P2SC-ROB-WR-336 - 20160929 Weekly report #336	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Aug 29 to Sun Sep 04, 2016 07 Sep 2016 Laurence Wauters Elke D'Huys	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

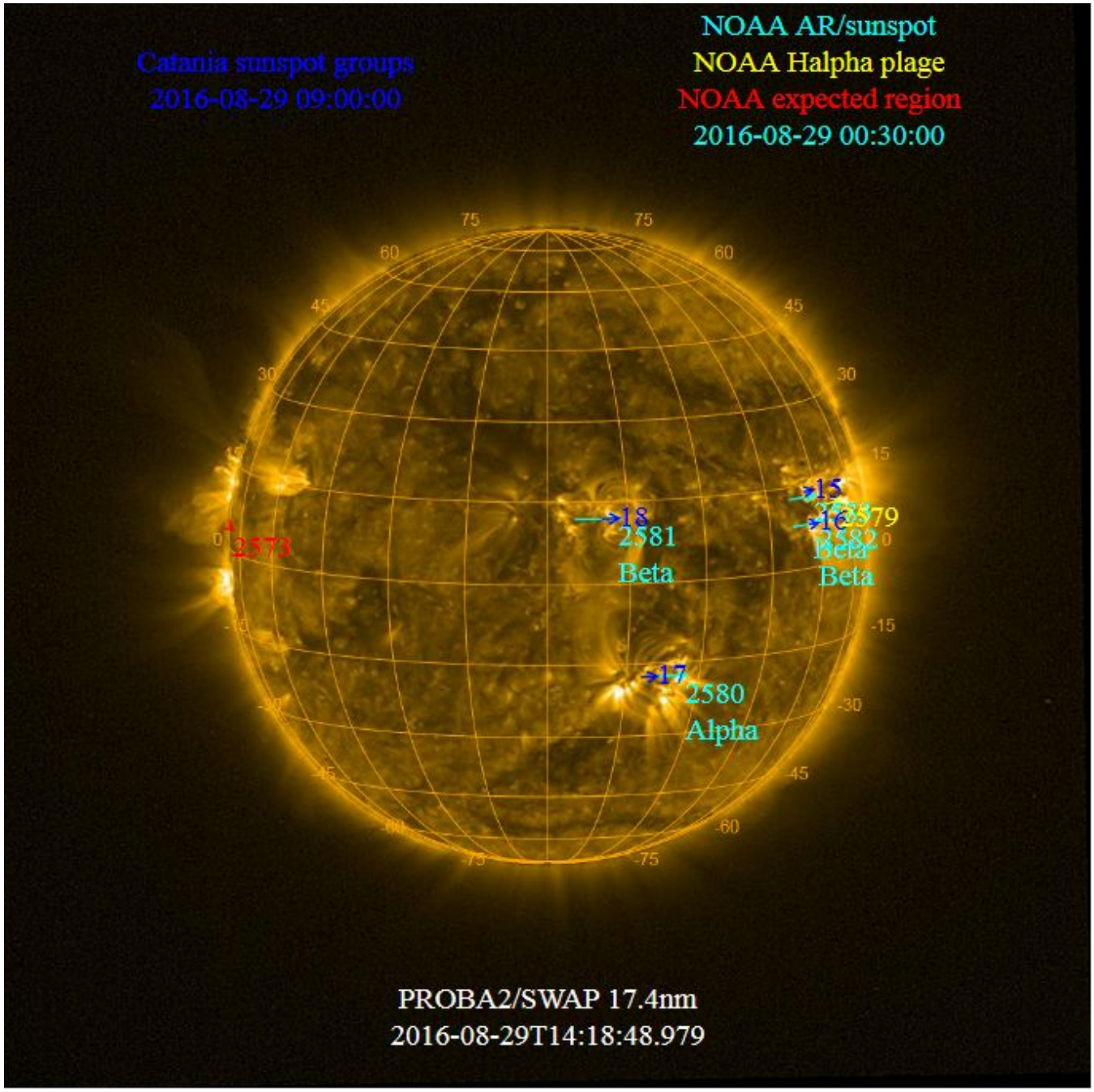
The level of solar activity[1] fluctuated between very **low** and **low** this week.

