P2SC-ROB-WR-376 - 20170605 Weekly report #376	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Jun 05 to Sun Jun 11, 2017 15 Jun 2017 Laurence Wauters Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

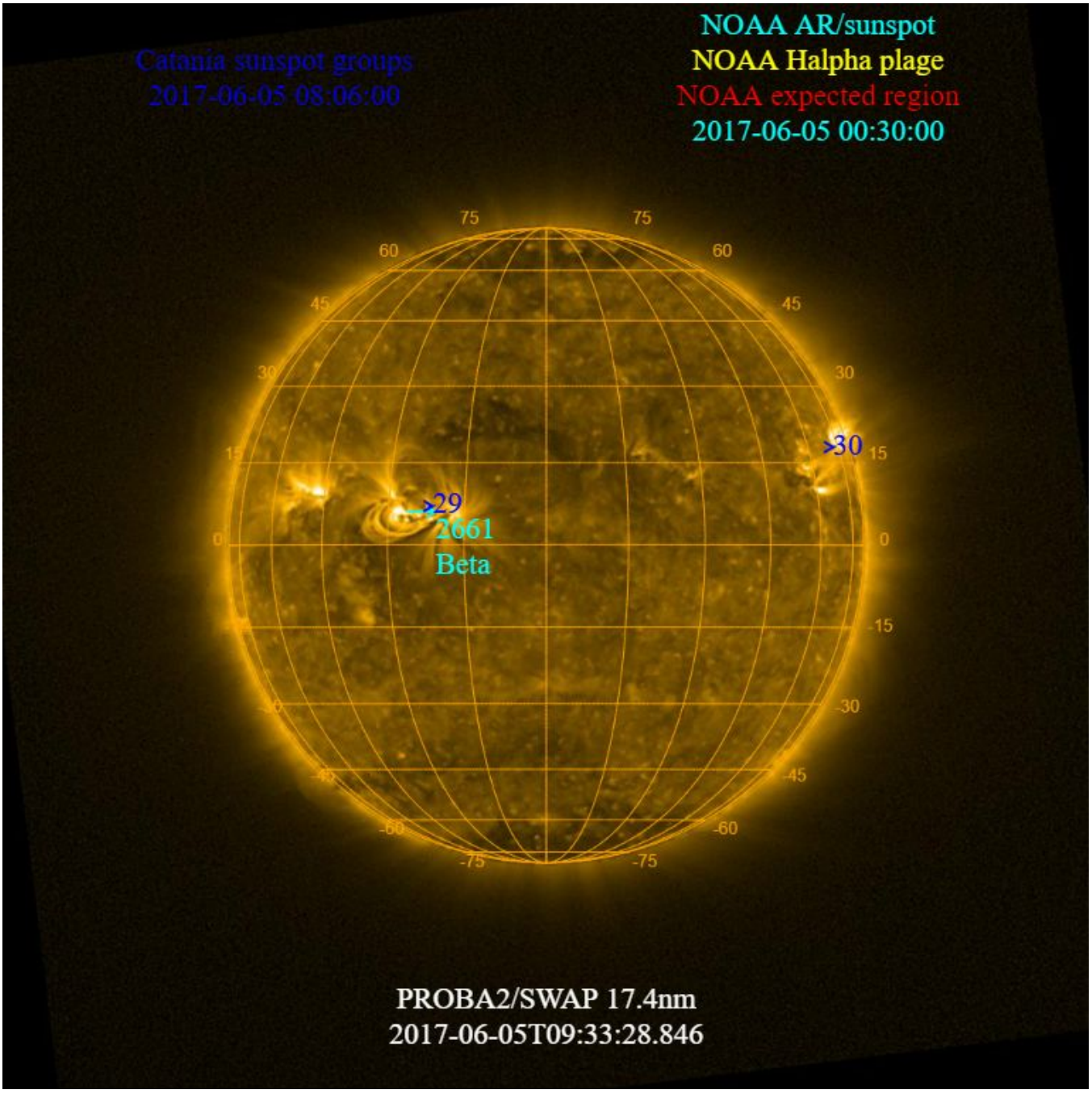
The level of solar activity[1] fluctuated between **very low and low** this week.

