


P2SC-ROB-WR-339 - 20160919 Weekly report #339	<b>P2SC Weekly report</b>	
Period covered: Date:  Written by: Approved by:	Mon Sep 19 to Sun Sep 25, 2016 28 Sep 2016  Robbe Vansintjan Matthew West	Royal Observatory of Belgium  - PROBA2 Science Center
To:	LYRA PI, marie.dominique@sidc.be SWAP PI, david.berghmans@sidc.be	<a href="http://proba2.sidc.be">http://proba2.sidc.be</a> ++ 32 (0) 2 3730559
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## 1. Science

### Solar & Space weather events

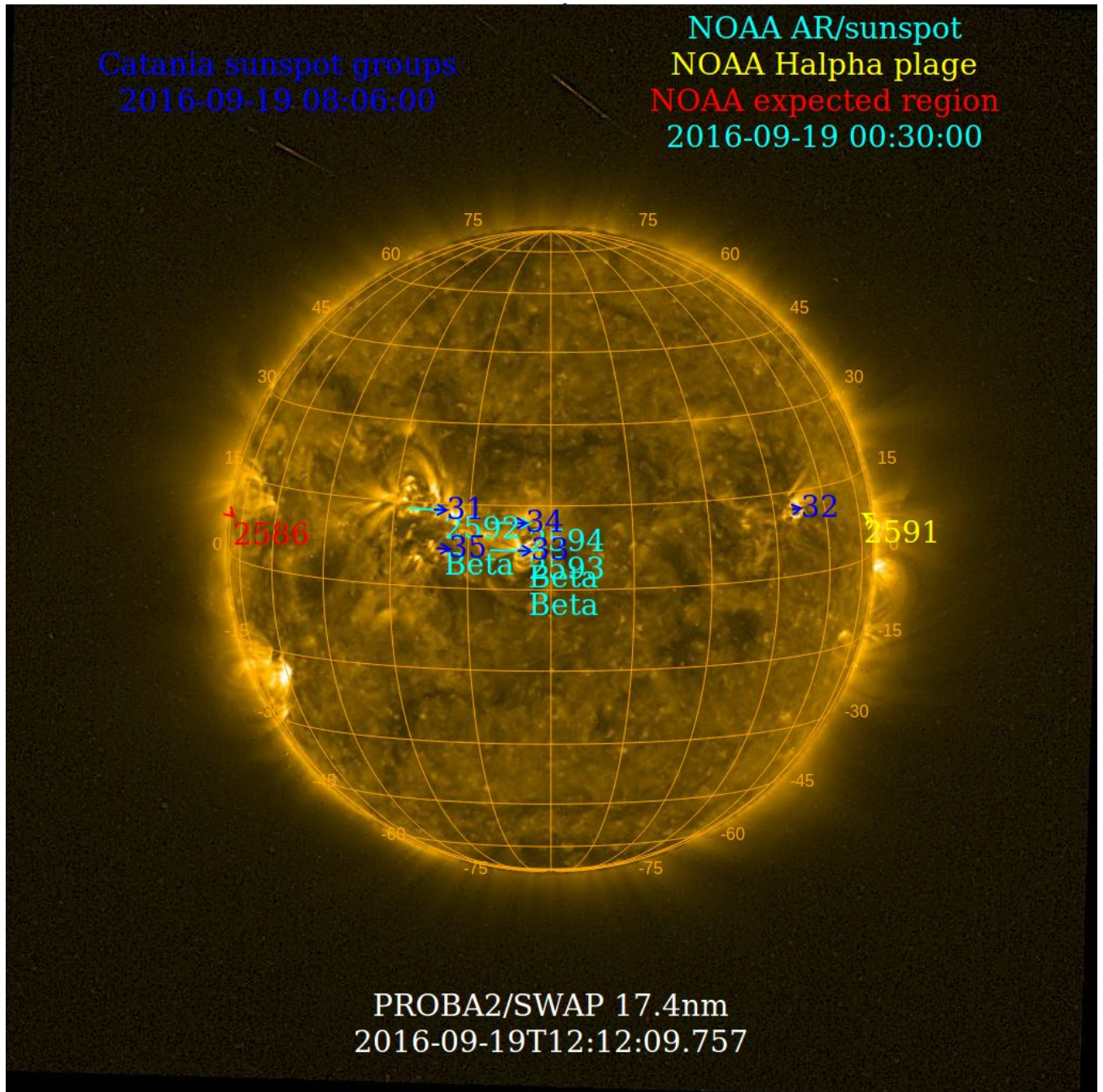
The level of solar activity<sup>1</sup> fluctuated between **very low** and **low** this week.

