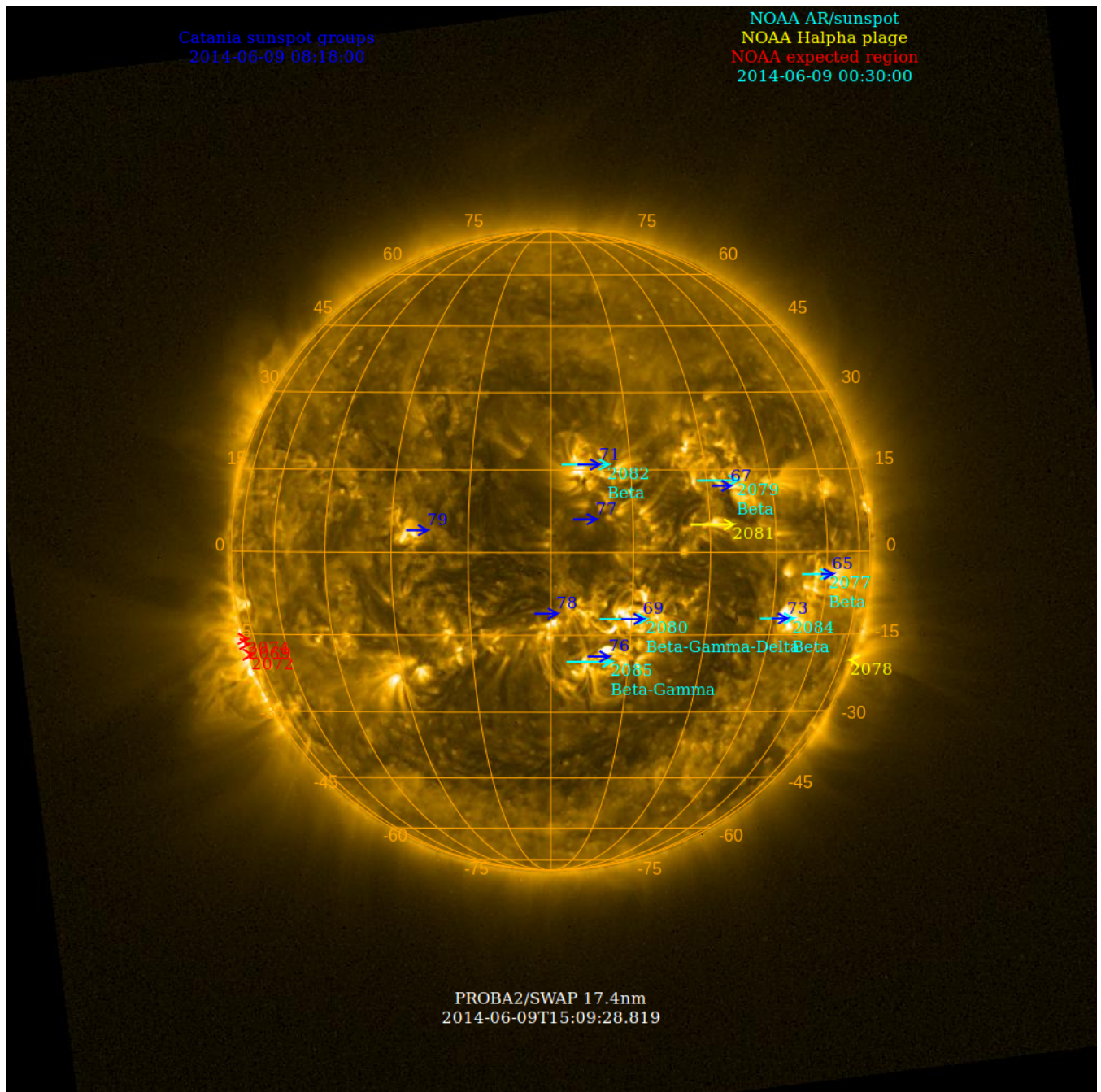
The level of solar activity¹ fluctuated between **low** and **very high** this week.

