


P2SC-ROB-WR-388 - 20170828 Weekly report #388	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Aug 28 to Sun Sep 03, 2017 04 Sep 2017 Jennifer O'Hara Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

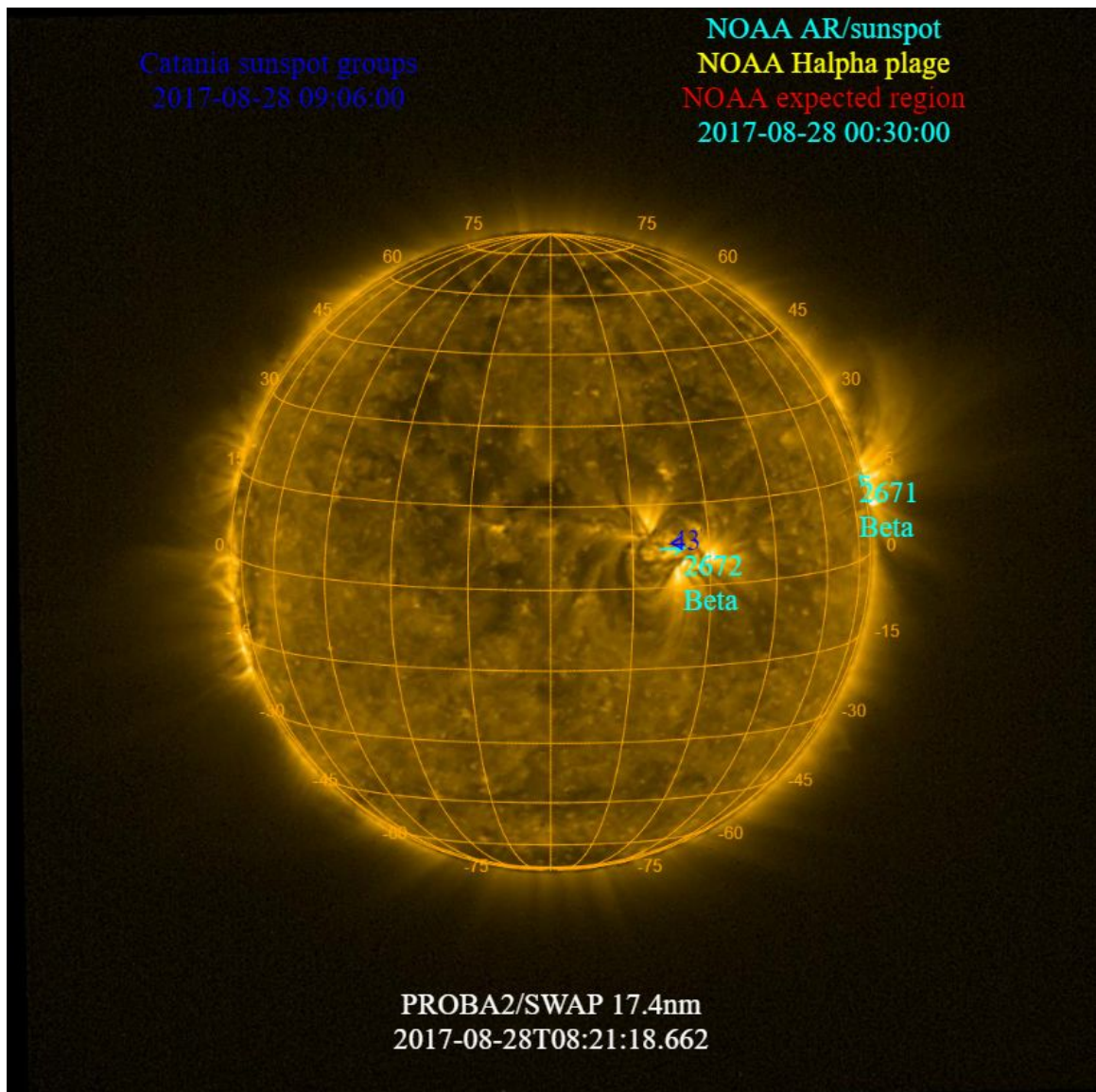
The level of solar activity¹ fluctuated between **very low and low** this week.