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

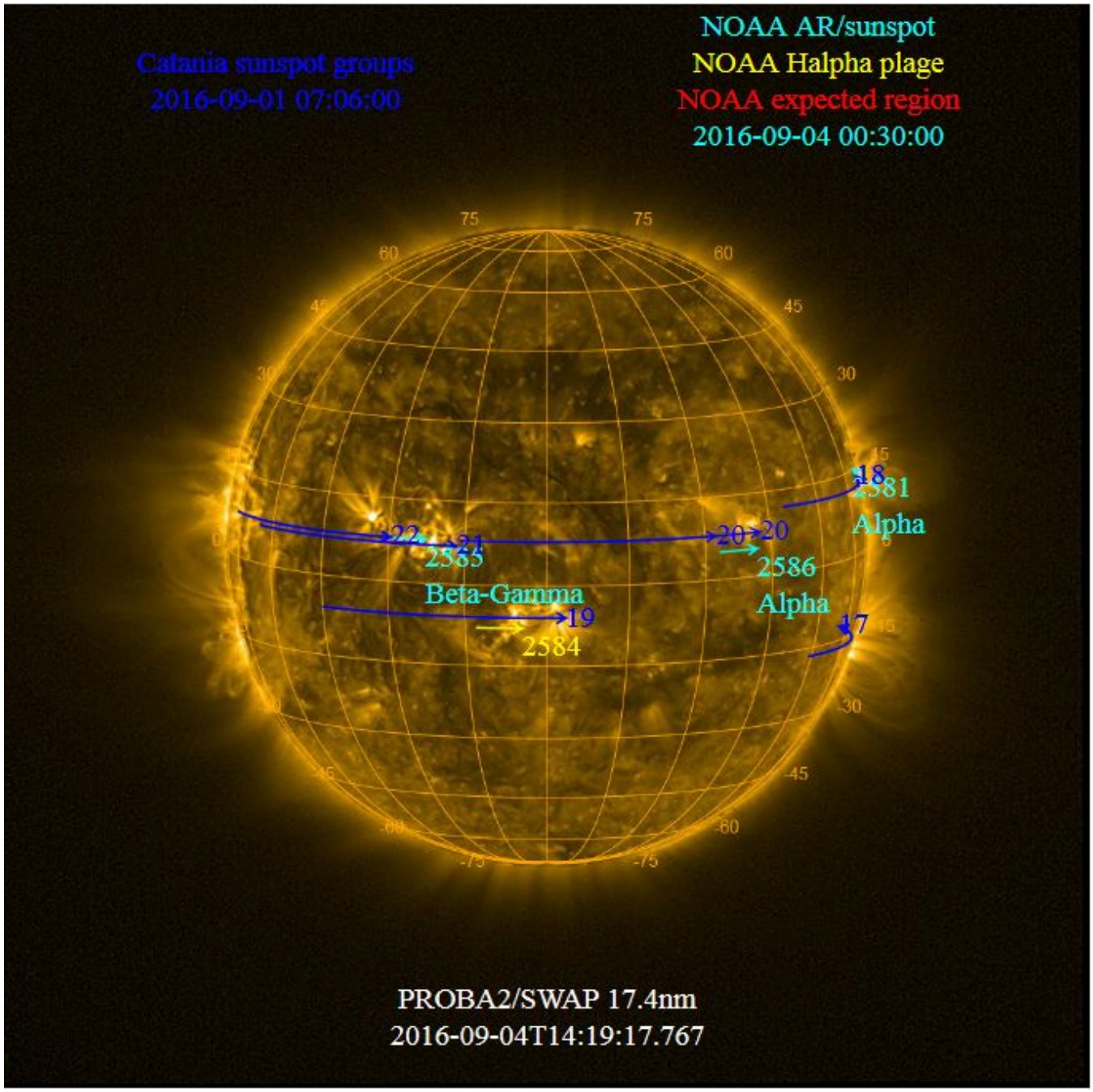
	Monday 29 Aug	Tuesday 30 Aug	Wednesday 31 Aug	Thursday 01 Sep	Friday 02 Sep	Saturday 03 Sep	Sunday 04 Sep
Activity	low	low	low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

[1] See appendix. All timings are given in UT.

The SWAP images of Aug 29 and Sep 4 are shown below, with annotated active regions.