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

	Monday 19 Sep	Tuesday 20 Sep	Wednesday 21 Sep	Thursday 22 Sep	Friday 23 Sep	Saturday 24 Sep	Sunday 25 Sep
Activity	very low	very low	low	low	very low	very low	low
Flares	-	-	-	-	-	-	-

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

The SWAP images of Sep 19 and Sep 25 are shown below, with annotated active regions.

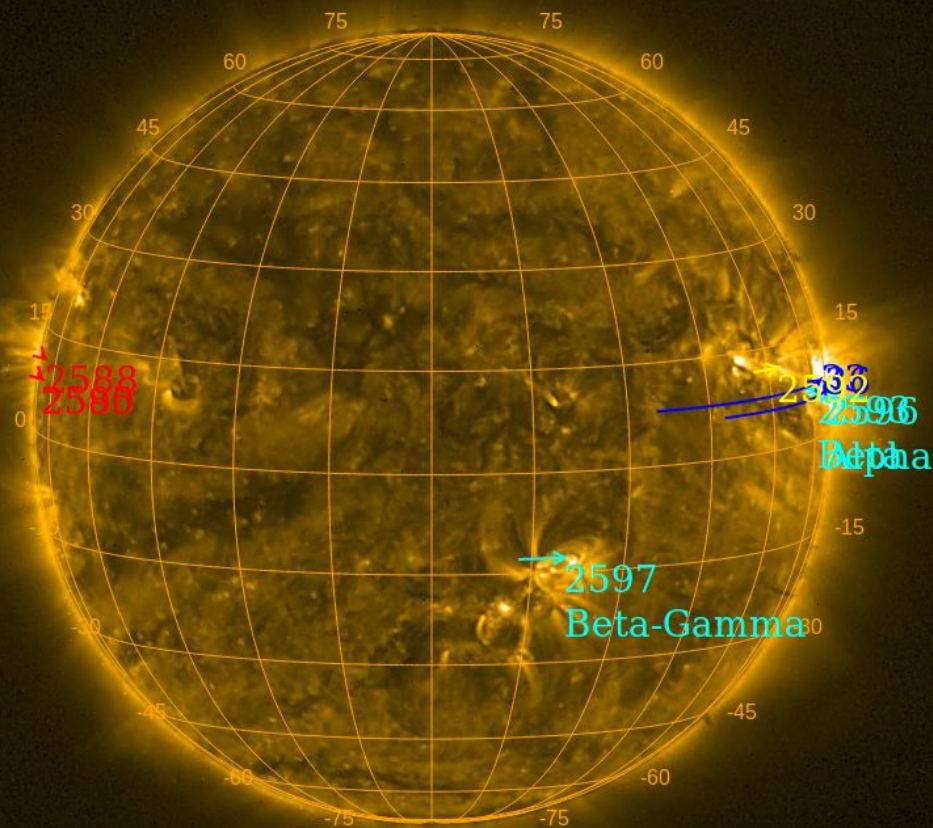


<http://sidc.be/soteria/soteria.php>



Catania sunspot groups  
2016-09-22 08:00:00

NOAA AR/sunspot  
NOAA Halpha plage  
NOAA expected region  
2016-09-25 00:30:00



PROBA2/SWAP 17.4nm  
2016-09-25T12:15:07.750

## **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>

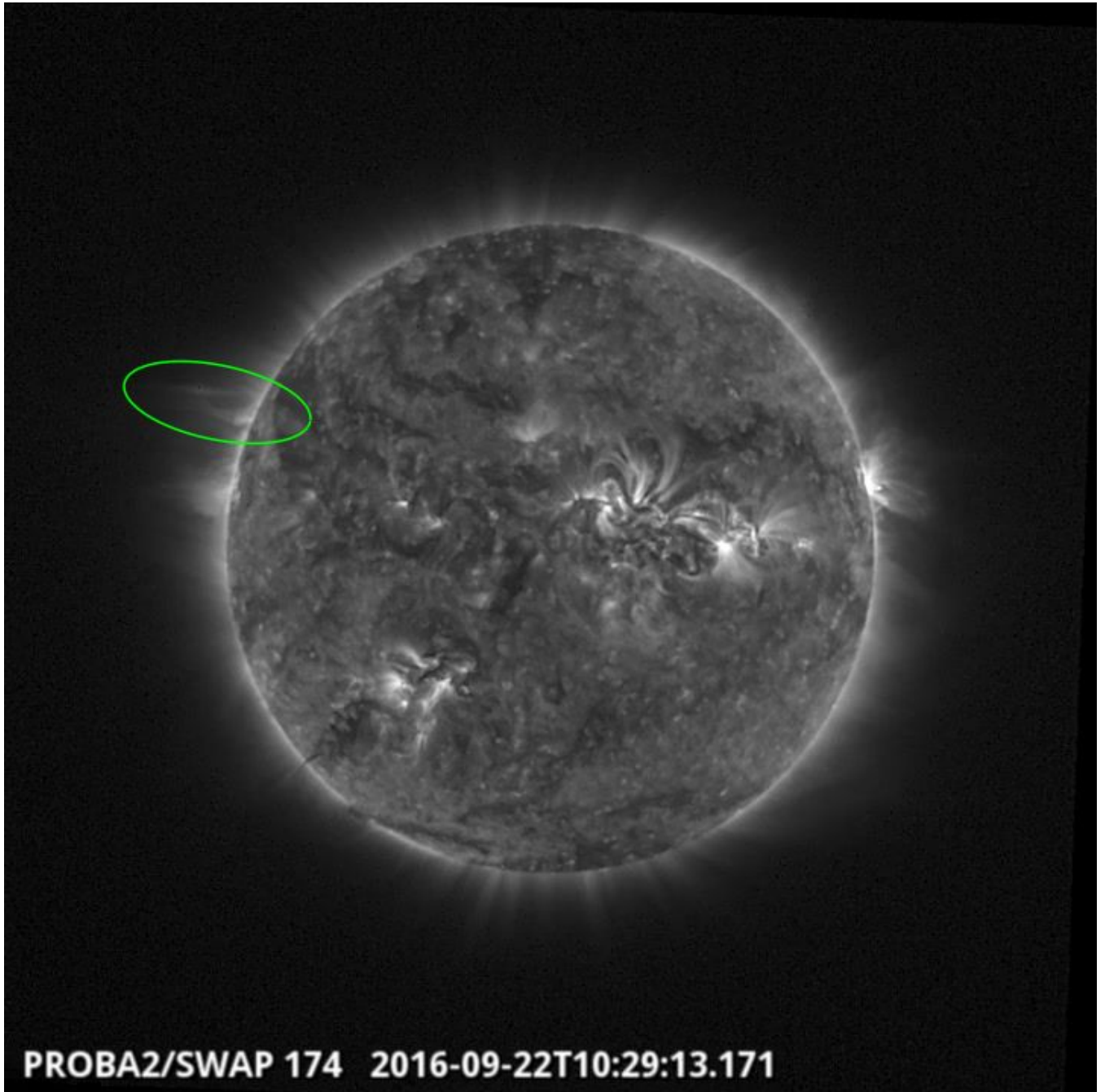
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 339).