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

	Monday 28 Aug	Tuesday 29 Aug	Wednesday 30 Aug	Thursday 31 Aug	Friday 01 Sep	Saturday 02 Sep	Sunday 03 Sep
Activity	low	low	low	very low	low	low	low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

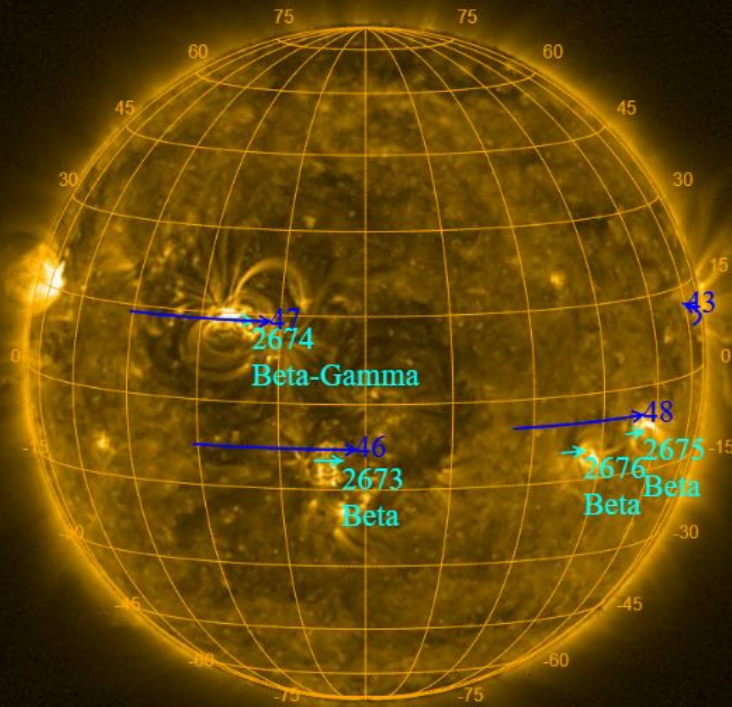
The SWAP images of Aug 28 and Sep 03 are shown below, with annotated active regions.



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

Catania sunspot groups
2017-09-01 08:30:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2017-09-03 00:30:00



