


P2SC-ROB-WR-391 - 20170918 Weekly report #391	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Sep 18 to Sun Sep 24, 2017 25 Sep 2017 Jennifer O'Hara Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

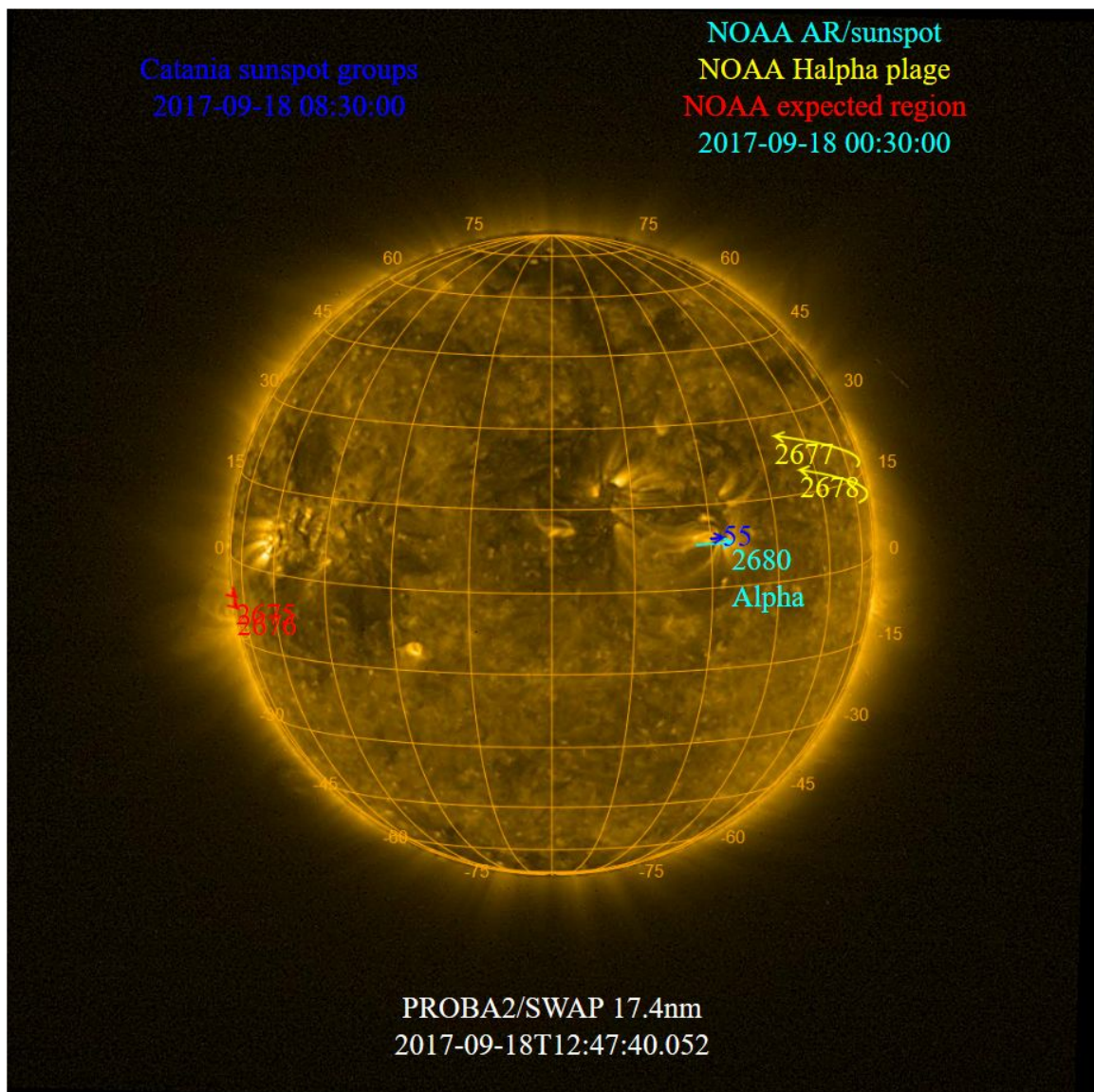
The level of solar activity¹ remained **very low** this week.

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

	Monday 18 Sep	Tuesday 19 Sep	Wednesday 20 Sep	Thursday 21 Sep	Friday 22 Sep	Saturday 23 Sep	Sunday 24 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.