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


Catania sunspot groups
2016-09-01 07:06:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2016-09-04 00:30:00
75
60
45
30
-45
-60
-75
18
2581
Alpha
22
21
2585
Beta-Gamma
20
20
2586
Alpha
19
2584
17
PROBA2/SWAP 17.4nm
2016-09-04T14:19:17.767

Solar Activity

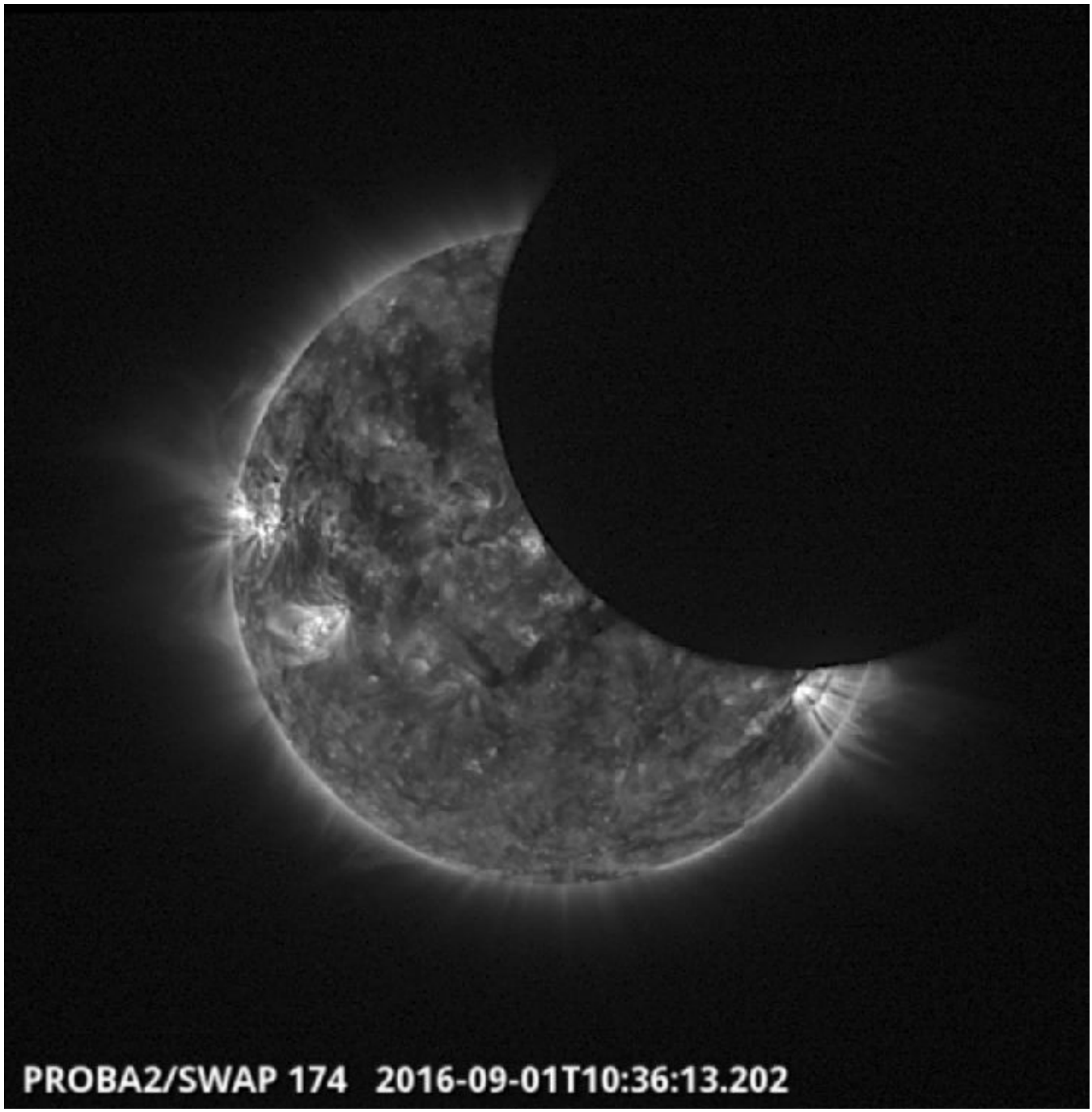
Solar flare activity fluctuated between **very low** and **low** during the week.
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: http://proba2.oma.be/ssa
This page also lists the recorded flaring events.

A weekly overview movie can be found here (SWAP week 336).