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

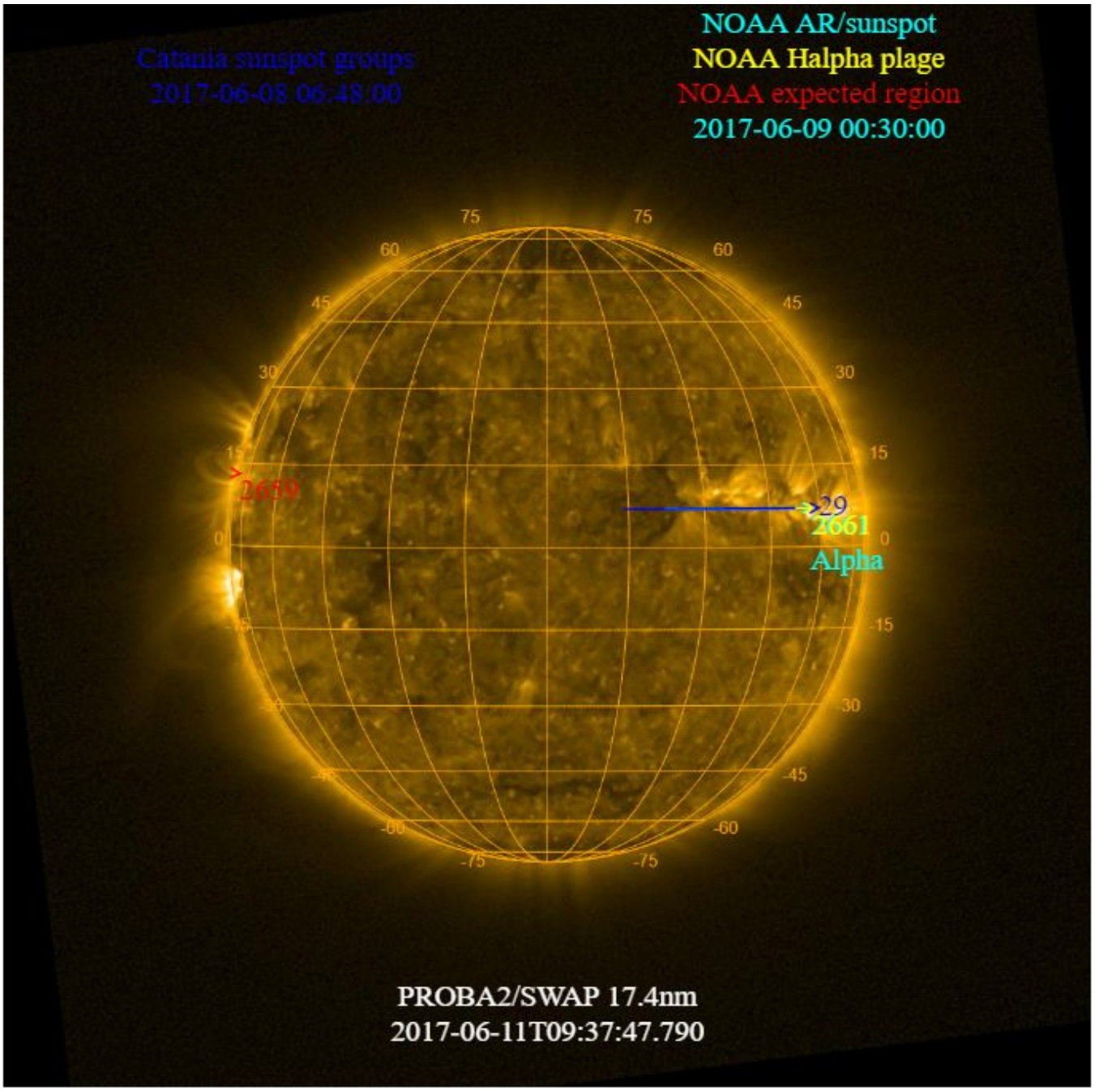
	Monday 05 Jun	Tuesday 06 Jun	Wednesday 07 Jun	Thursday 08 Jun	Friday 09 Jun	Saturday 10 Jun	Sunday 11 Jun
Activity	low	very low	low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

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

The SWAP images of Jun 05 and Jun 11 are shown below, with annotated active regions.



