


P2SC-ROB-WR-272 - 20150608 Weekly report #272	<b>P2SC Weekly report</b>	
Period covered: Date:  Written by: Approved by:	Mon Jun 08 to Sun Jun 14, 2015 17 Jun 2015  Robbe Vansintjan D.B. Seaton	Royal Observatory of Belgium  - PROBA2 Science Center
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## 1. Science

### Solar & Space weather events

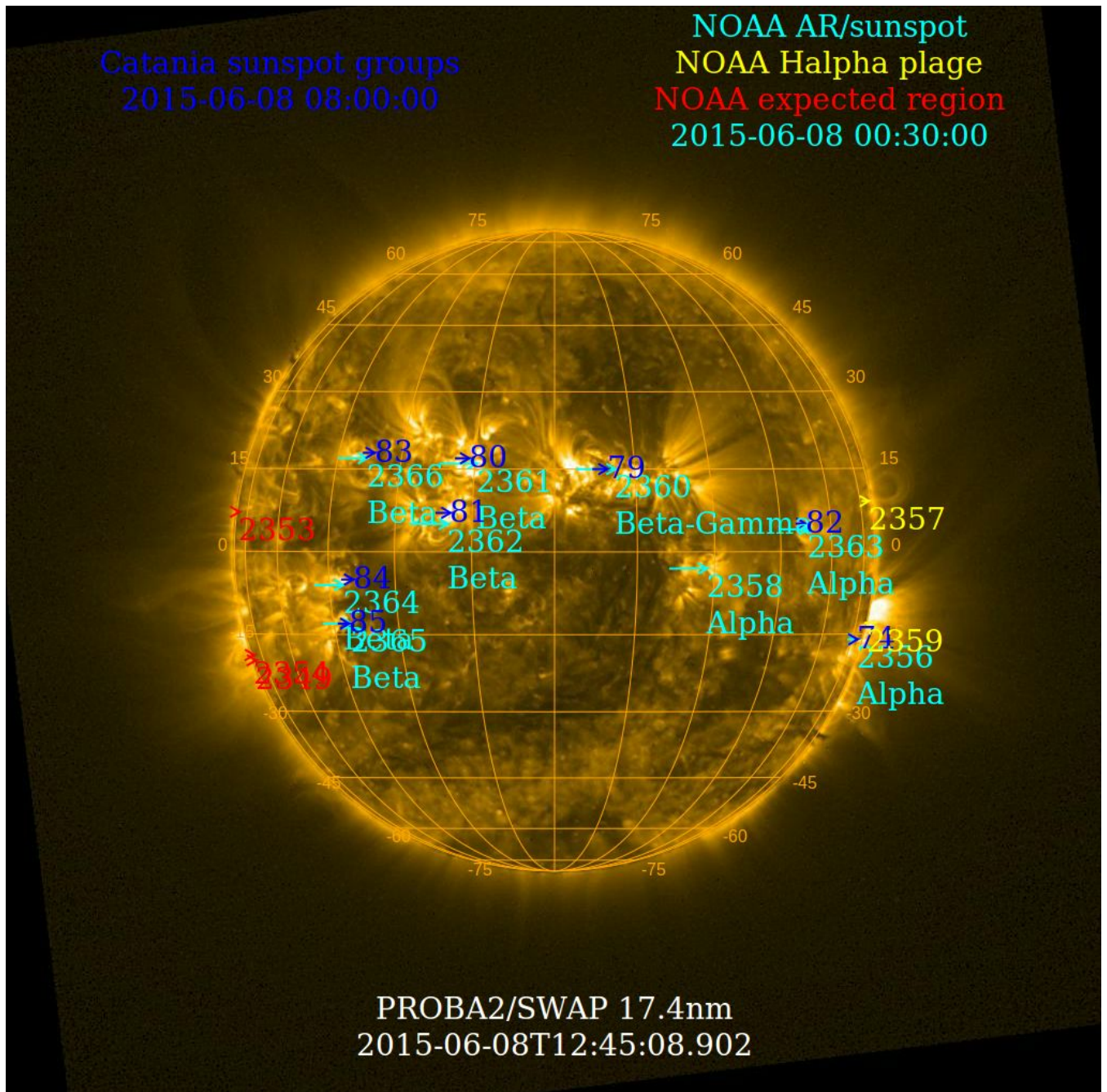
The level of solar activity<sup>1</sup> fluctuated between **very low** and **moderate** this week.