PROBA2/SWAP 17.4nm
2017-09-03T08:21:57.521

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>

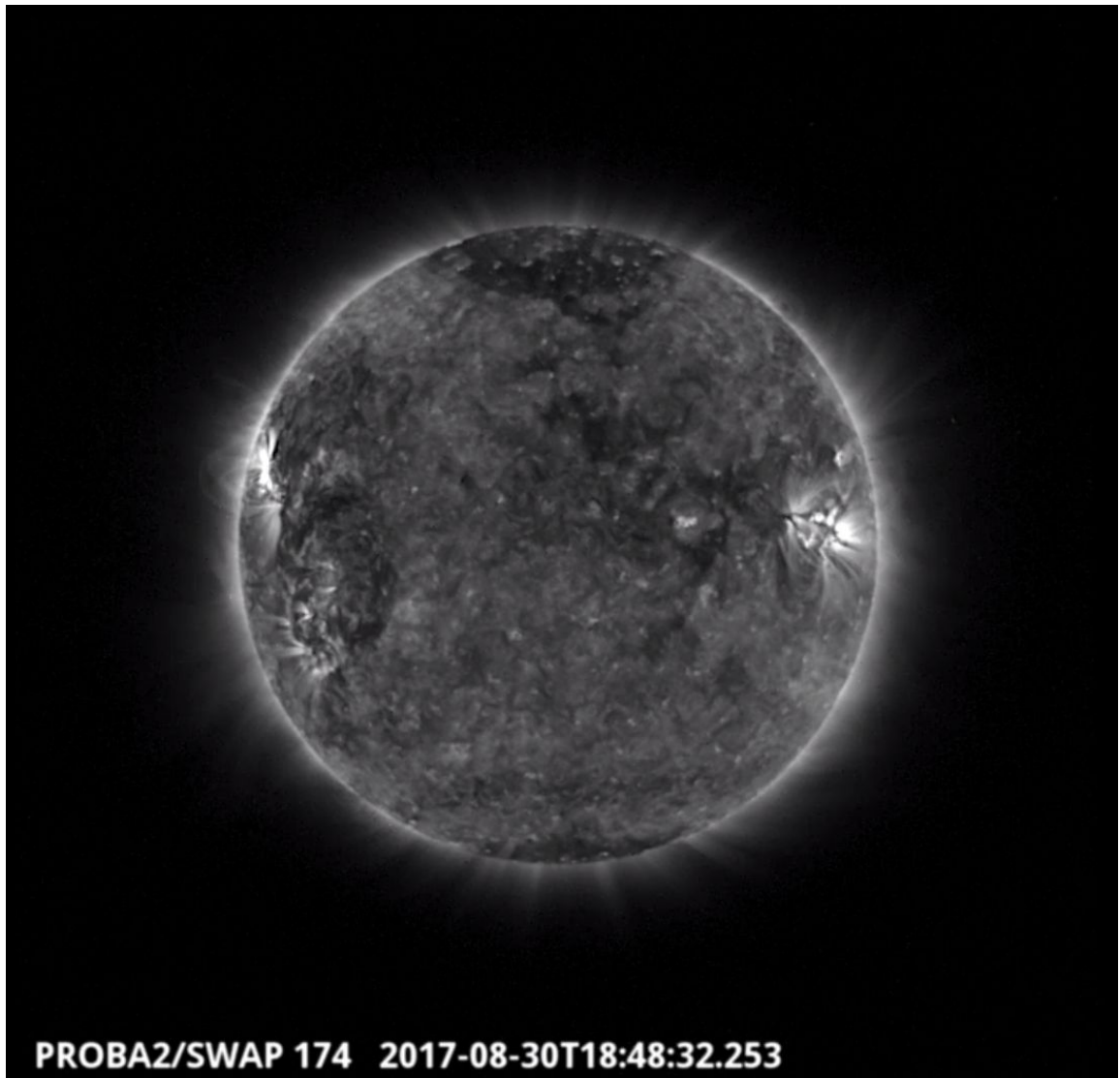
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 388).

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](#)