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


Catania sunspot groups
2017-06-08 06:48:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2017-06-09 00:30:00
75
60
45
30
15
0
-15
-30
-45
-60
-75
2659
2661
Alpha
PROBA2/SWAP 17.4nm
2017-06-11T09:37:47.790

Solar Activity

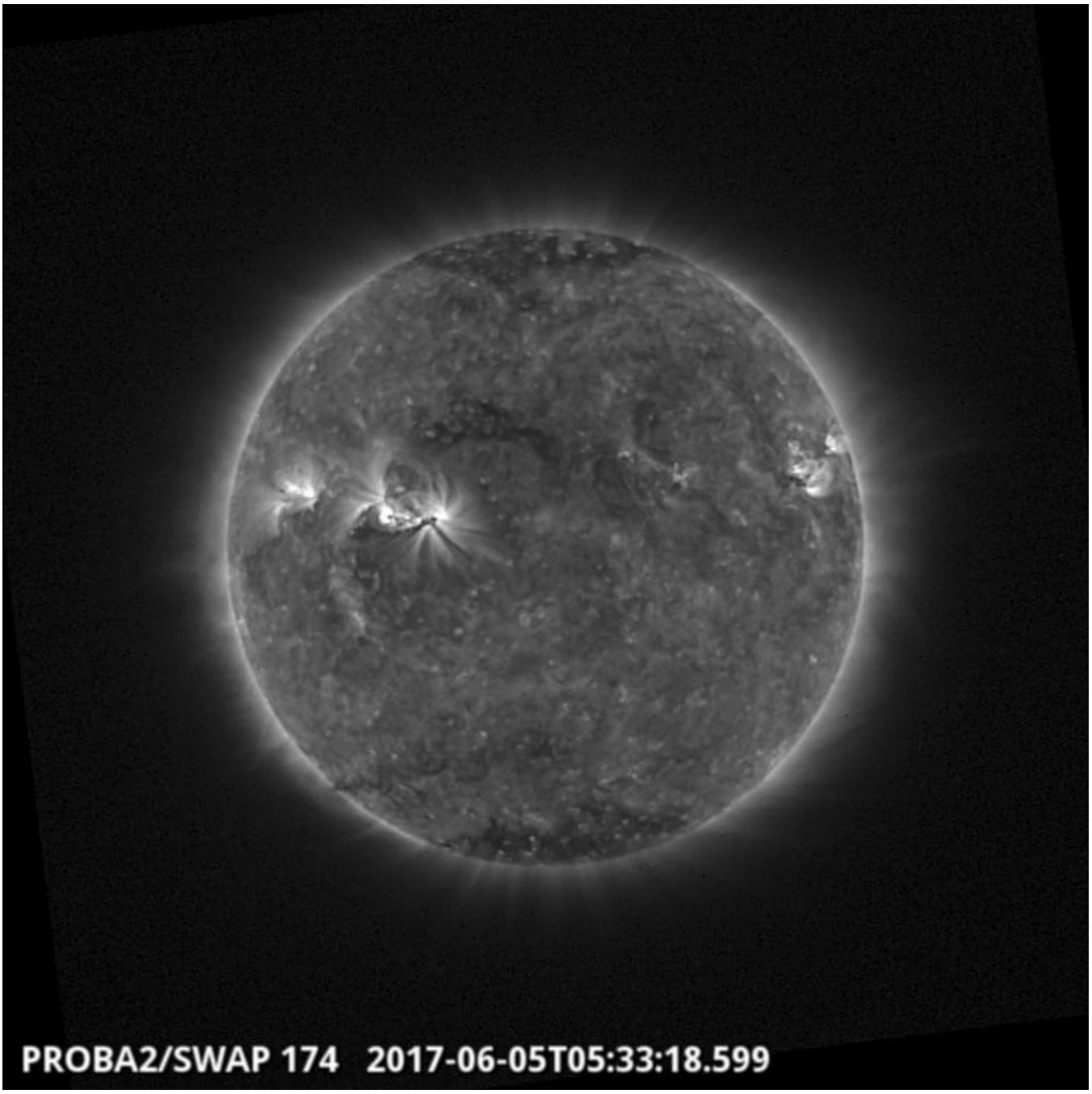
Solar flare activity fluctuated between very low and low during the week.
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: http://proba2.oma.be/ssa
This page also lists the recorded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

A weekly overview movie can be found here (SWAP week 376).

