


P2SC-ROB-WR-336 - 20161010 Weekly report #342	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Oct 10 to Sun Oct 16, 2016 20 Oct 2016 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

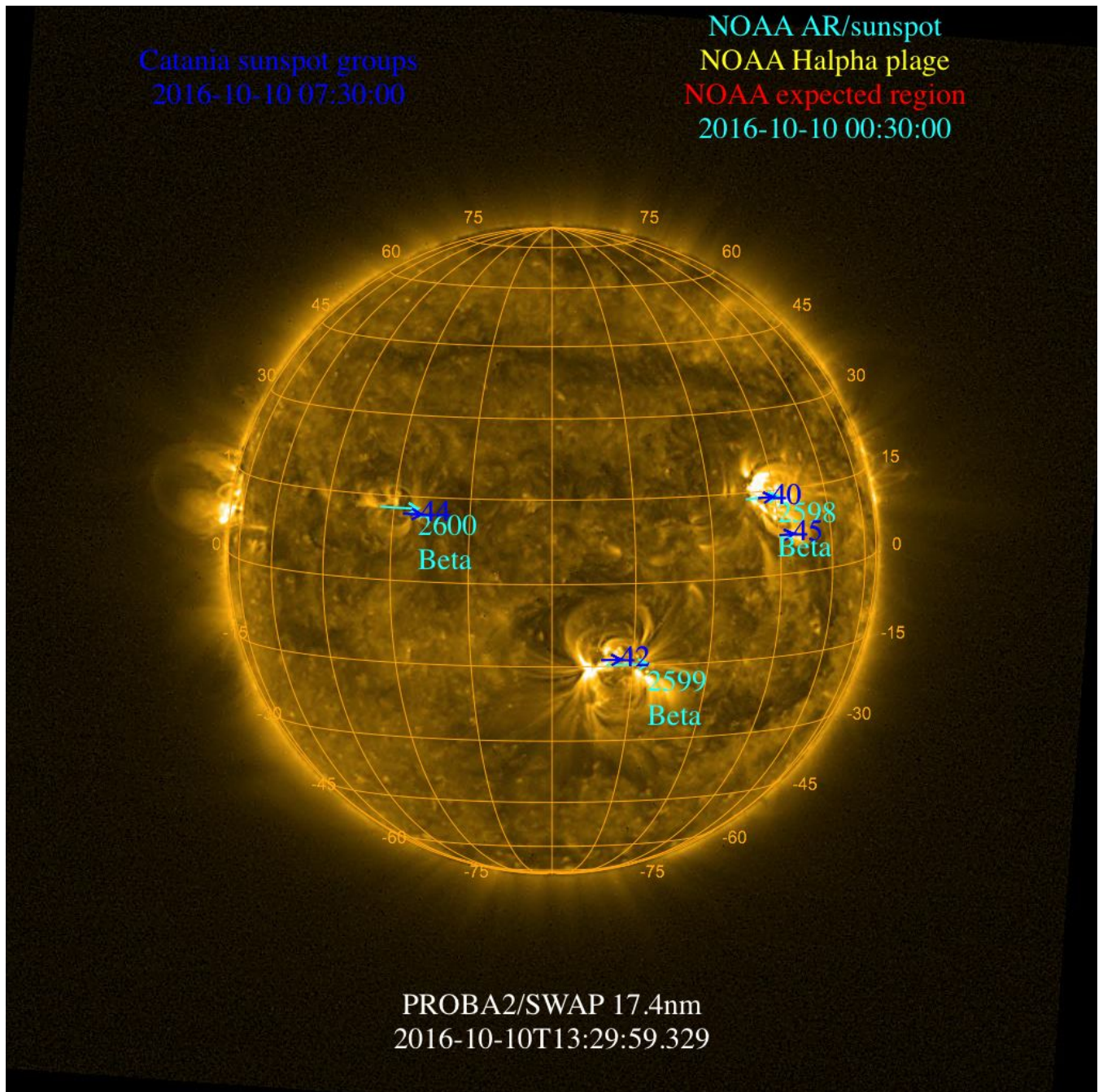
The level of solar activity¹ fluctuated between **very low** and **low** this week.