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

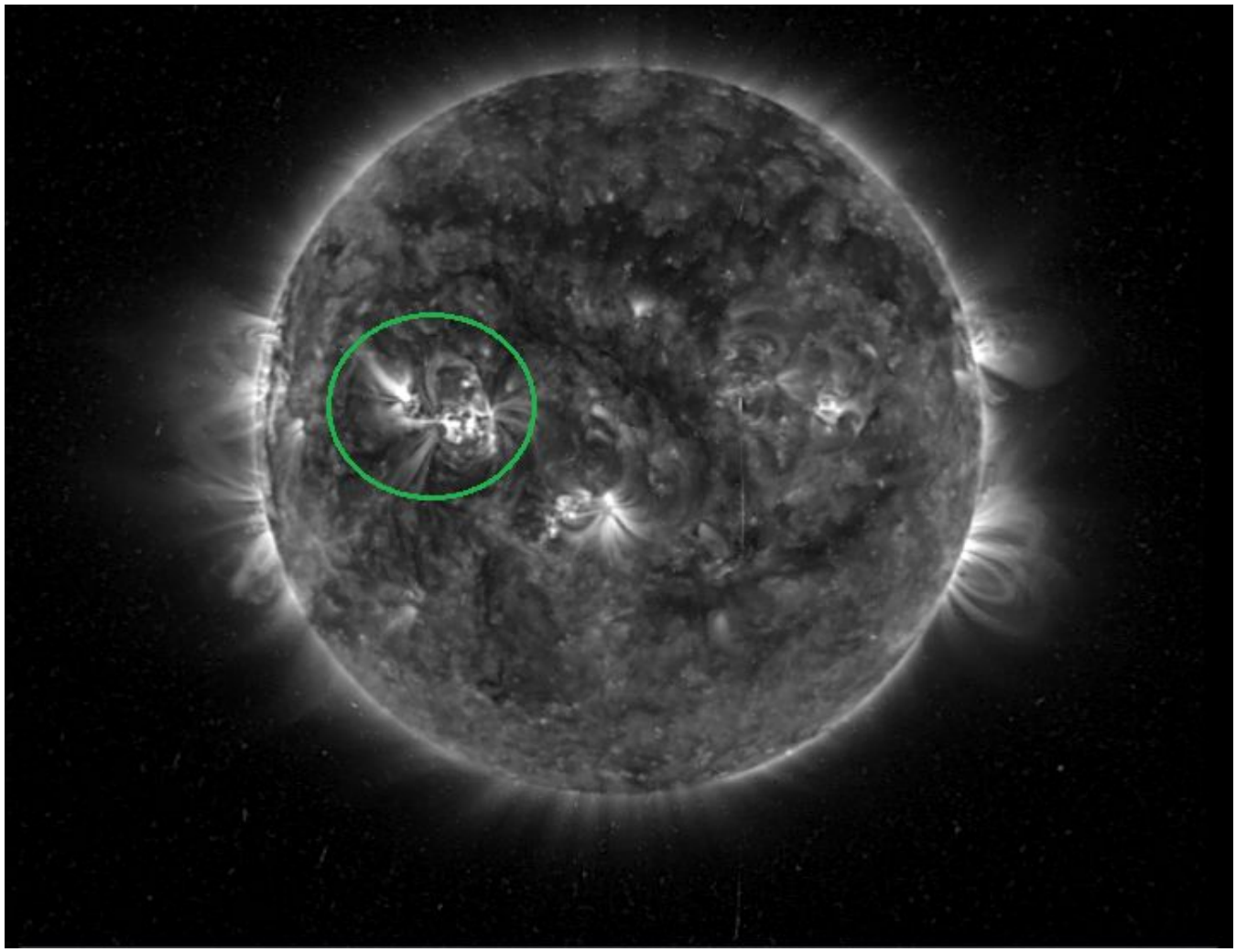
If any of the linked movies are unavailable they can be found in the P2SC movie repository here

Thursday Sep 01



Eclipse Campaign in SWAP images
Find a movie of the events **here** (SWAP movie)