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

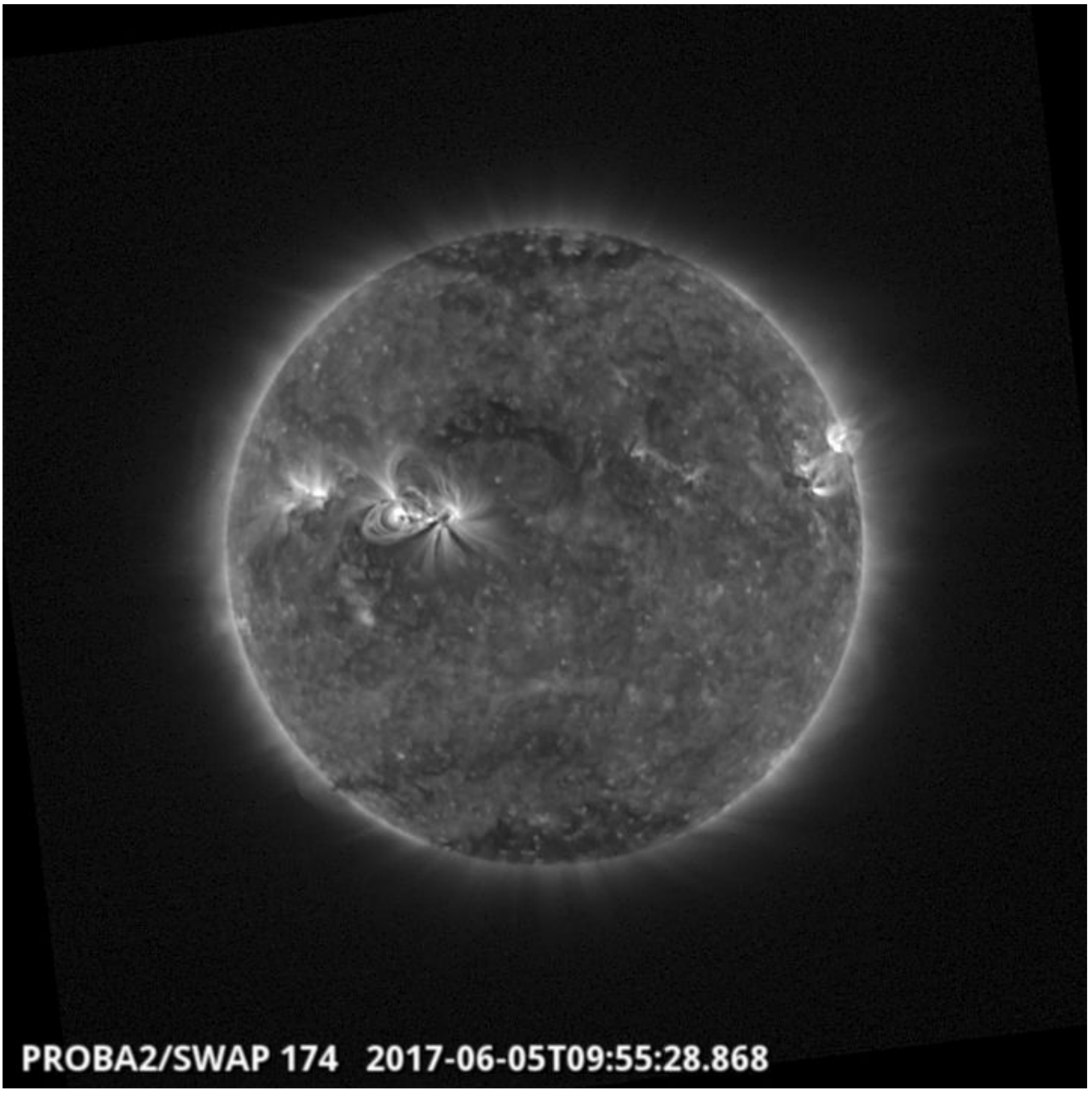
If any of the linked movies are unavailable they can be found in the P2SC movie repository here

Monday Jun 05



The largest flare of the week was a C2.7 class flare, peaking at 05:31 UT on 2017-Jun-05 produced by the NOAA active region 2661, which is visible in the north-east quadrant of the Sun. This can be seen in the of the SWAP image above.