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

	Monday 10 Oct	Tuesday 11 Oct	Wednesday 12 Oct	Thursday 13 Oct	Friday 14 Oct	Saturday 15 Oct	Sunday 16 Oct
Activity	very low	very low	low	low	low	very low	very low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

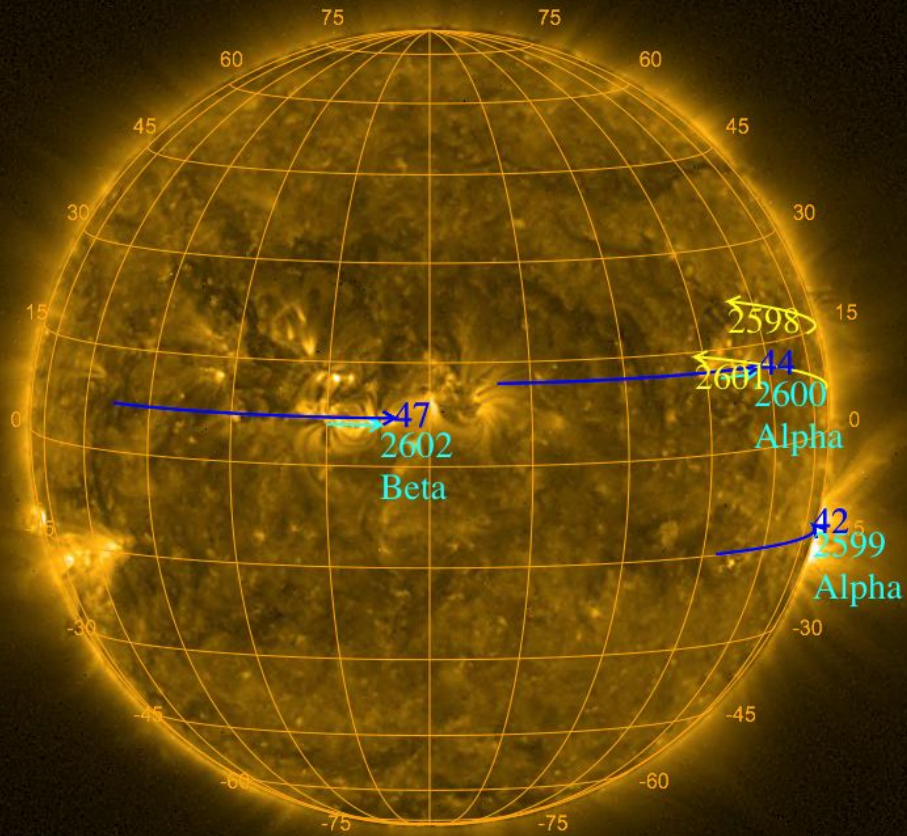
The SWAP images of Oct 10 and Oct 16 are shown below, with annotated active regions.



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

Catania sunspot groups
2016-10-13 07:00:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2016-10-16 00:30:00



PROBA2/SWAP 17.4nm
2016-10-16T13:30:38.436

Solar Activity

Solar flare activity fluctuated between very low and low 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>