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

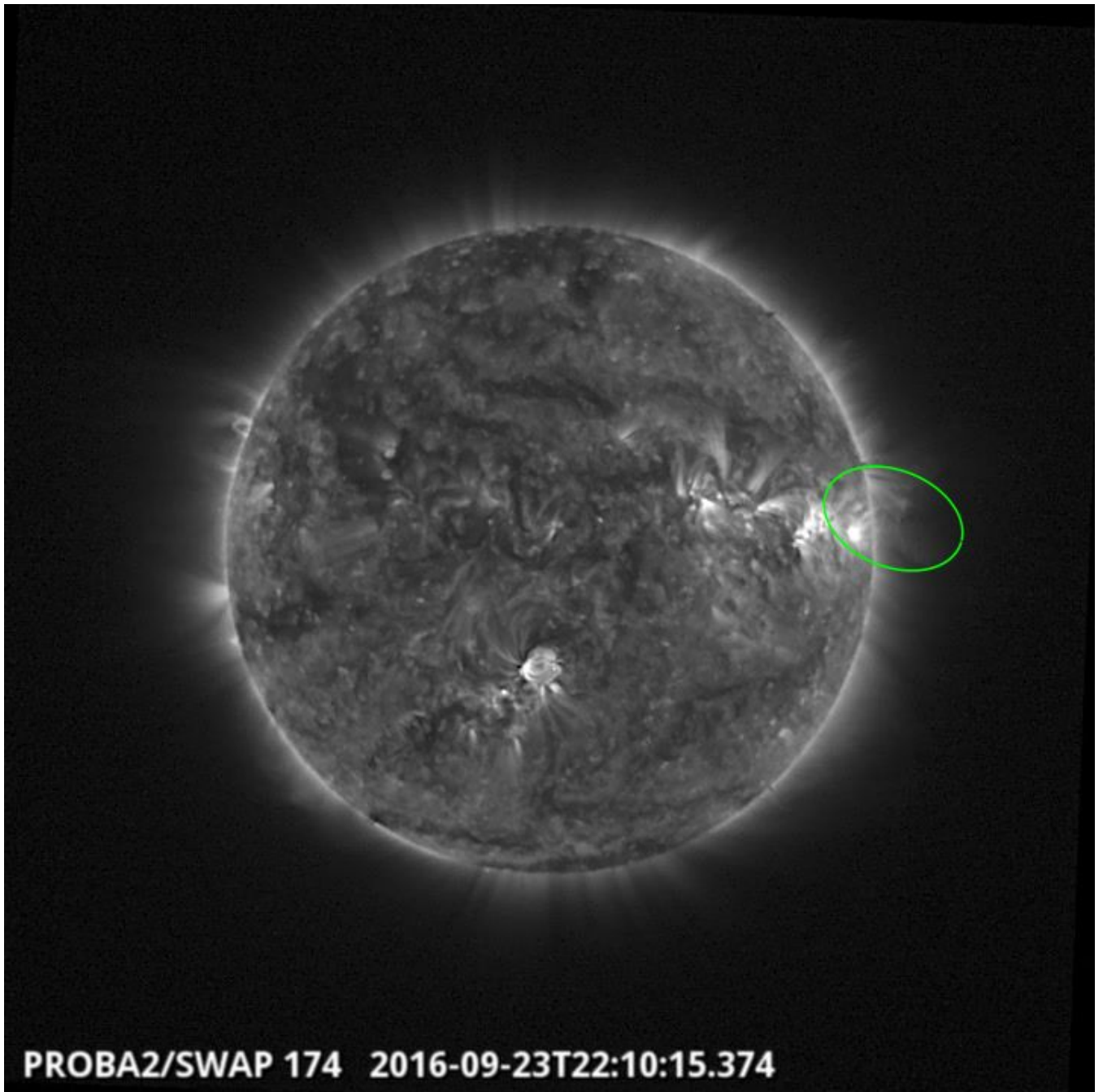
If any of the linked movies are unavailable they can be found in the P2SC movie repository [here](#)

Thursday Sep 22



An eruption was observed by SWAP on the east limb of the Sun on 2016-Sep-22 at 10:29 UT  