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

	Monday 08 Jun	Tuesday 09 Jun	Wednesday 10 Jun	Thursday 11 Jun	Friday 12 Jun	Saturday 13 Jun	Sunday 14 Jun
Activity	very low	low	low	moderate	low	moderate	moderate
Flares	-	-	-	<b>M1.0@08:55</b>	-	<b>M1.3@07:29</b>	<b>M2.0@00:59</b>

<sup>1</sup> See appendix. All timings are given in UT.

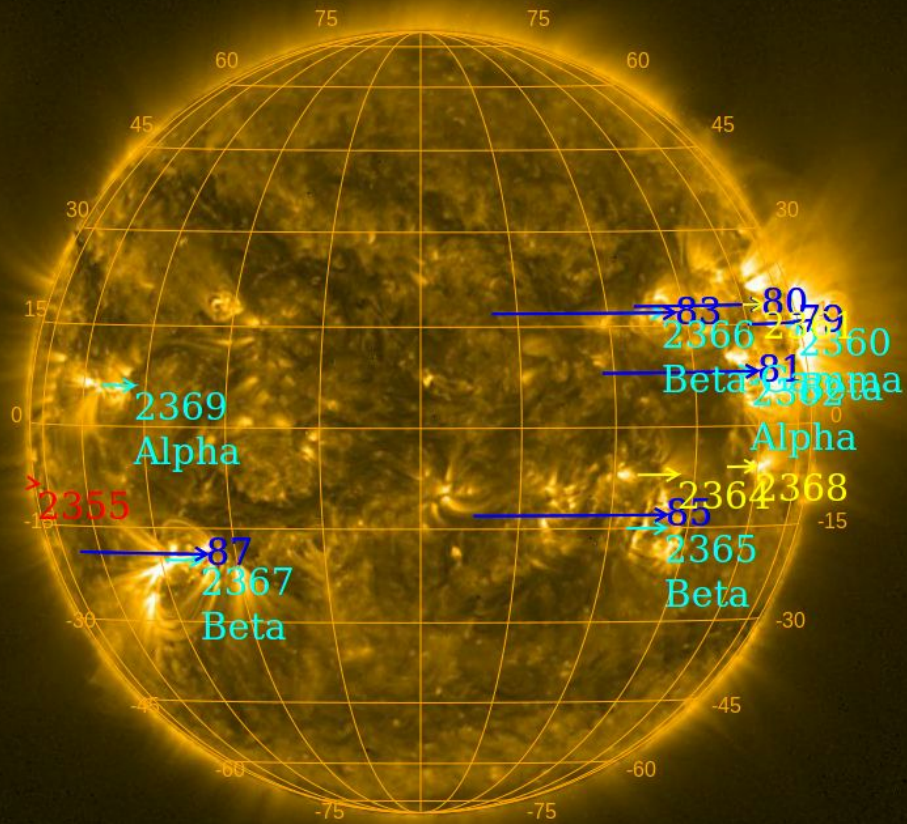
The SWAP images of Jun 08 and Jun 14 are shown below, with annotated active regions.