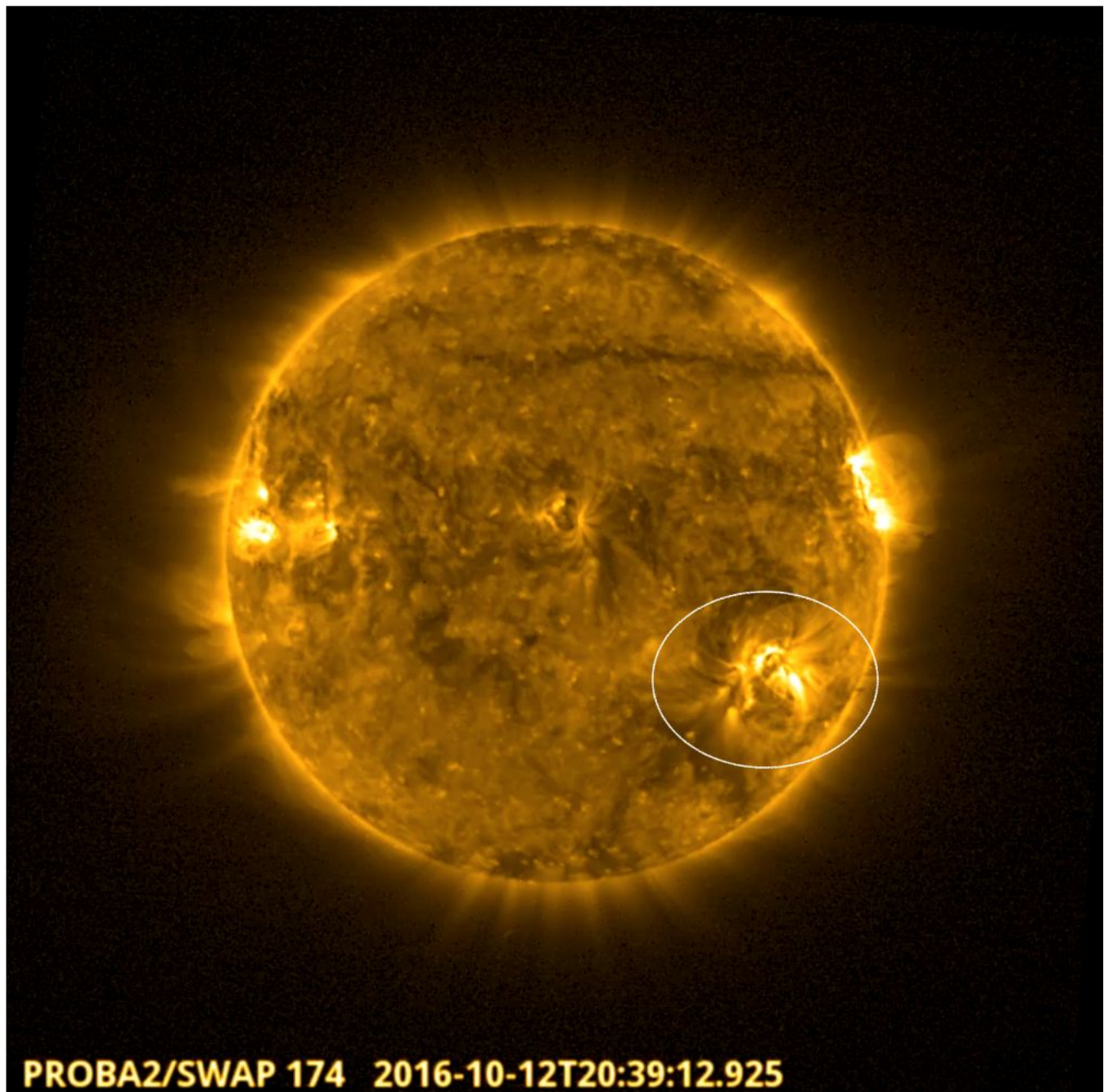
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 342).

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

If any of the linked movies are unavailable they can be found in the P2SC movie repository [here](#)