Find a movie of the event [here](#) (SWAP movie)

Friday Sep 23



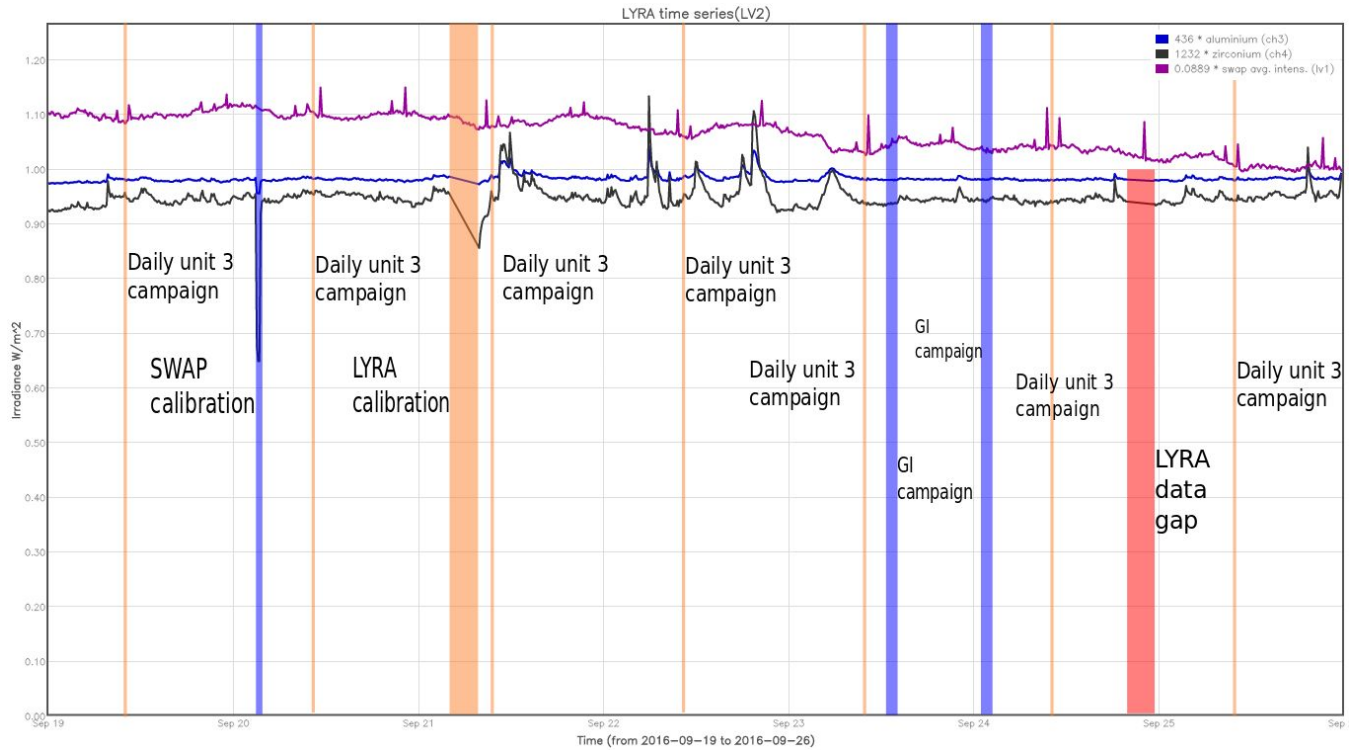
An eruption was observed by SWAP on the west limb of the Sun on 2016-Sep-23 at 22:10 UT  
Find a movie of the event [here](#) (SWAP movie)



