


P2SC-ROB-WR-390 - 20170911 Weekly report #390	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Sep 11 to Sun Sep 17, 2017 20 Sep 2017 Laurence Wauters Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

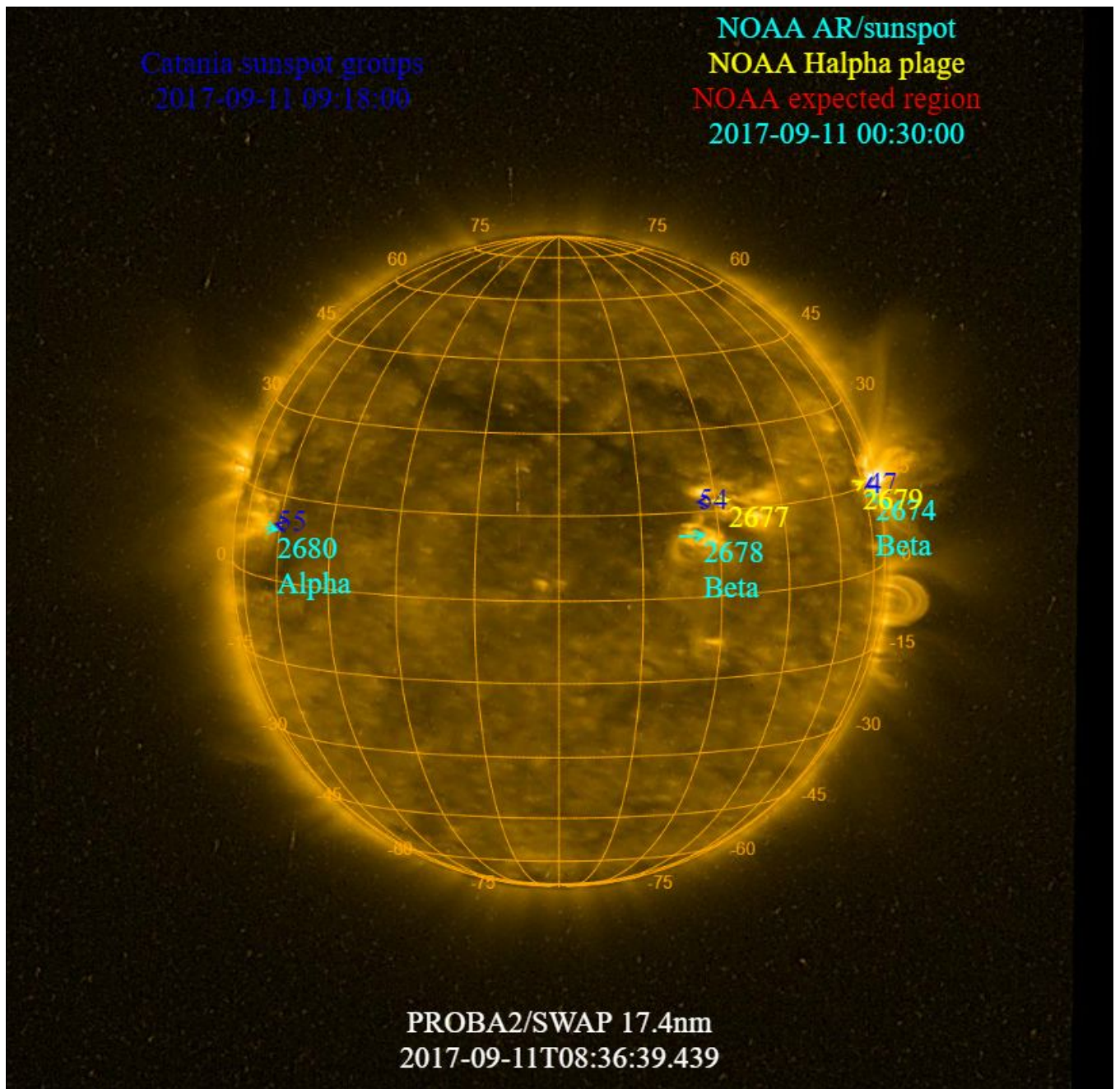
The level of solar activity¹ was very low during this week.