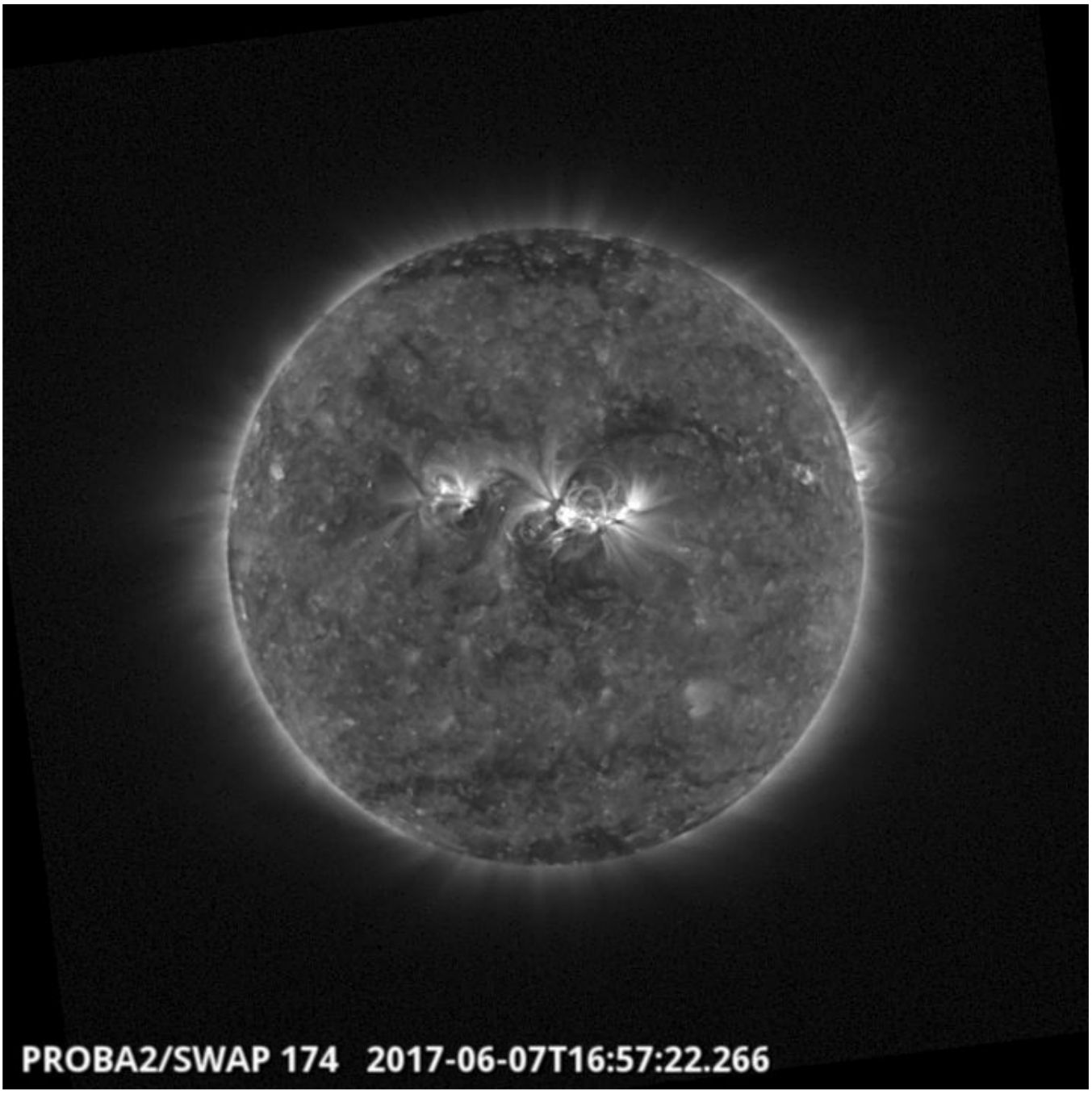
Find a movie of the events **here** (SWAP movie)



A C1.2 flare peaking at 09:55 UT is visible on the North Western limb in the above SWAP image. It was produced by the only other active region of the week.

Find a movie of the events **here** (SWAP movie)