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 bi-weekly calibration, 2016-Sep-20
- GI's Slemzin campaign, 2016-Sep-23
- GI's Slemzin campaign, 2016-Sep-24

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

- Daily unit 3 campaign, 2016-Sep-19
- Daily unit 3 campaign, 2016-Sep-20
- LYRA bi-weekly calibration, 2016-Sep-21
- Daily unit 3 campaign, 2016-Sep-21
- Daily unit 3 campaign, 2016-Sep-22
- Daily unit 3 campaign, 2016-Sep-23
- Daily unit 3 campaign, 2016-Sep-24
- Daily unit 3 campaign, 2016-Sep-25

The red shaded period corresponds to:

- LYRA data gap, 2016-Sep-25

The LYRA data gap is caused by one data-lump that's corrupted in the BINLYRA. Currently the LYTMR software can't handle this very well after a planned software update to the LYTMR software the data should become available.

### **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>).

- Huw Morgan presented SWAP observations during his talk about transient events at the UK Solar Orbiter meeting on 23-Sep-2016

### **Guest Investigator Program**

- None



## 2. LYRA instrument status

### Calibration

Calibration campaign on Wednesday this week.

### IOS & operations

Monday 19 Sep	Tuesday 20 Sep	Wednesday 21 Sep	Thursday 22 Sep	Friday 23 Sep	Saturday 24 Sep	Sunday 25 Sep
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 + data gap	Nominal acquisition + daily U3
LYIOS00579	LYIOS00579	LYIOS00579	LYIOS00579	LYIOS00579	LYIOS00579	LYIOS00579

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

On 2016-Sep-21

- bi-weekly LYRA calibration

### LYRA detector temperature

LYRA detector 2 temperature globally varied between 47.6 and 49.7 °C.

### 3. SWAP instrument status

#### Calibration

Calibration campaign on Tuesday this week.

#### MCPM errors

The number of MCPM recoverable errors increased from 3701 to 3800.

The number of MCPM unrecoverable errors remained at 0.

#### IOS & operations

Monday 19 Sep	Tuesday 20 Sep	Wednesday 21 Sep	Thursday 22 Sep	Friday 23 Sep	Saturday 24 Sep	Sunday 25 Sep
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition + GI campaign	Nominal acquisition + GI campaign	Nominal acquisition
IOS00660 610 images	IOS00660 715 images	IOS00660 602 images	IOS00660 623 images	IOS00660 -> IOS00662 720 images	IOS00662 687 images	IOS00662 711 images

Special operations for SWAP, this week:

On 2016-Sep-20

- Bi-weekly SWAP calibration

On 2016-Sep-23 and 24

- GI campaign for Vladimir Slemzin

#### SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.4 and 0.6 °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 21809 to 21871) 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 Sep 19 0UT and 2016 Sep 26 0UT: 4668

Highest cadence in this period: 30 seconds

Average cadence in this period: 129.57 seconds

Number of image gaps larger than 300 seconds: 137

Largest data gap: 9.17 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)