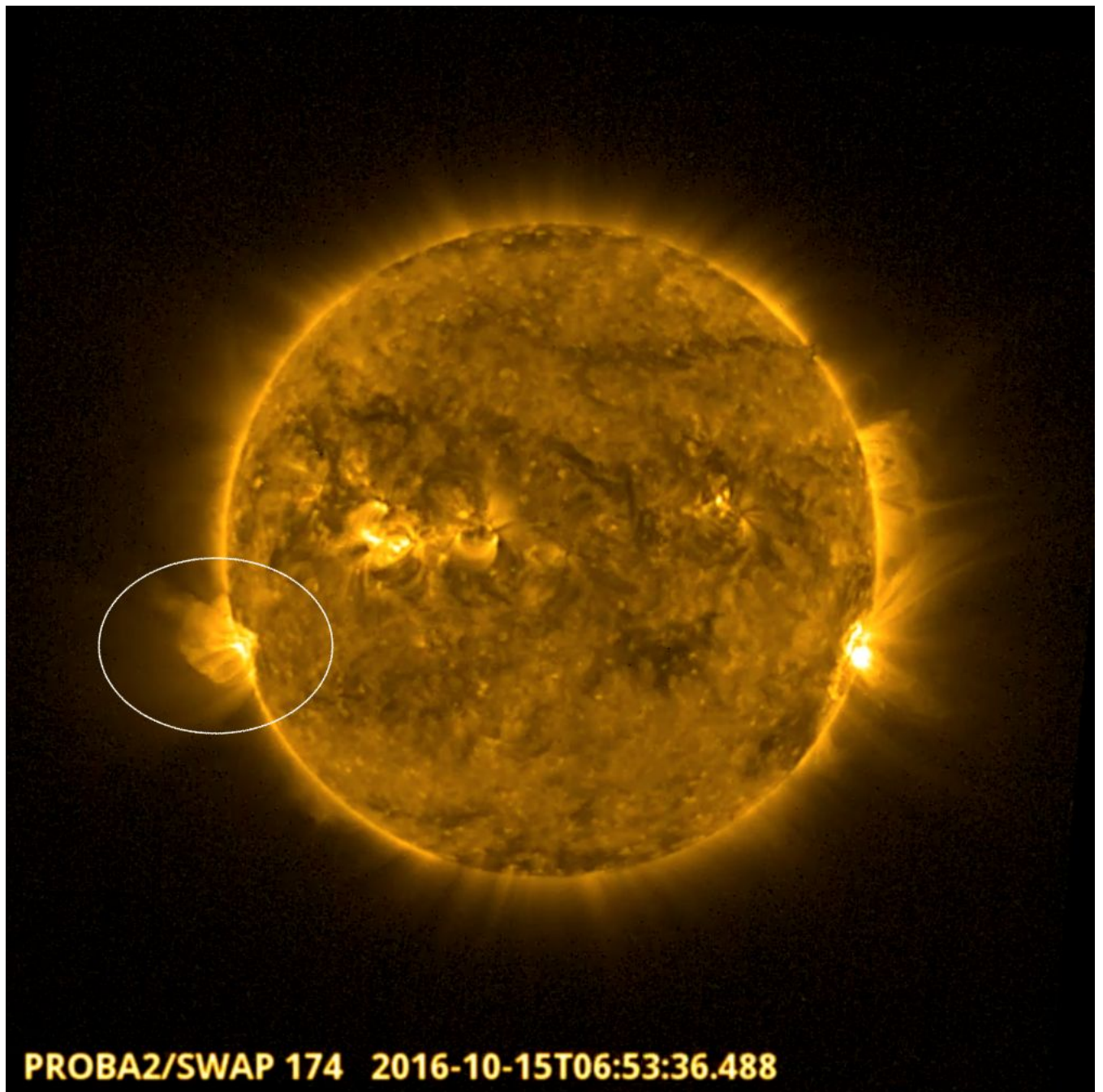
October 12-14



Active Region 2599 was most active through the week producing C class flares. The region transited the solar disk and can be seen in the image above on 2016-Oct-12