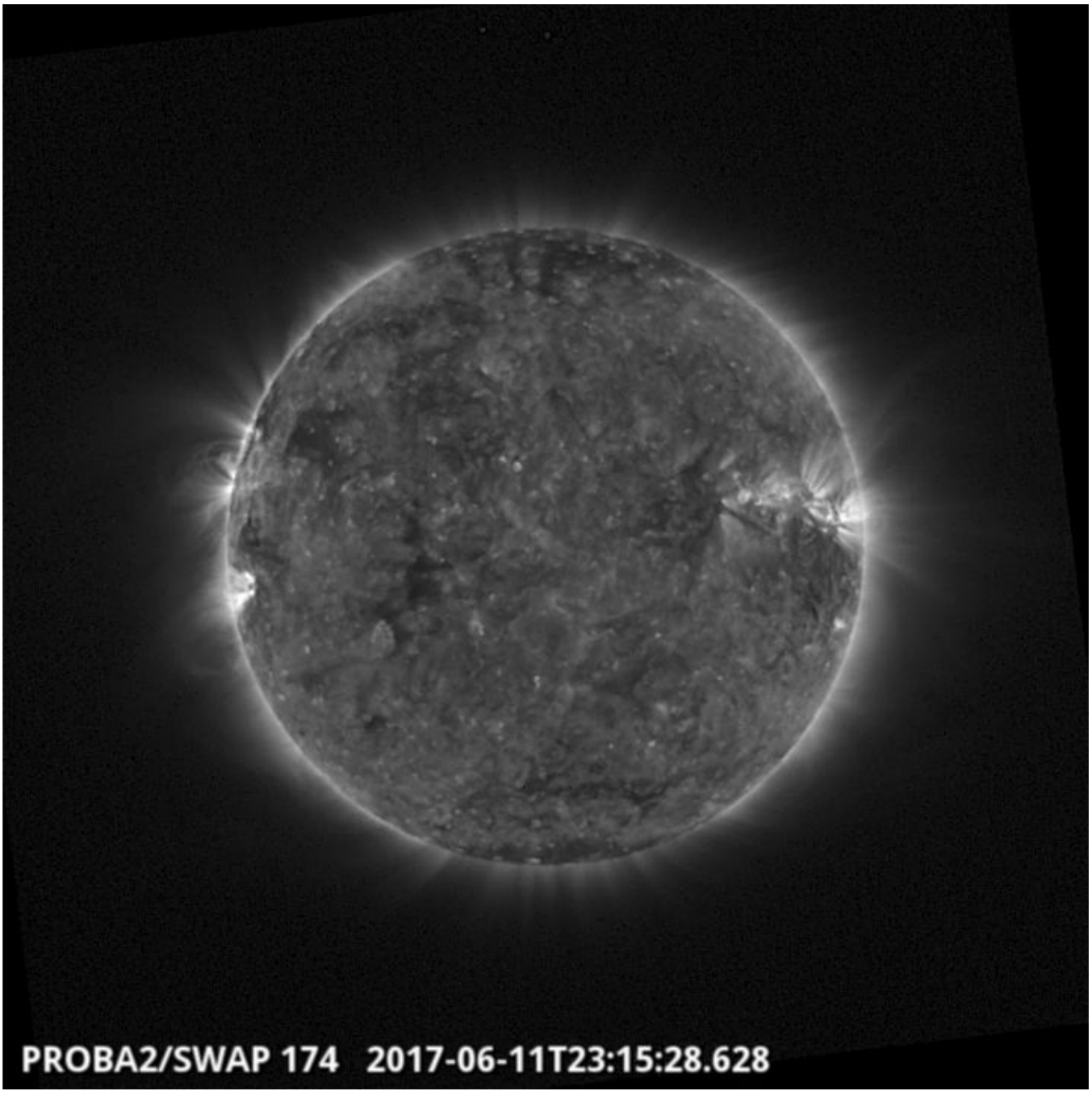
Wednesday Jun 07



A large wave associated with a B4.4 class flare produced by NOAA 2661 region, which produced flares during the whole week - The event can be seen in the above SWAP image

Find a movie of the events **here** (SWAP movie)