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

	Monday 09 Jun	Tuesday 10 Jun	Wednesday 11 Jun	Thursday 12 Jun	Friday 13 Jun	Saturday 14 Jun	Sunday 15 Jun
Activity	low	very high	high	moderate	moderate	moderate	moderate
Flares	-	X1.5@12:52 X2.2@11:42	M3.9@21:03 X1.0@09:06 M3.0@08:09 M1.8@05:34	M3.1@22:16 M1.0@21:13 M1.1@20:03 M1.3@18:13 M2.7@10:21 M1.8@09:37 M2.0@04:21	M2.6@07:56	M1.4@19:29	M1.1@11:39

¹ See appendix. All timings are given in UT.

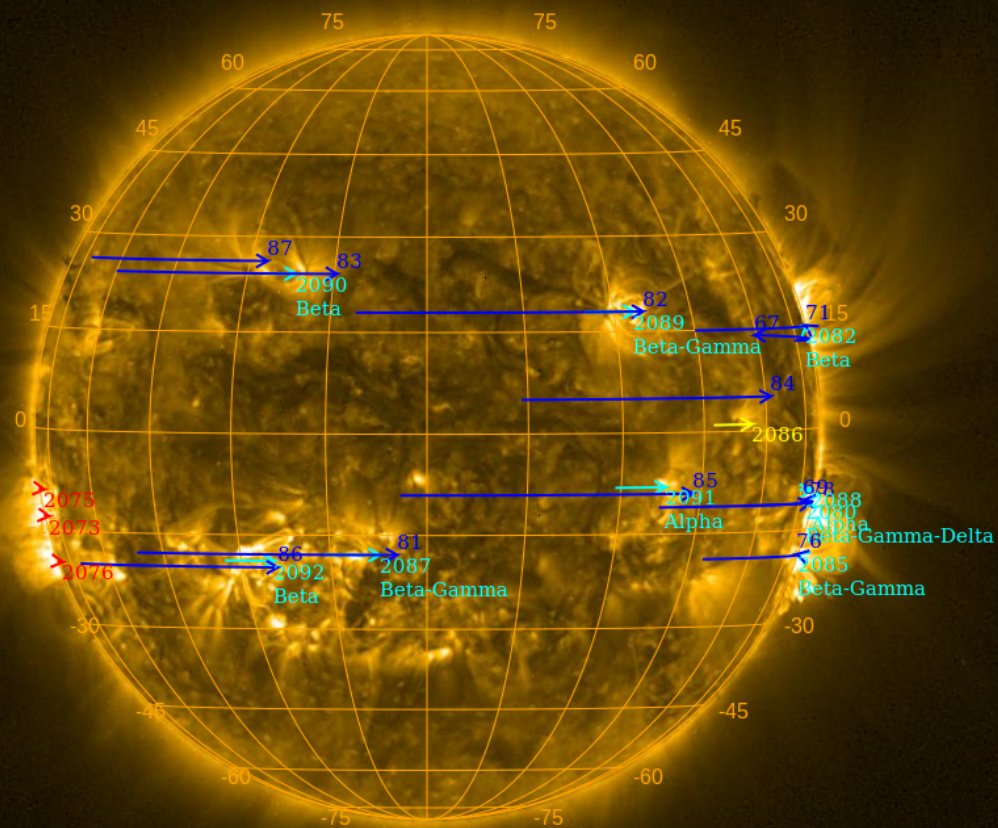
The SWAP images of Jun 09 and Jun 15 are shown below, with annotated active regions.



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

Catania sunspot groups
2014-06-12 09:18:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2014-06-15 00:30:00



PROBA2/SWAP 17.4nm
2014-06-15T15:08:07.481

Solar Activity

Solar flare activity fluctuated between low and moderate during the week.