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

	Monday 11 Sep	Tuesday 12 Sep	Wednesday 13 Sep	Thursday 14 Sep	Friday 15 Sep	Saturday 16 Sep	Sunday 17 Sep
Activity	very low	very low	very low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

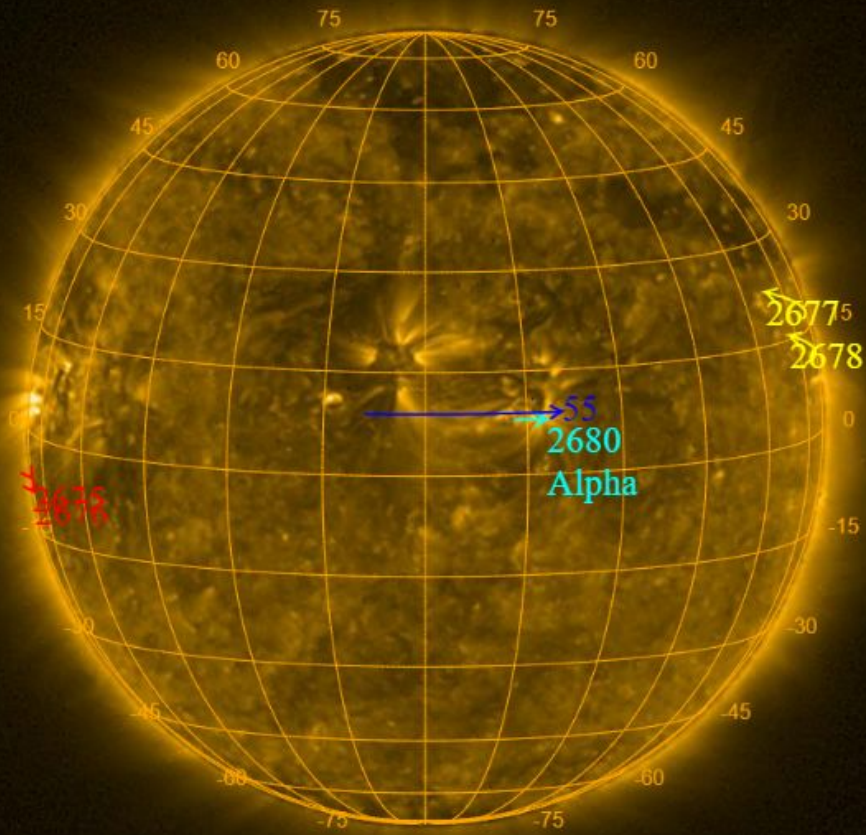
The SWAP images of Sep 11 and Sep 17 are shown below, with annotated active regions.



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

Catania sunspot groups
2017-09-15 08:30:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2017-09-17 00:30:00



PROBA2/SWAP 17.4nm
2017-09-17T08:37:18.300

Solar Activity

Solar flare activity was very 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>