Sunday Jun 11

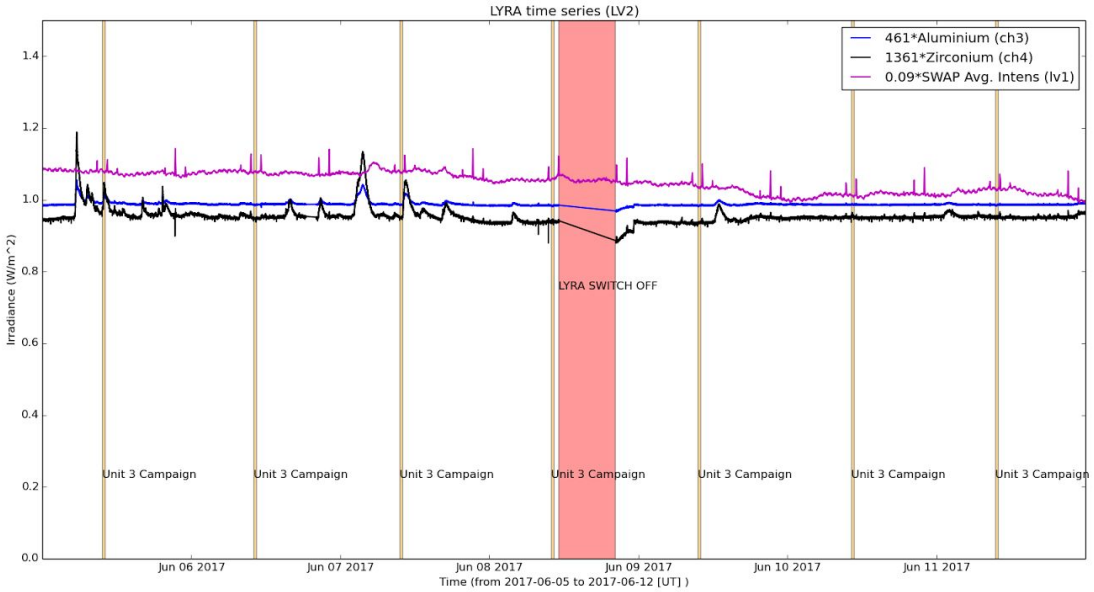


An elongated recurrent coronal hole was visible in the SWAP images throughout the week. The region was located in the Eastern hemisphere on 2017-Jun-11 and be seen in the above image.

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:

- None

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

- LYRA Daily unit 3 campaign, 2017-Jun-05
- LYRA Daily unit 3 campaign, 2017-Jun-06
- LYRA Daily unit 3 campaign, 2017-Jun-07
- LYRA Daily unit 3 campaign, 2017-Jun-08
- LYRA Daily unit 3 campaign, 2017-Jun-09
- LYRA Daily unit 3 campaign, 2017-Jun-10
- LYRA Daily unit 3 campaign, 2017-Jun-11

The red shaded period corresponds to:

- LYRA has been switched off due to a voltage drop, 2017-Jun-08

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).

SWAP data was included in the daily science of this week article:
http://dailyscience.be/2017/06/06/le-soleil-place-sous-surveillance-liegeoise/

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

None

IOS & operations

Monday 05 Jun	Tuesday 06 Jun	Wednesday 07 Jun	Thursday 08 Jun	Friday 09 Jun	Saturday 10 Jun	Sunday 11 Jun
Nominal acquisition + daily U3 LYIOS00622	Nominal acquisition + daily U3 LYIOS00622	Nominal acquisition + daily U3 LYIOS00622	Nominal acquisition + daily U3 LYIOS00622	Nominal acquisition + daily U3 LYIOS00624	Nominal acquisition + daily U3 LYIOS00624	Nominal acquisition + daily U3 LYIOS00624

The following science campaigns were performed by LYRA:

- daily U3 observation campaigns

LYRA detector temperature

LYRA detector 2 temperature globally varied between 47.39 and 48.80 °C.

3. SWAP instrument status

Calibration

None.

MCPM errors

The number of MCPM recoverable errors increased from 9913 to 10133.
The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 05 Jun	Tuesday 06 Jun	Wednesday 07 Jun	Thursday 08 Jun	Friday 09 Jun	Saturday 10 Jun	Sunday 11 Jun
Nominal acquisition IOS00705 617 images	Nominal acquisition IOS00705 748 images	Nominal acquisition IOS00705 747 images	Nominal acquisition IOS00705 720 images	Nominal acquisition IOS00705 707 images	Nominal acquisition IOS00705 689 images	Nominal acquisition IOS00705 597 images

Special operations for SWAP, this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.37 and -0.01 °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 24233 to 24298) was nominal, except for:

- Passes 24266, 24267 and 24268 due to LYRA switch off (due to voltages drop at 11:11 UT. LYRA as restarted by Redu at 20:04 UT on 2017-Jun-08)

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 Jun 05 00:00 UT and 2017 Jun 12 00:00 UT: 4874
Highest cadence in this period: 110 seconds
Average cadence in this period: 124.09 seconds
Number of image gaps larger than 300 seconds: 92
Largest data gap: 14.67 minutes

Data coverage LYRA

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

- Passes 24266, 24267 and 24268 due to LYRA switch off

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)