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

Catania sunspot groups  
2015-06-12 07:36:00

NOAA AR/sunspot  
NOAA Halpha plage  
NOAA expected region  
2015-06-14 00:30:00



PROBA2/SWAP 17.4nm  
2015-06-14T12:46:56.352



## **Solar Activity**

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

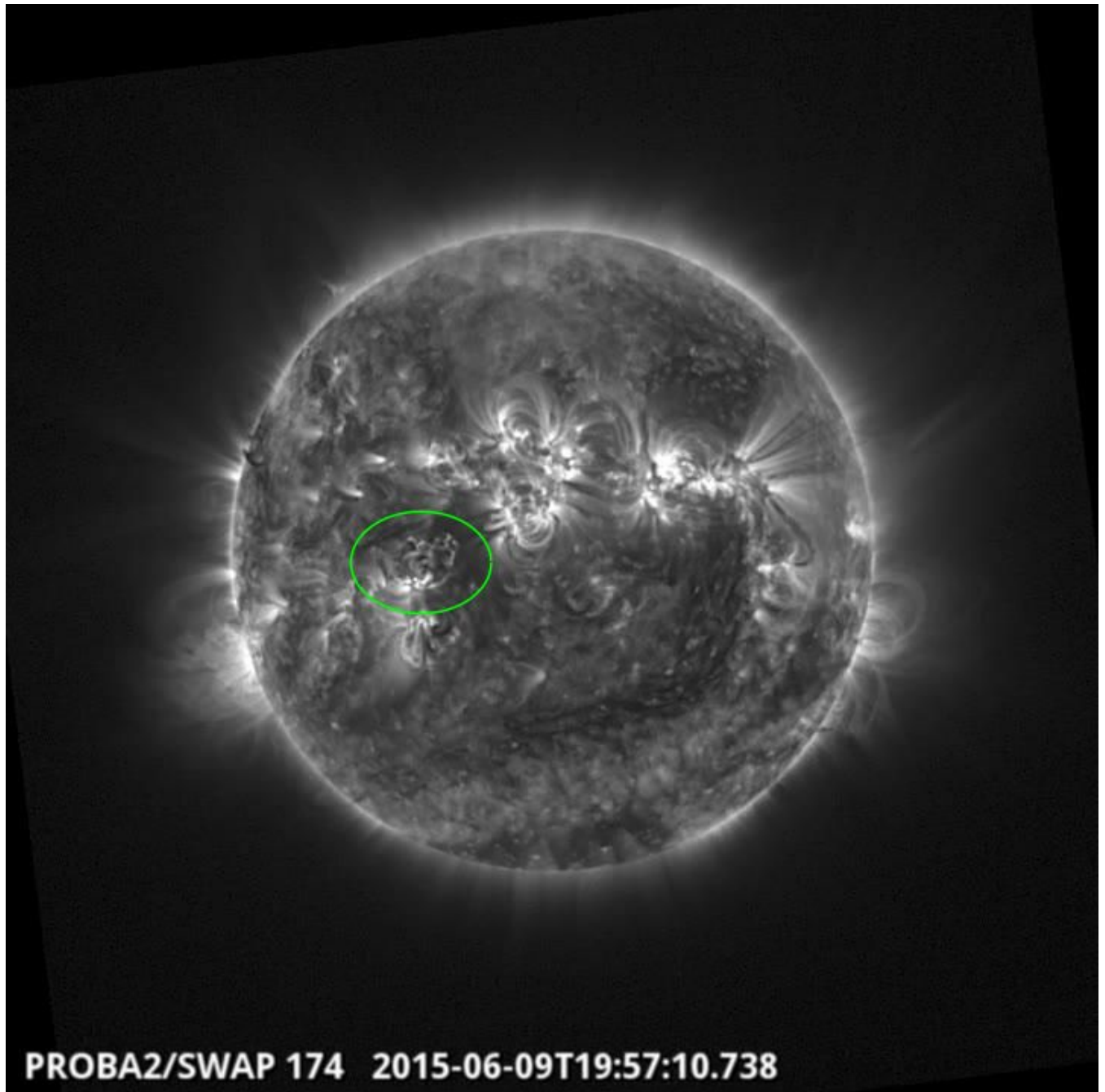
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: <http://proba2.oma.be/ssa>

This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 272).