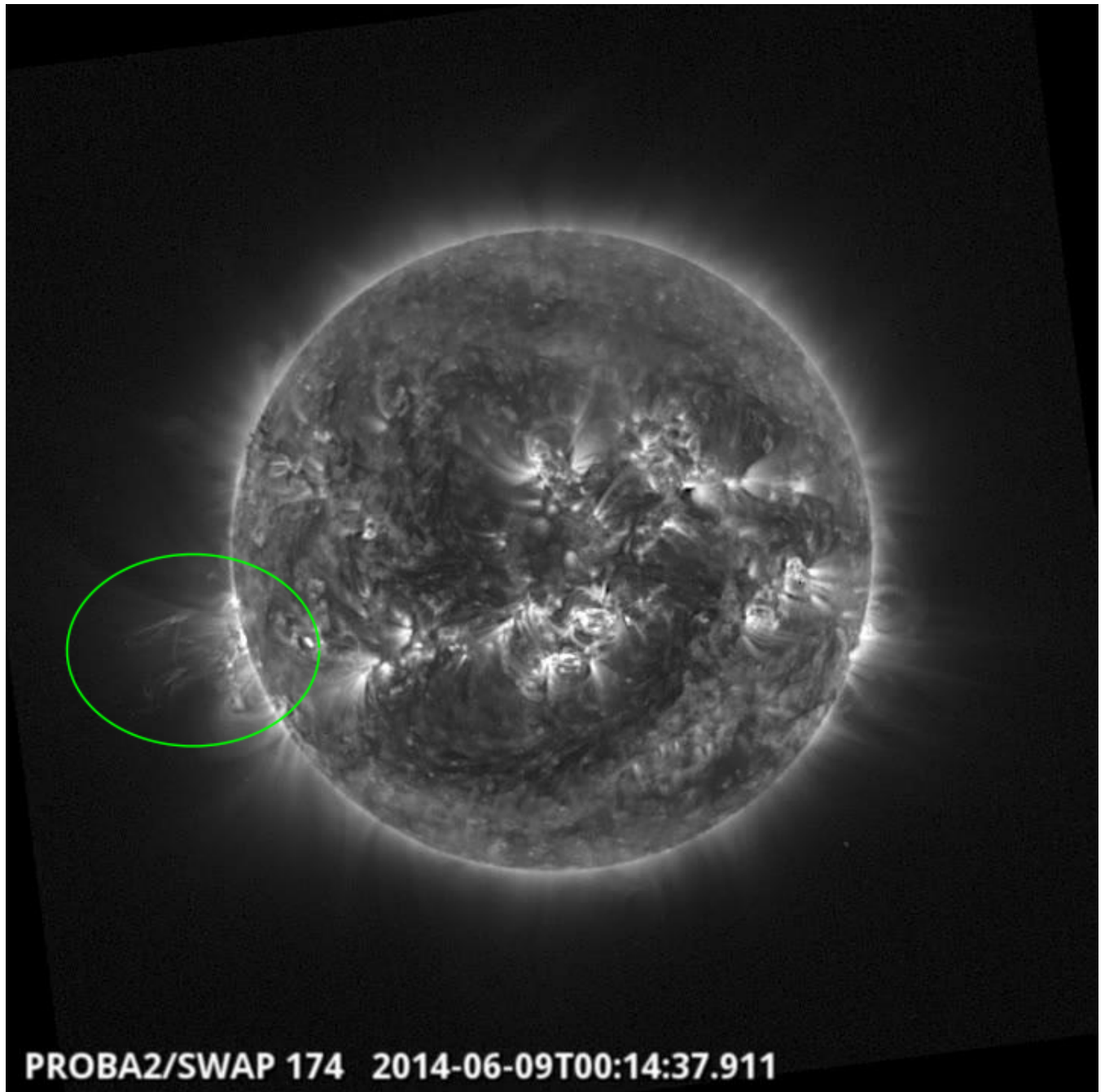
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: <http://proba2.oma.be/ssa>

This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 220).