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

Friday Oct 14



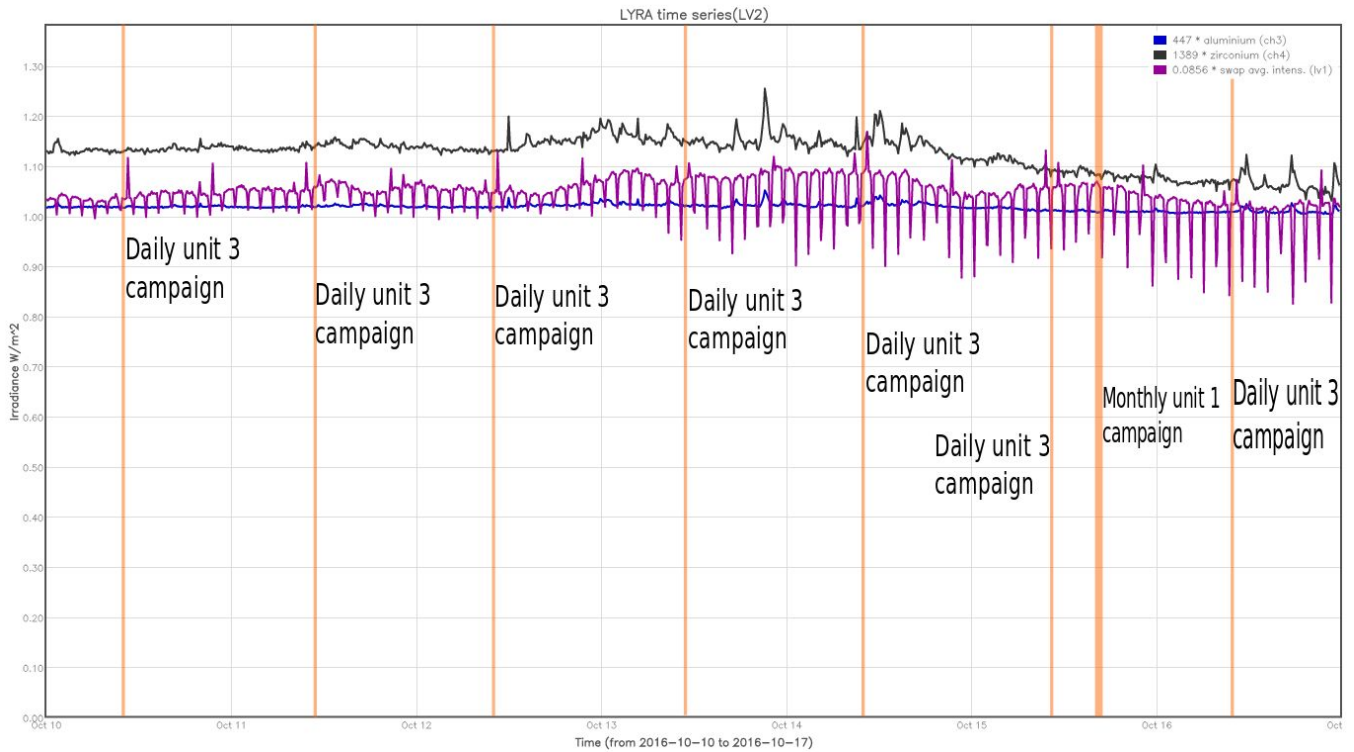
A CME was produced from an Active Region located on the East limb at 20:39 UT on 2016-Oct-12. The eruption produced a set of large post eruption loops seen throughout 2016-Oct-15

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 orange shaded periods correspond to, from left to right:

- Daily unit 3 campaign, 2016-10-10
- Daily unit 3 campaign, 2016-10-11
- Daily unit 3 campaign, 2016-10-12
- Daily unit 3 campaign, 2016-10-13
- Daily unit 3 campaign, 2016-10-14
- Daily unit 3 campaign, 2016-10-15
- Monthly unit 1 campaign, 2016-10-15
- Daily unit 3 campaign, 2016-10-16

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>).

C. Guennou presented her GI work “Performing tomographic reconstruction, in order to study the geometrical properties of coronal streamers.” at an STCE seminar at ROB.

Guest Investigator Program

- V. Krupar visited the P2SC to study Radio signatures of the shock waves and their association with coronal structures seen by the SWAP and coronagraph observations. V.Krupar will visit from 2016-Oct-10 to 2016-Oct-19
- C. Guennou visited the P2SC to perform tomographic reconstructions, in order to study the geometrical properties of fan structures. C. Guennou will visit from 2016 Oct 10 - 2016 Oct 20

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 10 Oct	Tuesday 11 Oct	Wednesday 12 Oct	Thursday 13 Oct	Friday 14 Oct	Saturday 15 Oct	Sunday 16 Oct
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + Monthly U1	Nominal acquisition + daily U3
LYIOS00580	LYIOS00580	LYIOS00580	LYIOS00580	LYIOS00581	LYIOS00581	LYIOS00581

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

On 2016-Oct-15

- monthly U1 observation campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 50.3 and 52.2 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 4187 to 4301.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 10 Oct	Tuesday 11 Oct	Wednesday 12 Oct	Thursday 13 Oct	Friday 14 Oct	Saturday 15 Oct	Sunday 16 Oct
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00664 664 images	IOS00664 626 images	IOS00664 577 images	IOS00664 704 images	IOS00665 683 images	IOS00665 585 images	IOS00665 634 images

Special operations for SWAP, this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 1.3 and 2.4 °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 22000 to 22062) 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 2016 Oct 10 0UT and 2016 Oct 17 0UT: 4481

Highest cadence in this period: 0 seconds

Average cadence in this period: 134.97 seconds

Number of image gaps larger than 300 seconds: 177

Largest data gap: 11.00 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
DAC	Data Acquisition Controller
DBR	Deployment, backup & recovery
DDA	Decommutated data archive
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)