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

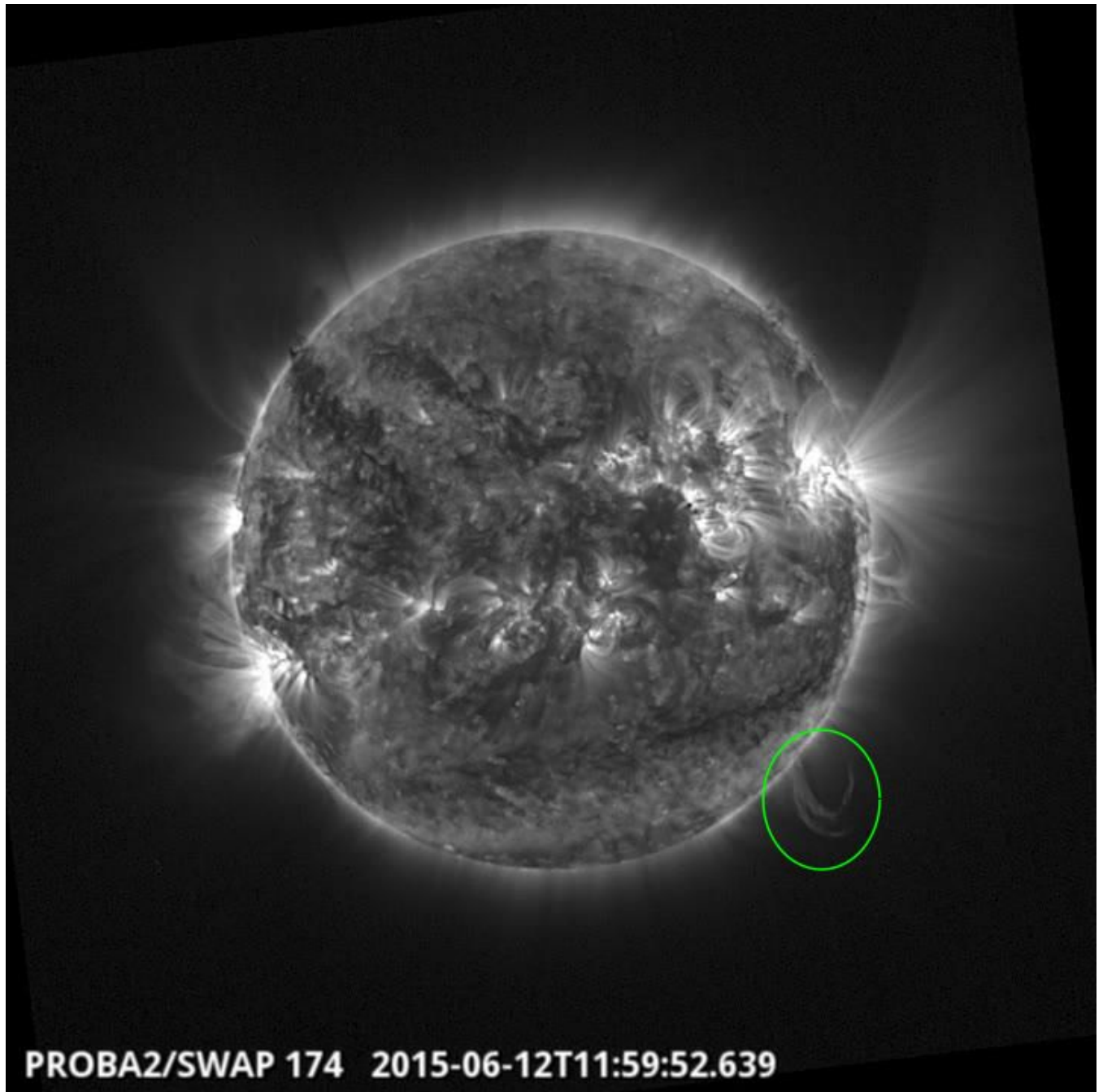
Tuesday Jun 09



**PROBA2/SWAP 174 2015-06-09T19:57:10.738**

**C-Flare on the east half @ 19:57 - SWAP image**  
Find a movie of the event [here](#) (SWAP movie)

Friday Jun 12

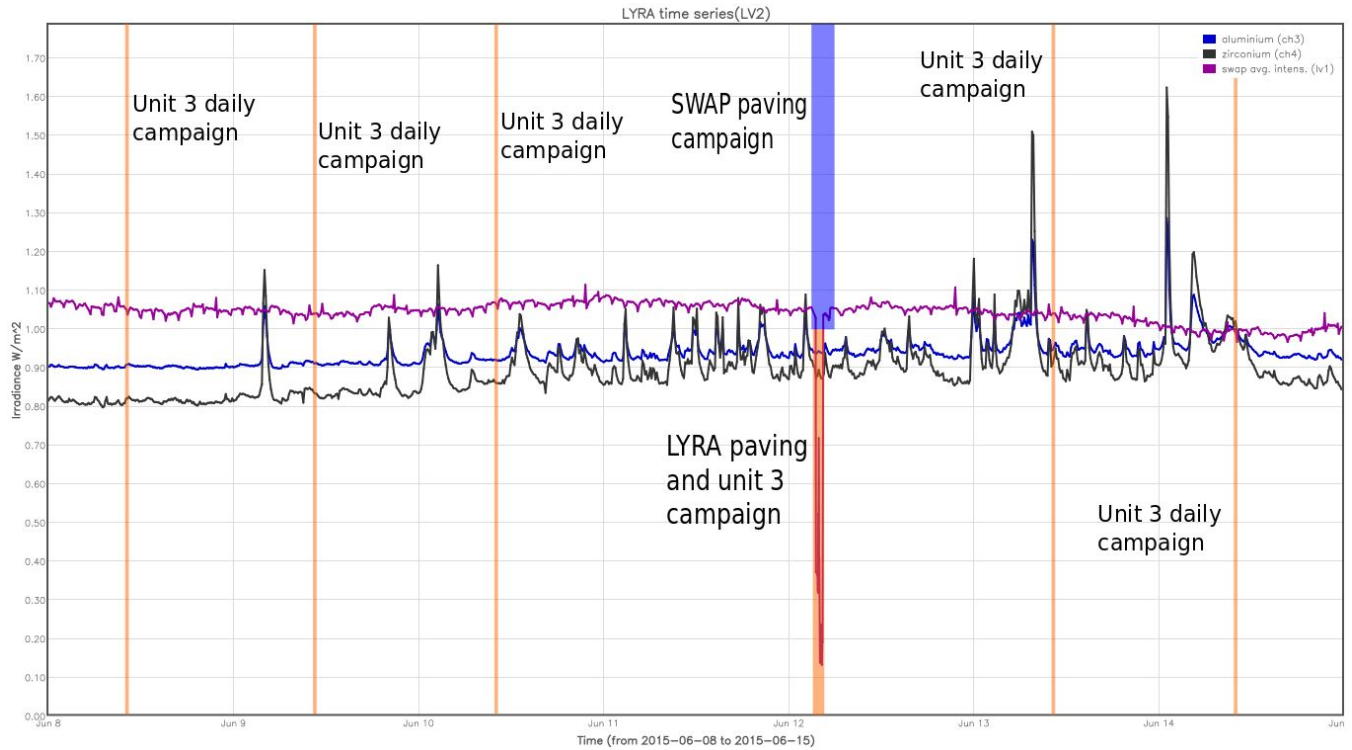


Plasma dynamics on the west limb @ 11:59 - SWAP image  
Find a movie of the event [here](#) (SWAP movie)

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 blue shaded periods correspond to, from left to right:

- SWAP image priority flagging campaign and paving test campaign for LYRA, 2015-06-12

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

- Unit 3 daily campaign, 2015-06-08
- Unit 3 daily campaign, 2015-06-09
- Unit 3 daily campaign, 2015-06-10
- LYRA paving and unit 3 test campaign, 2015-06-12
- Unit 3 daily campaign, 2015-06-13
- Unit 3 daily campaign, 2015-06-14

Several long-term tests of the SWAP blurred image flagging routines were conducted during the present reporting period. SWAP cadence may be more variable than usual due to these tests.

## **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>).

- D. Ryan gave a talk at the Paris Observatory “Global Energetics of Solar Flares I: Thermal Energies”.

## **Guest Investigator Program**

- None



## 2. LYRA instrument status

### Calibration

No calibration this week.

### IOS & operations

Monday 08 Jun	Tuesday 09 Jun	Wednesday 10 Jun	Thursday 11 Jun	Friday 12 Jun	Saturday 13 Jun	Sunday 14 Jun
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition	Nominal acquisition + daily U3 + paving campaign	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00476	LYIOS00476	LYIOS00476	LYIOS00476	LYIOS00477	LYIOS00477	LYIOS00477