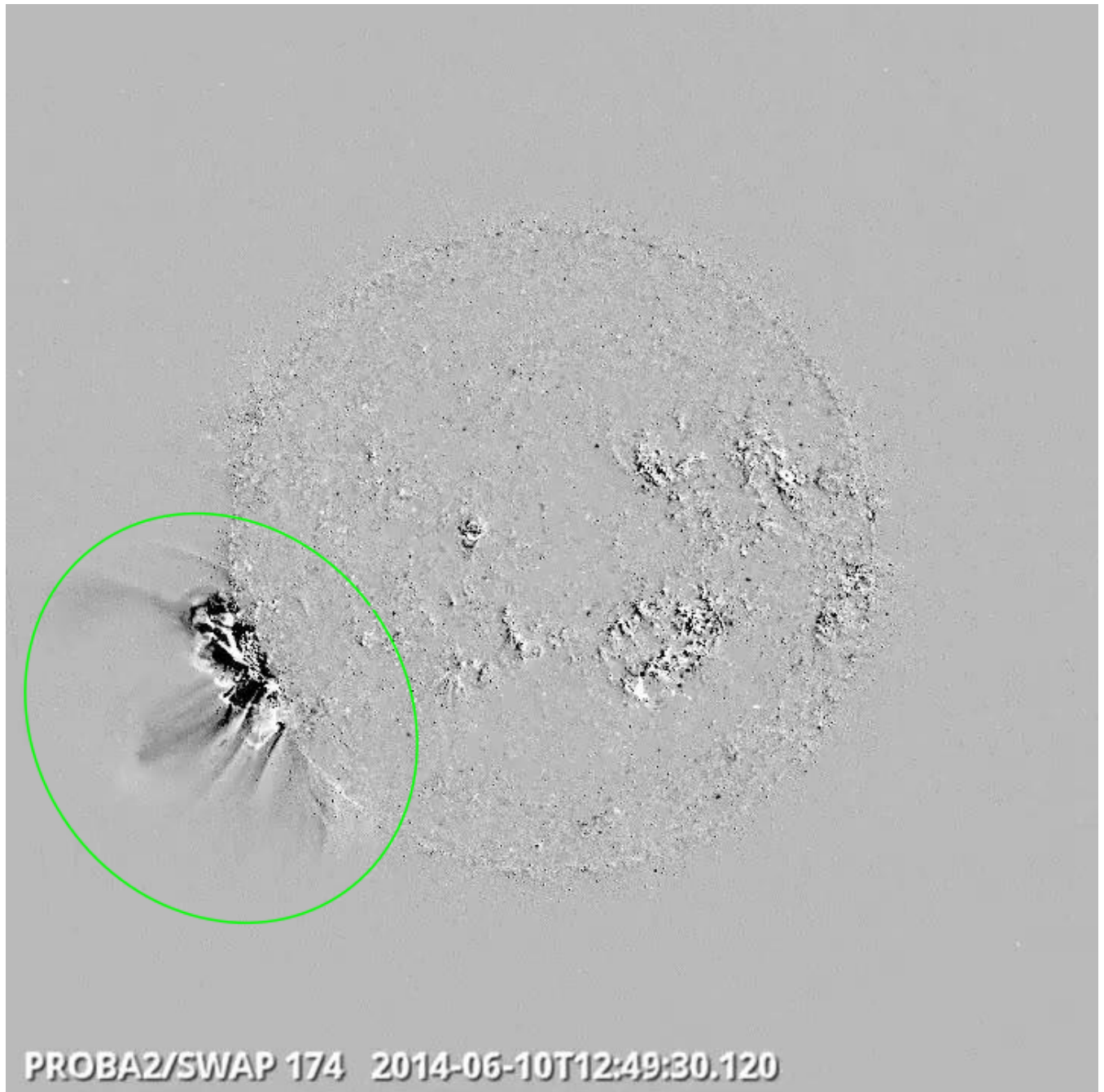
Details about some of this week's events, can be found further below.

Monday Jun 09



Eruption on the east limb @ 00:14 - SWAP image
Find a movie of the events [here](#) (SWAP movie)