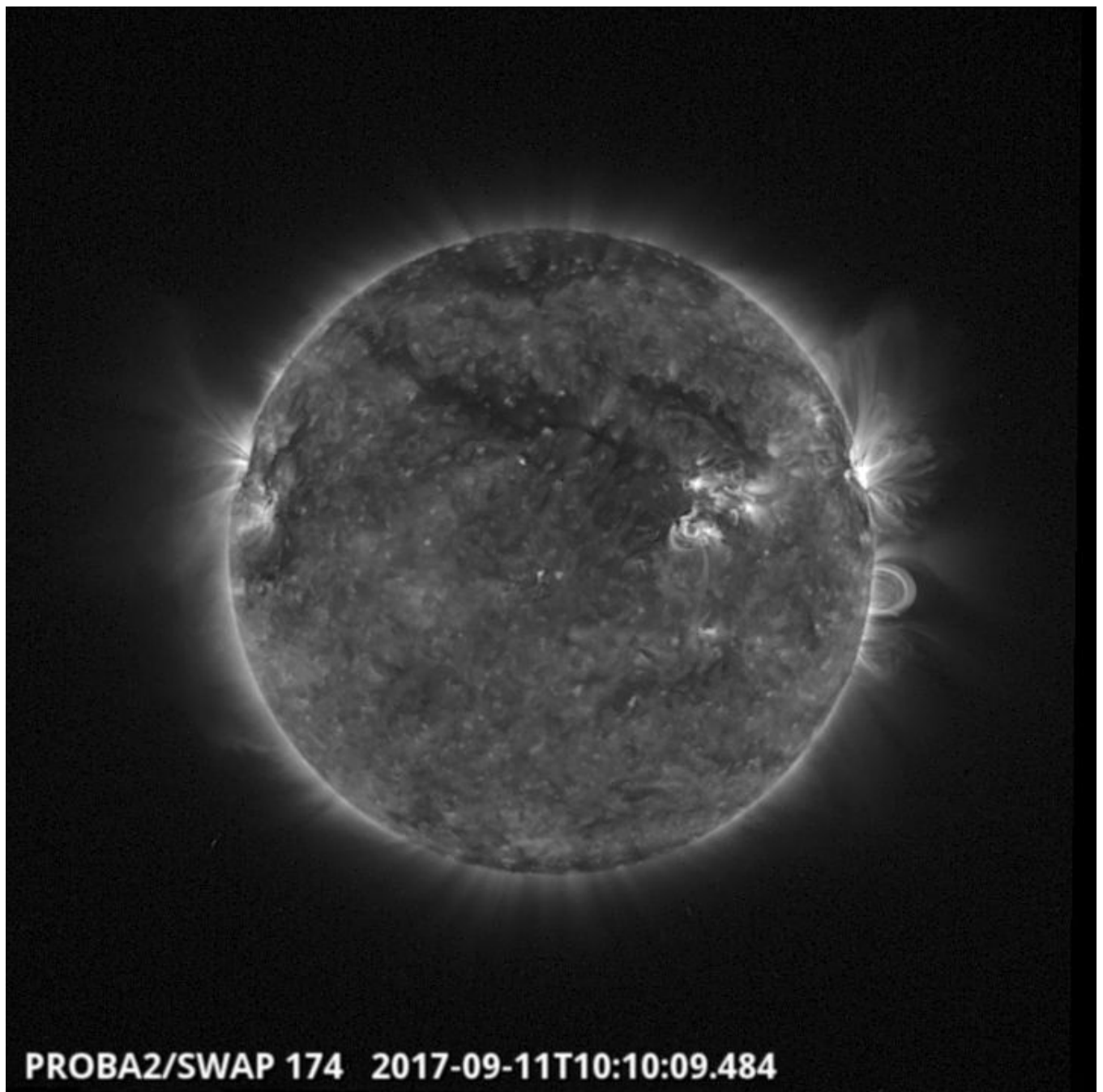
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 390).

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](#)