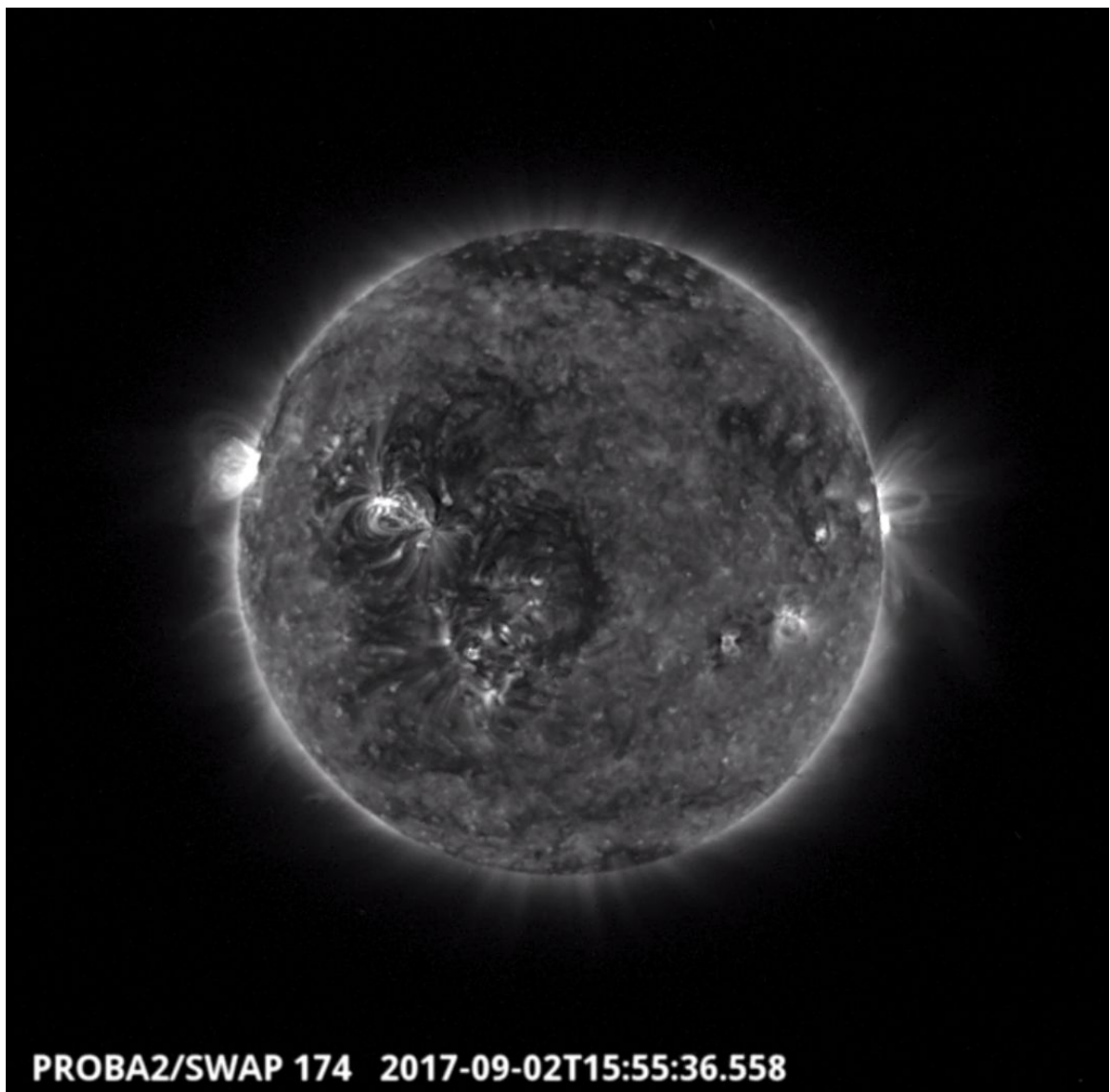
Wednesday Aug 30



The second largest flare of the week (C5.2) was produced by NOAA active region 2674 on 2017-Aug-30 near to the eastern limb, as shown in the SWAP image above at 18:48 UT.

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

Saturday Sep 02



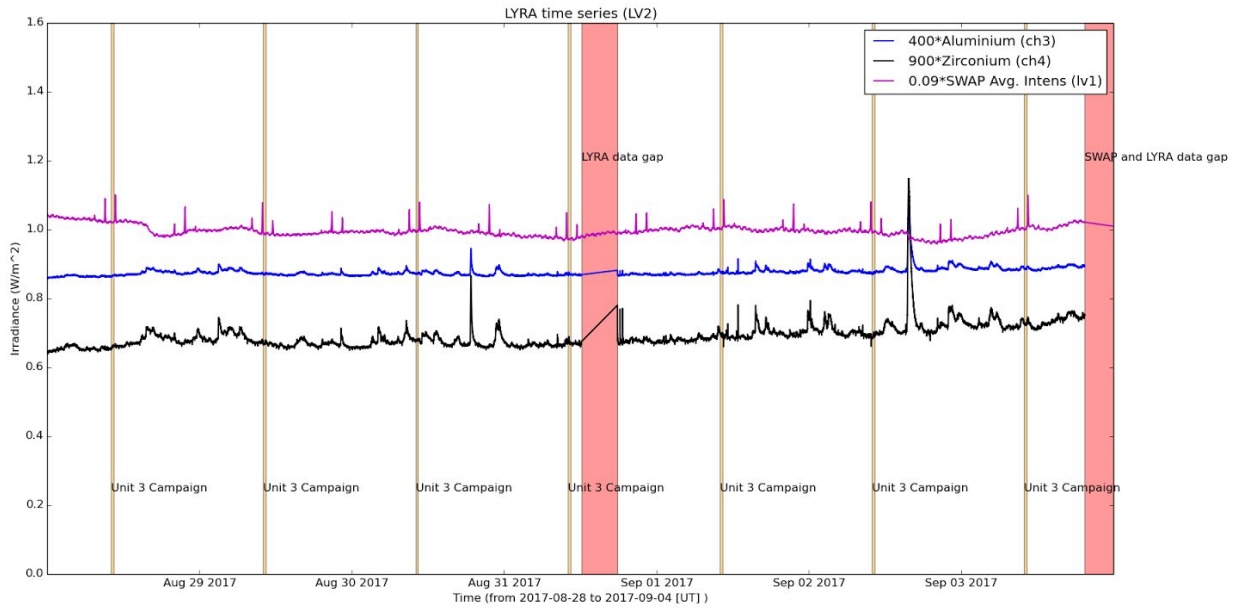
The largest flare of the week and an associated eruption from NOAA active region 2672 was observed by SWAP as it passed over the western limb of the Sun on 2017-Sep-02.