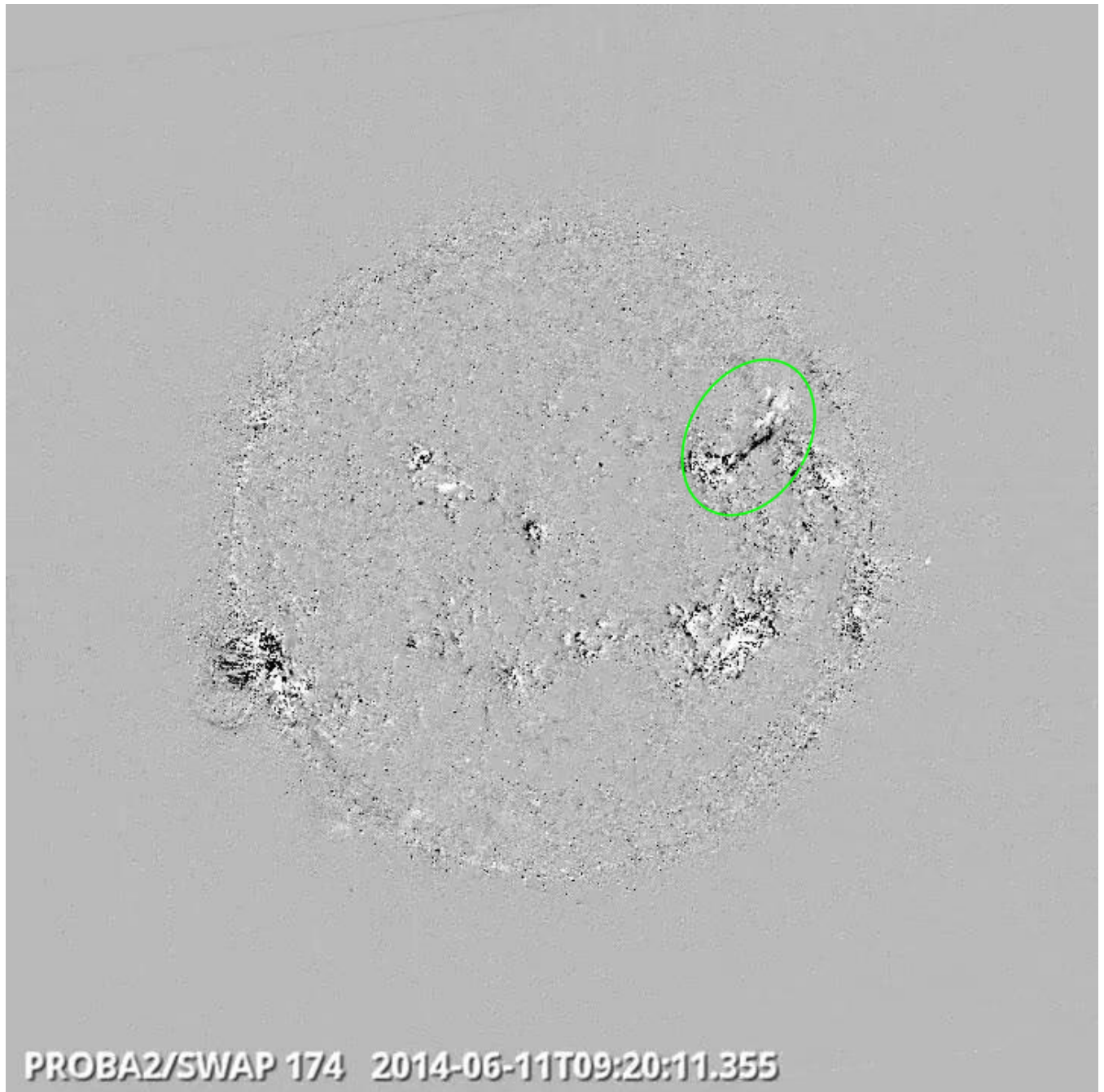
Tuesday Jun 10



Eruption on the east limb @ 12:49 - SWAP difference image

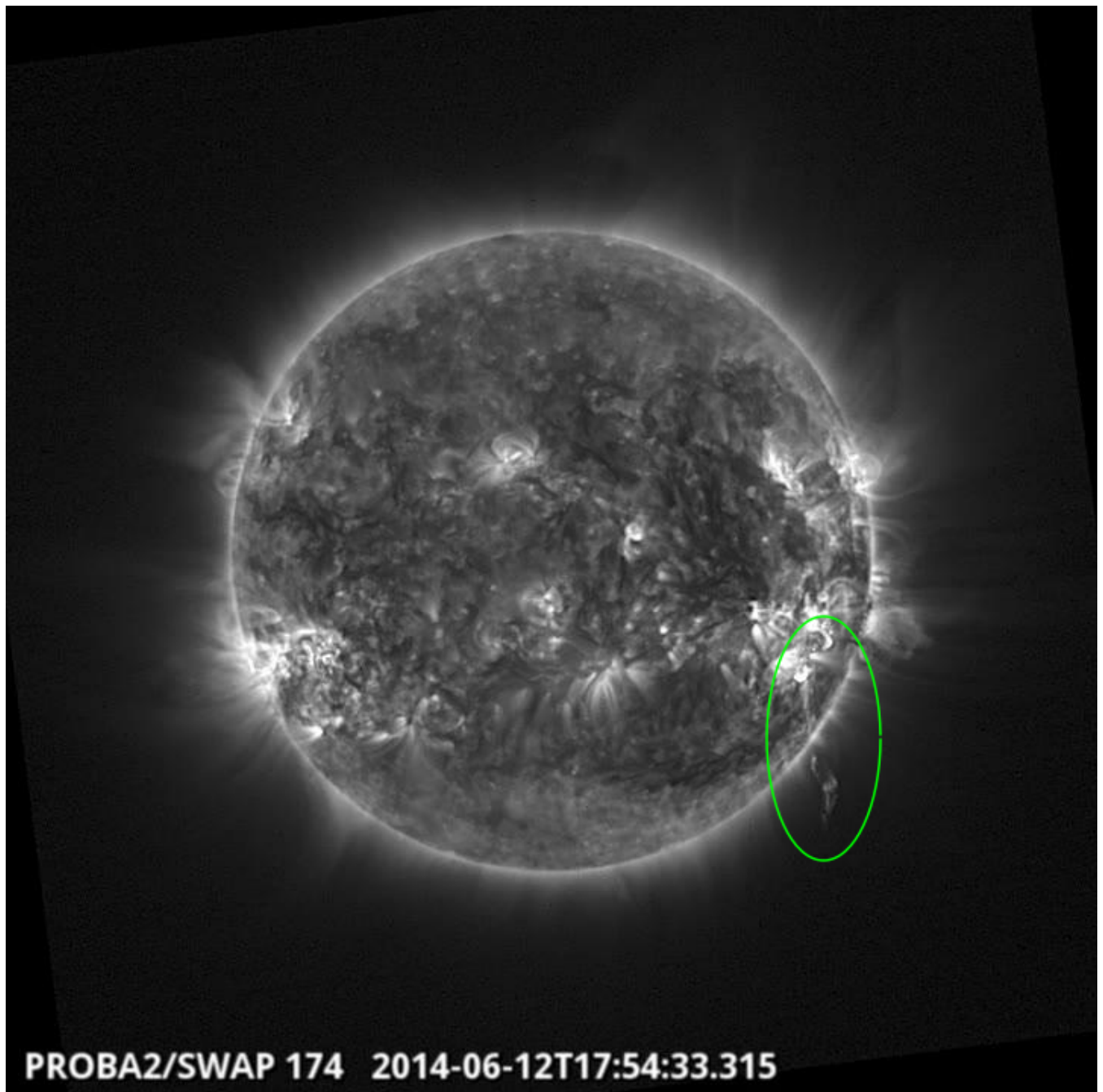
Find a movie of the events [here](#) (SWAP difference movie)

Wednesday Jun 11



Eruption on the north west quad @ 09:20 - SWAP difference image
Find a movie of the event [here](#) (SWAP difference movie)

Thursday Jun 12



PROBA2/SWAP 174 2014-06-12T17:54:33.315

Eruption on the south west quad @ 17:54 - SWAP image
Find a movie of the event [here](#) (SWAP movie)