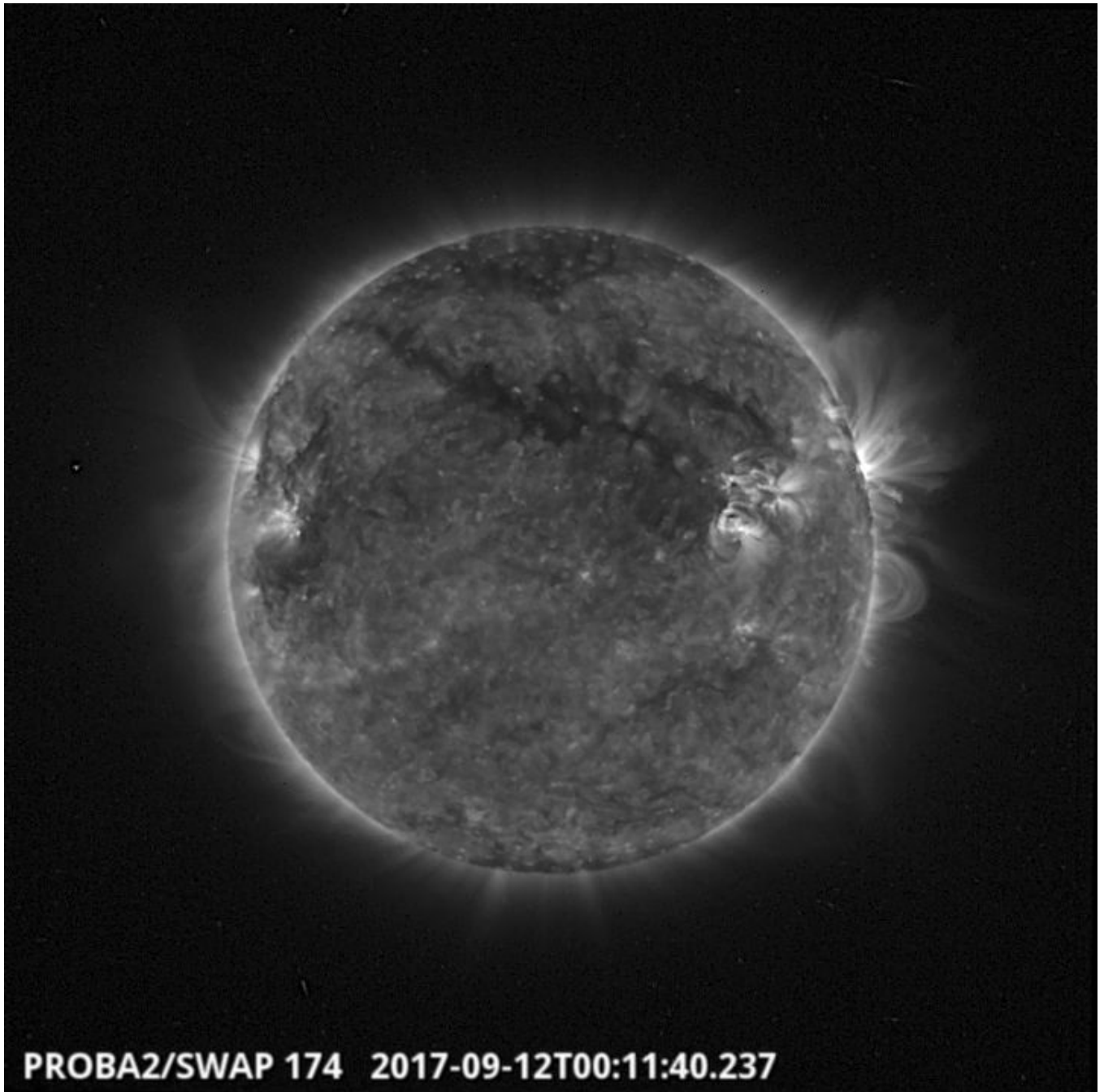
Monday Sep 11



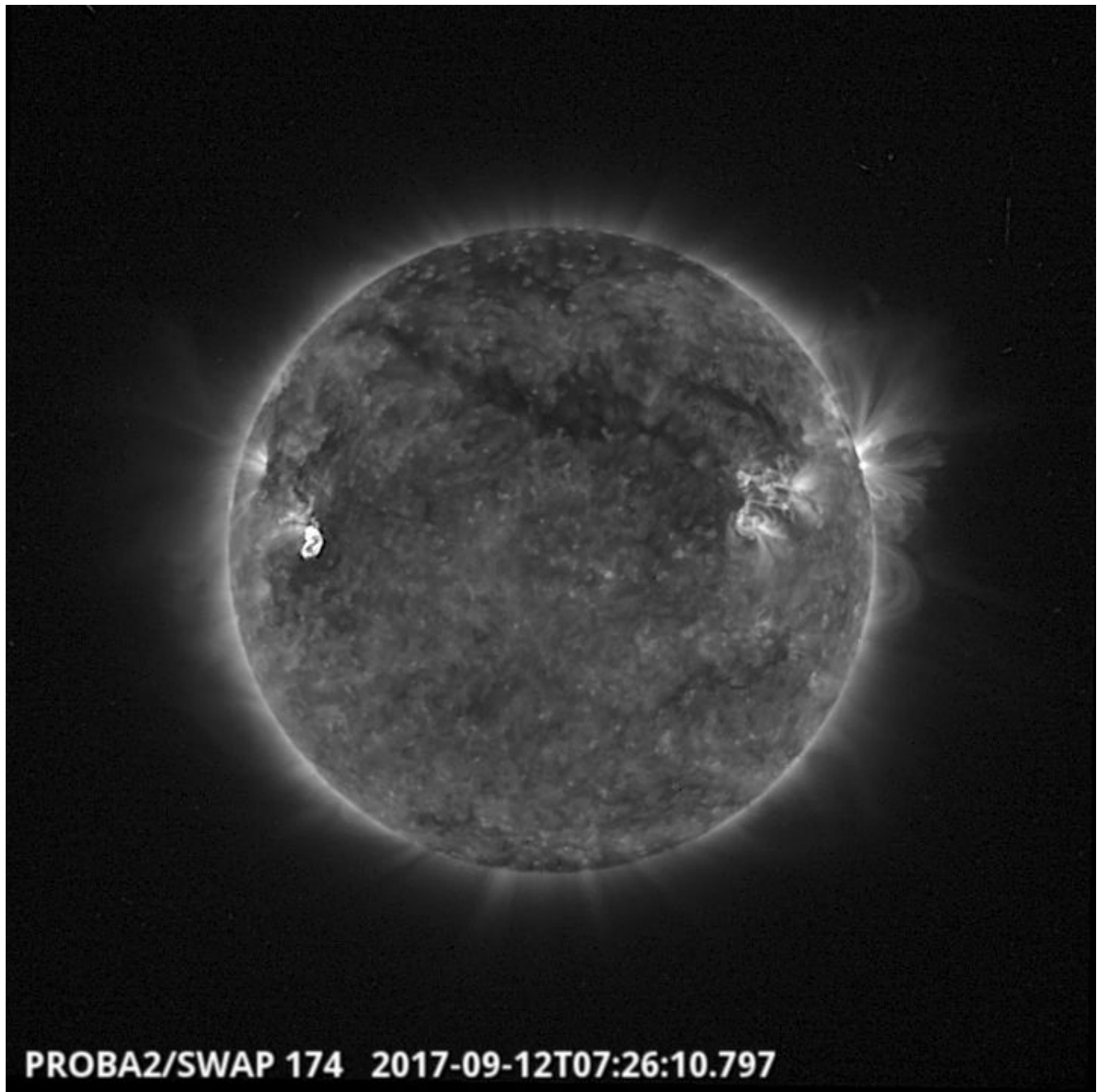
The very active region, 2573, of last week produced a B9.8 flare peaking at 10:10 UT on Sep 11th. It is visible on the Western limb on the SWAP image above.

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

Tuesday Sep 12



An extended Coronal Hole extending from the North is visible on the SWAP image above and has been present for the whole week. Find a movie of the events [here](#) (SWAP movie)