Sunday Sep 04

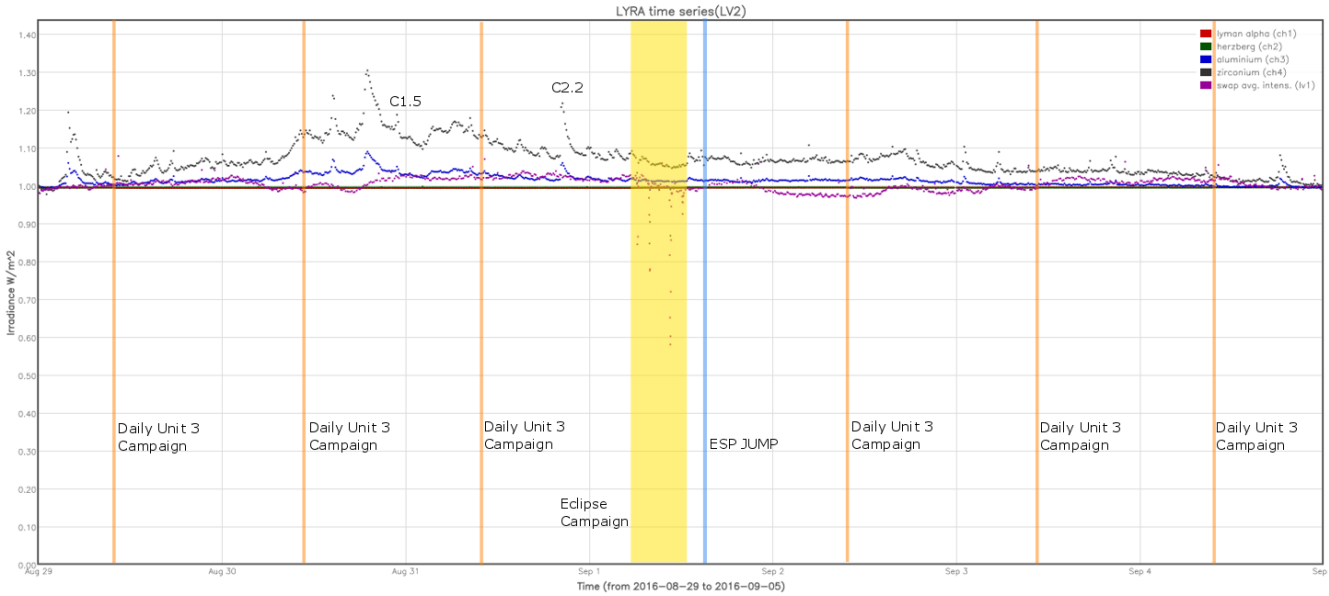


Very large sunspot group (NOAA 2585) in SWAP images which has been visible for the whole week and was quiet (B and C flares).

Find a movie of the events **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:

- ESP Jump, 2016-Sep-01

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

- Daily Unit 3 campaign, 2016-Aug-29
- Daily Unit 3 campaign, 2016-Aug-30
- Daily Unit 3 campaign, 2016-Aug-31
- Daily Unit 3 campaign, 2016-Sep-01
- Daily Unit 3 campaign, 2016-Sep-02
- Daily Unit 3 campaign, 2016-Sep-03
- Daily Unit 3 campaign, 2016-Sep-04

The yellow shaded period corresponds to:

- Eclipse Campaign, 2016-Sep-01
    - For SWAP: high cadence during the periods of visibility and normal cadence (regular observations) in between
    - For LYRA: Unit 2 and 3 on during the whole period

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).

F. Goryaev and V. Slemzin, PROBA2 GIs use SWAP observations to study the properties of the inner corona and search for solar wind flows by illumination from backside solar flares. They presented their progress during the weekly PROBA2 science meeting.

Guest Investigator Program

- F. Goryaev and V. Slemzin have been visiting the P2SC on the GI program working on a "SWAP Study of properties of the inner corona and search of solar wind flows by illumination from backside solar flares."

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 29 Aug	Tuesday 30 Aug	Wednesday 31 Aug	Thursday 01 Sep	Friday 02 Sep	Saturday 03 Sep	Sunday 04 Sep
Nominal acquisition + daily U3 LYIOS00576	Nominal acquisition + daily U3 LYIOS00577	Nominal acquisition + daily U3 LYIOS00577	Nominal acquisition + daily U3 from 9:40 until 12:50 (Eclipse Campaign) LYIOS00578	Nominal acquisition + daily U3 LYIOS00578	Nominal acquisition + daily U3 LYIOS00578	Nominal acquisition + daily U3 LYIOS00578

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- Eclipse Campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 47.93 and 50.19 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 3650 to 3653.
The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 29 Aug	Tuesday 30 Aug	Wednesday 31 Aug	Thursday 01 Sep	Friday 02 Sep	Saturday 03 Sep	Sunday 04 Sep
Nominal acquisition IOS00657 651 images	Nominal acquisition IOS00658 565 images	Nominal acquisition IOS00658 693 images	Nominal acquisition+ Eclipse Campaign+ ESP Jump IOS00659 828 images	Nominal acquisition IOS00659 655 images	Nominal acquisition IOS00659 576 images	Nominal acquisition IOS00659 614 images

Special operations for SWAP, this week:

- Eclipse campaign
- ESP Jump

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.37 and -0.33 °C.

4. PROBA2 Science Center Status

The main operator during this week is Laurence Wauters.

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 21620 to 21684) 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 Aug 29 0UT and 2016 Sep 05 0UT: 4582
Highest cadence in this period: 19 seconds
Average cadence in this period: 131.94 seconds
Number of image gaps larger than 300 seconds: 180
Largest data gap: 35.50 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
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)