Saturday Jun 14



PROBA2/SWAP 174 2014-06-14T19:31:36.310

Eruption on the east limb @ 19:31 - SWAP difference image

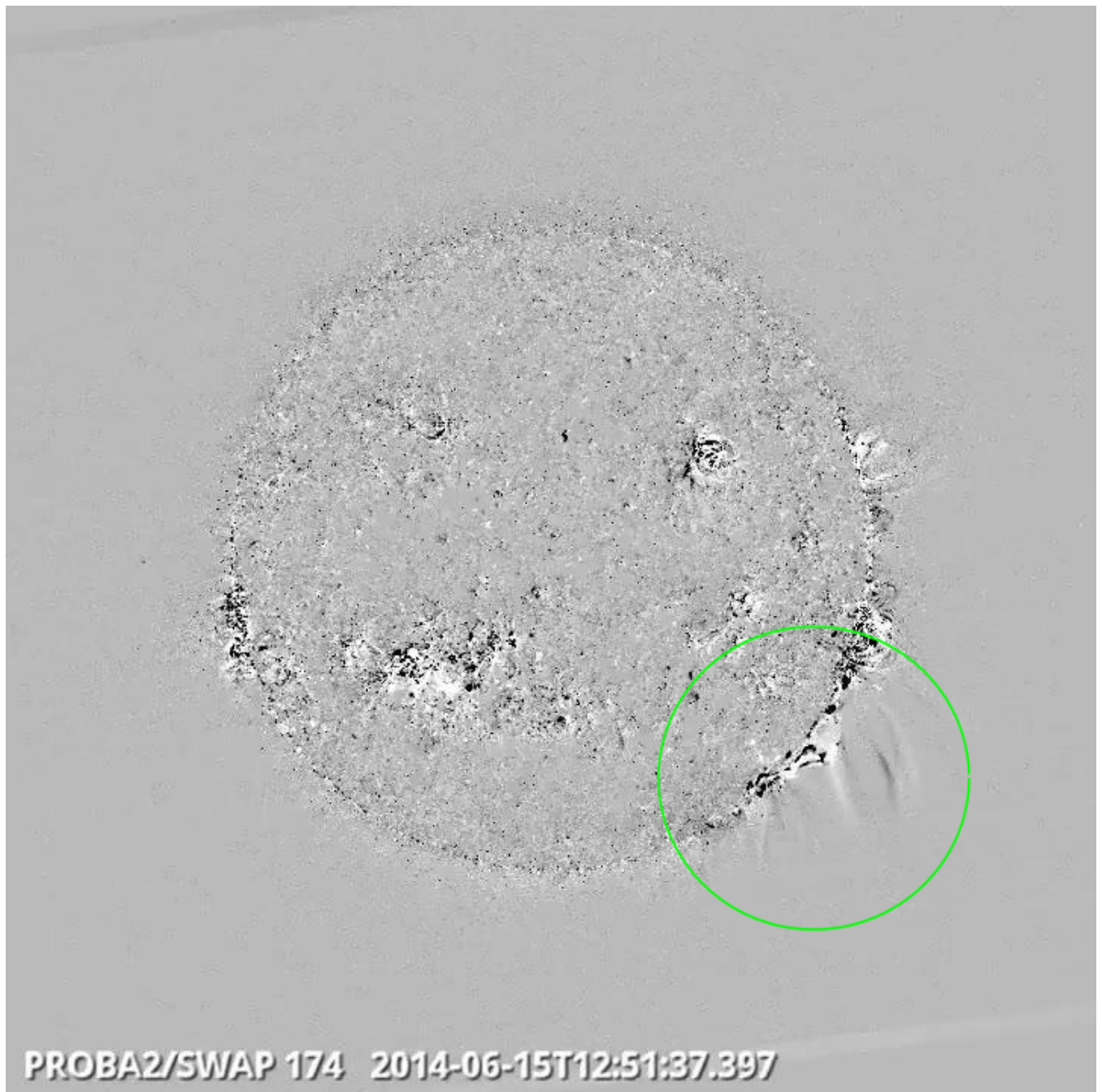
Find a movie of the events [here](#) (SWAP difference movie)