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- Test paving campaign

### LYRA detector temperature

LYRA detector 2 temperature globally varied between 47.4 and 48.9 °C.

### 3. SWAP instrument status

#### Calibration

No calibration this week.

#### MCPM errors

The number of MCPM recoverable errors increased from 69 to 87.

The number of MCPM unrecoverable errors remained at 0.

#### IOS & operations

Monday 08 Jun	Tuesday 09 Jun	Wednesday 10 Jun	Thursday 11 Jun	Friday 12 Jun	Saturday 13 Jun	Sunday 14 Jun
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition + image priority + paving test	Nominal acquisition	Nominal acquisition
IOS00585 644 images	IOS00585 650 images	IOS00585 653 images	IOS00585 605 images	IOS00585 -> IOS00586 870 images	IOS00586 642 images	IOS00586 602 images

Special operations for SWAP, this week:

- image priority flagging campaign and paving test campaign for LYRA

#### SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.3 and -0.1 °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 17595 to 17657) 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 2015 Jun 08 0UT and 2015 Jun 15 0UT: 4666

Highest cadence in this period: 20 seconds

Average cadence in this period: 129.63 seconds

Number of image gaps larger than 300 seconds: 55

Largest data gap: 30.55 minutes

This data gap is due to the image priority flagging campaign

### 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
SoFAST	Solar Feature Automated Search Tool
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)