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:

- Daily unit 3 campaign, 2017-Aug-28
- Daily unit 3 campaign, 2017-Aug-29
- Daily unit 3 campaign, 2017-Aug-30
- Daily unit 3 campaign, 2017-Aug-31
- Daily unit 3 campaign, 2017-Sep-01
- Daily unit 3 campaign, 2017-Sep-01
- Daily unit 3 campaign, 2017-Sep-03

The red shaded periods related to other issues corresponds to:

- LYRA data gap on 2017-Aug-31
- SWAP and LYRA data gap on 2017-Sep-03

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>).

PROBA2 related observations were discussed in at least 5 separate presentations at the 48th SPD meeting in Portland Oregon (note this covers the previous week, but were not included in WR387). These included:

Matthew J West - Further Exploration of Post-Flare Giant Arches

Daniel B Seaton - First Results from the Solar Ultraviolet Imager on GOES-16

Laurence Waulters - Observation of a Lyman-alpha flare with PROBA2/LYRA

Marie Dominique - Multi-instrument observations of sub-minute quasi-periodic pulsations in solar flares

Sabrina Savage - Reconnection Outflows in the Extended Corona and Magnetotail

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

No calibration campaign this week.

IOS & operations

Monday 28 Aug	Tuesday 29 Aug	Wednesday 30 Aug	Thursday 31 Aug	Friday 01 Sep	Saturday 02 Sep	Sunday 03 Sep
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00636	LYIOS00636	LYIOS00636 LYIOS00638	LYIOS00638	LYIOS00638	LYIOS00638	LYIOS00638

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 48.01 and 49.01°C.

3. SWAP instrument status

Calibration

No calibration campaign on this week.

MCPM errors

The number of MCPM recoverable errors increased from 11654 to 11663.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 28 Aug	Tuesday 29 Aug	Wednesday 30 Aug	Thursday 31 Aug	Friday 01 Sep	Saturday 02 Sep	Sunday 03 Sep
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00713 700 images	IOS00713 690 images	IOS00713 696 images	IOS00713 695 images	IOS00714 706 images	IOS00714 687 images	IOS00714 492 images

Special operations for SWAP, this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.45 and -0.41 °C.

4. PROBA2 Science Center Status

The main operator is Jennifer O'Hara.

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 25015 to 25079) was nominal, except for:

- 25040, 25047, 25048 and 25079 .

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:

- 25079. Resulted in a data gap on 2017-Sep-03 from 19:35:00

Total number of images between 2017 Aug 28 00:00 UT and 2017 Sep 04 00:00 UT: 4689

Highest cadence in this period: 110 seconds

Average cadence in this period: 128.96 seconds

Number of image gaps larger than 300 seconds: 110

Largest data gap: 256.67 minutes

Data coverage LYRA

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

- 25047 with some data loss and 25048 pass not received due to a LYRA data reception synchronisation error, data was sent later in another pass but could not be processed and resulted in a data gap on 2017-Aug-31 between 13:02:53 and 17:51:12
- 25079 was not received due to an issue at Svalbard, data was sent later but could not be processed and resulted in a data gap on 2017-Sep-03 from 19:28:37.

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)