Sunday Jun 15



Eruption on the west limb @ 05:18 - SWAP difference image

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

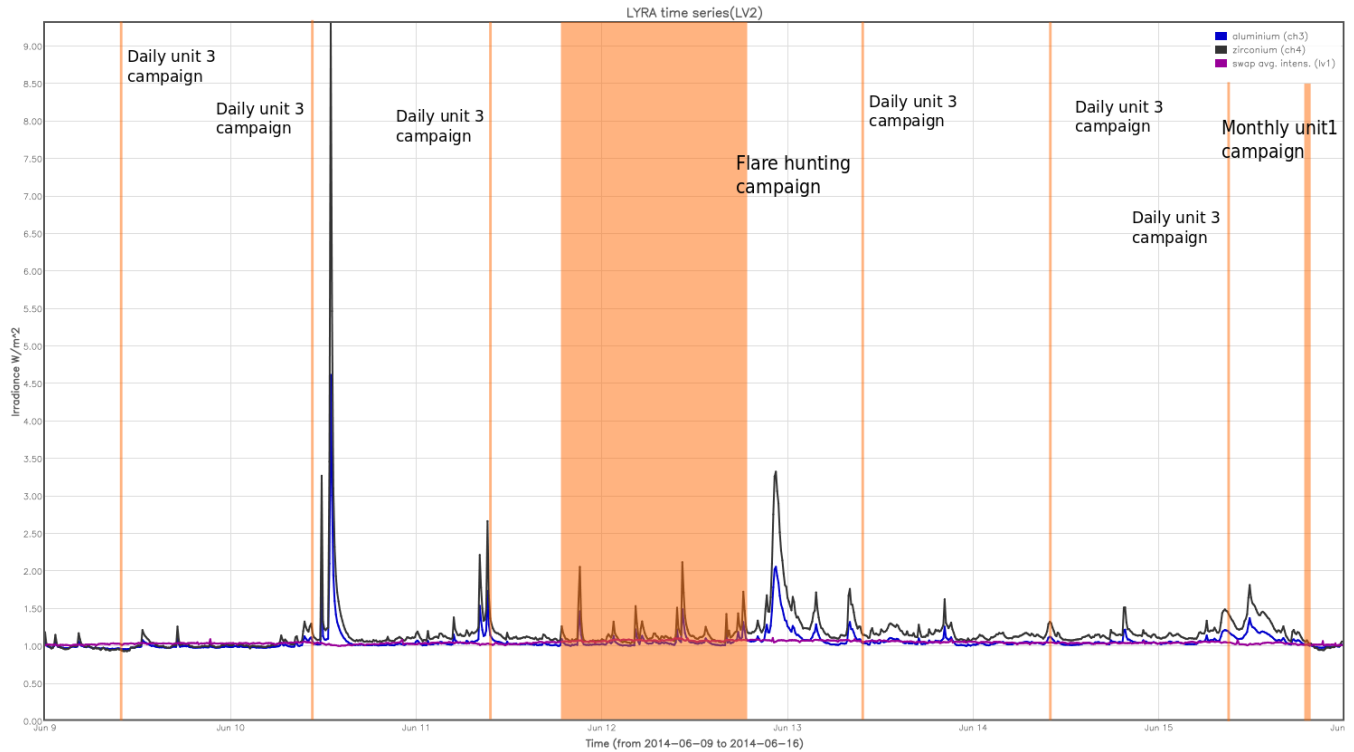


Eruption and EIT wave on the west limb @ 12:51 - SWAP difference image
Find a movie of the events [here](#) (SWAP difference movie)

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 (SWAP Average Intensity; integrated solar intensity per SWAP image pixel)



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

- Daily unit 3 campaign, three times
- Flare hunting campaign
- Daily unit 3 campaign, three times
- Monthly unit 1 campaign.

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>).

- Yalim. M. S *et al.* 2014: "Variations in EUV Irradiance: Comparison between LYRA, ESP, and SWAP Integrated", *Advances in Astronomy*, Article ID 957461
- Several Proba 2 talks were given at the Solar EUV Irradiance Working Group
 - A. Jones "Status of MEGS on-board SDO/EVE + Analyzing the spectral degradation of PROBA2/LYRA"
 - I. Dammasch "LYRA calibration considering the evolution of dark currents"
 - I. Dominique Cross-calibration of LYRA with SEE and EVE

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 09 Jun	Tuesday 10 Jun	Wednesday 11 Jun	Thursday 12 Jun	Friday 13 Jun	Saturday 14 Jun	Sunday 15 Jun
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + flare hunting campaign	Nominal acquisition + flare hunting campaign	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + monthly U1
LYIOS00401	LYIOS00401	LYIOS00401 -> LYIOS00402	LYIOS00402	LYIOS00402	LYIOS00402	LYIOS00402

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- flare hunting campaign
- monthly U1 campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 47 and 49.7 °C, taking into account the daily U3 activation periods.

3. SWAP instrument status

Calibration

No calibration this week.

MCPM errors

The number of MCPM recoverable errors increased from 19304 to 19394.

The number of MCPM unrecoverable errors remained at 1657.

IOS & operations

Monday 09 Jun	Tuesday 10 Jun	Wednesday 11 Jun	Thursday 12 Jun	Friday 13 Jun	Saturday 14 Jun	Sunday 15 Jun
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00523 620 images	IOS00523 583 images	IOS00523 515 images	IOS00523 643 images	IOS00523 555 images	IOS00523 566 images	IOS00523 534 images

Special operations for SWAP, this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.2 and -0.18 °C.

4. PROBA2 Science Center Status

The main operator is 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 14386 to 14444) 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 2014 Jun 09 0UT and 2014 Jun 16 0UT: 4016

Highest cadence in this period: 0 seconds

Average cadence in this period: 150.59 seconds

Number of image gaps larger than 300 seconds: 2

Largest data gap: 6.50 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)