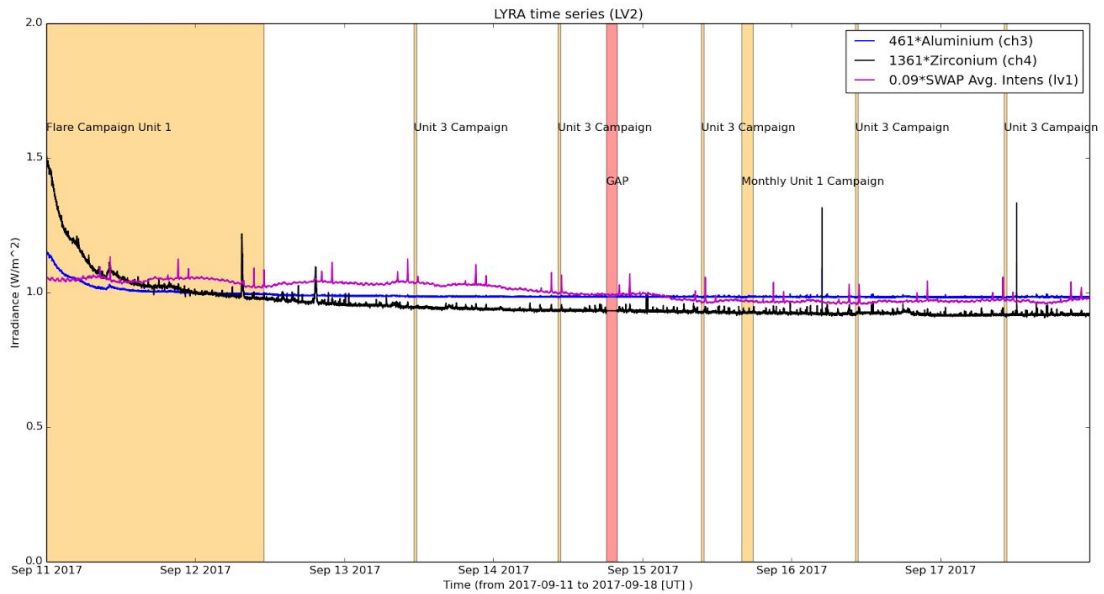
The strongest flare of the week was a C3.0 class flare peaking at 7:29 at on Sep 12 in the North-East quadrant of the Sun.

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 related to SWAP, correspond to, from left to right:

- None

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

- Flare Campaign Unit 1, Sep 11 until Sep-12 11:00 am
- daily U3 observations campaign, Sep-13
- daily U3 observations campaign, Sep-14
- daily U3 observations campaign, Sep-15
- Monthly Unit 1 campaign, Sep-15
- daily U3 observations campaign, Sep-16
- daily U3 observations campaign, Sep-17

The red shaded periods related to other issues corresponds to:

- BINLYRA pass 25179, Sep-14 not received (due to bad signal during the dump of the Lyra store.)

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>).

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

None

IOS & operations

Monday 11 Sep	Tuesday 12 Sep	Wednesday 13 Sep	Thursday 14 Sep	Friday 15 Sep	Saturday 16 Sep	Sunday 17 Sep
Nominal acquisition + Flare Campaign Unit 1	Nominal acquisition + Flare Campaign Unit 1	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3+ Monthly U1 Campaign	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00645	LYIOS00646	LYIOS00646	LYIOS00646	LYIOS00646	LYIOS00647	LYIOS00647

The following science campaigns were performed by LYRA:

- Flare Campaign Unit 1, Sep 11
- Flare Campaign Unit 1, Sep 12
- daily U3 observations campaign, Sep-13
- daily U3 observations campaign, Sep-14
- daily U3 observations campaign, Sep-15
- Monthly Unit 1 campaign, Sep-15
- daily U3 observations campaign, Sep-16
- daily U3 observations campaign, Sep-17

LYRA detector temperature

LYRA detector 2 temperature globally varied between 49.25 and 49.94 °C.

3. SWAP instrument status

Calibration

None

MCPM errors

The number of MCPM recoverable errors increased from 11688 to 11696.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 11 Sep	Tuesday 12 Sep	Wednesday 13 Sep	Thursday 14 Sep	Friday 15 Sep	Saturday 16 Sep	Sunday 17 Sep
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00714 579 images	IOS00714 632 images	IOS00714 702 images	IOS00714 697 images	IOS00714 689 images	IOS00714 654 images	IOS00714 680 images

Special operations for SWAP, this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.17 and 0.55 °C.

4. PROBA2 Science Center Status

The main operator 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 25146 to 25207) was nominal, except for:

- Pass 25179

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 2017 Sep 11 0UT and 2017 Sep 18 0UT: 4683

Highest cadence in this period: 110 seconds

Average cadence in this period: 129.12 seconds

Number of image gaps larger than 300 seconds: 137

Largest data gap: 11.00 minutes

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received, except:

- Pass 25179 (the signal was bad just during the dump of the Lyra store)

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)