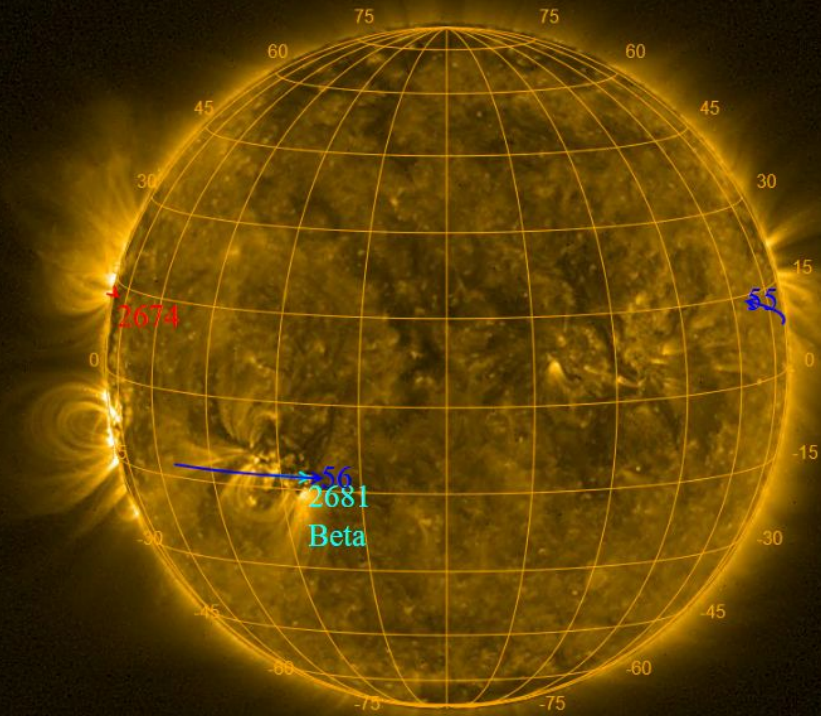
The SWAP images of Sep 18 and Sep 24 are shown below, with annotated active regions.



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

Catania sunspot groups
2017-09-22 06:36:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2017-09-24 00:30:00



PROBA2/SWAP 17.4nm
2017-09-24T12:46:08.393

Solar Activity

Solar flare activity remained 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>

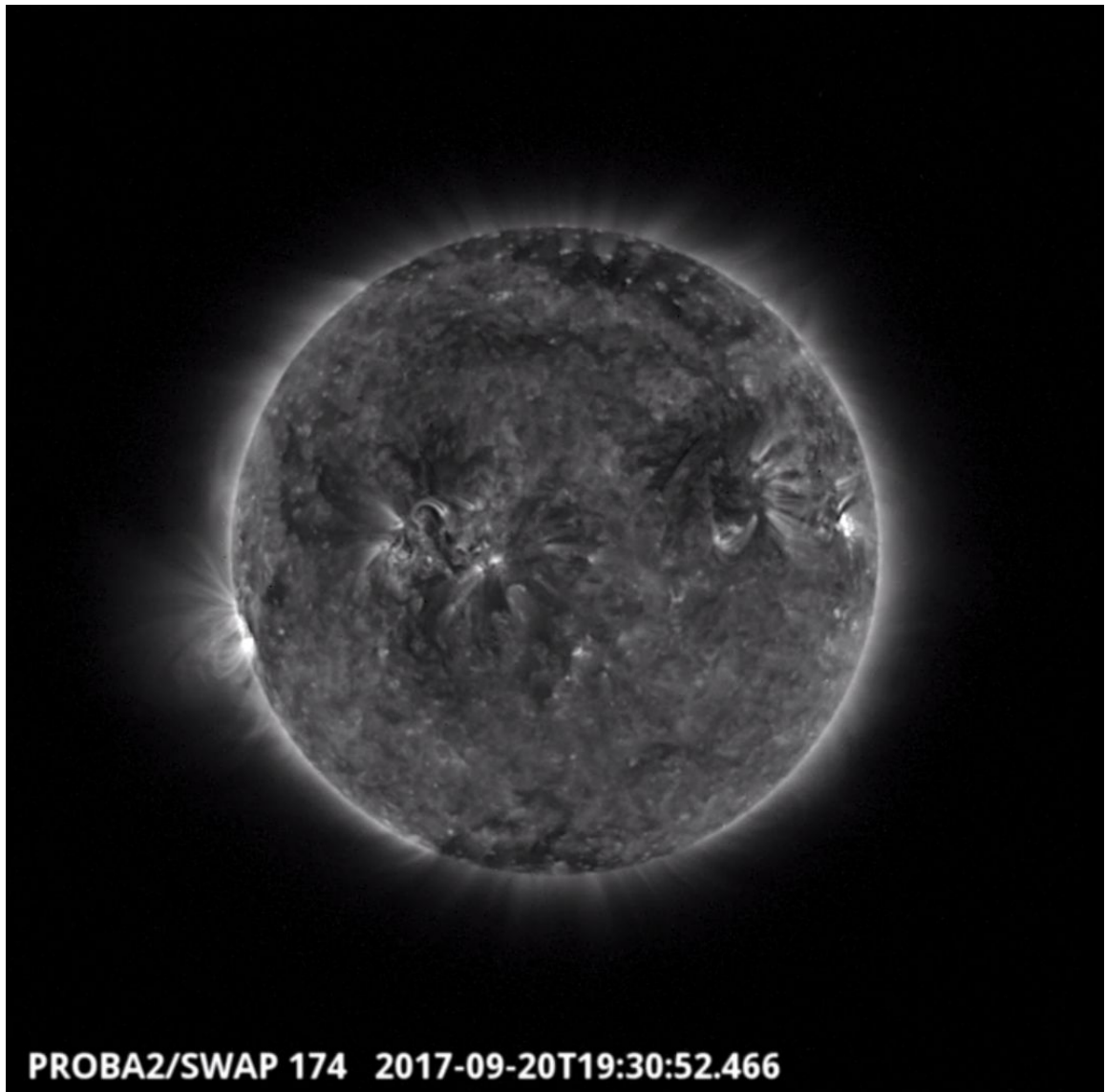
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 391).

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](#)

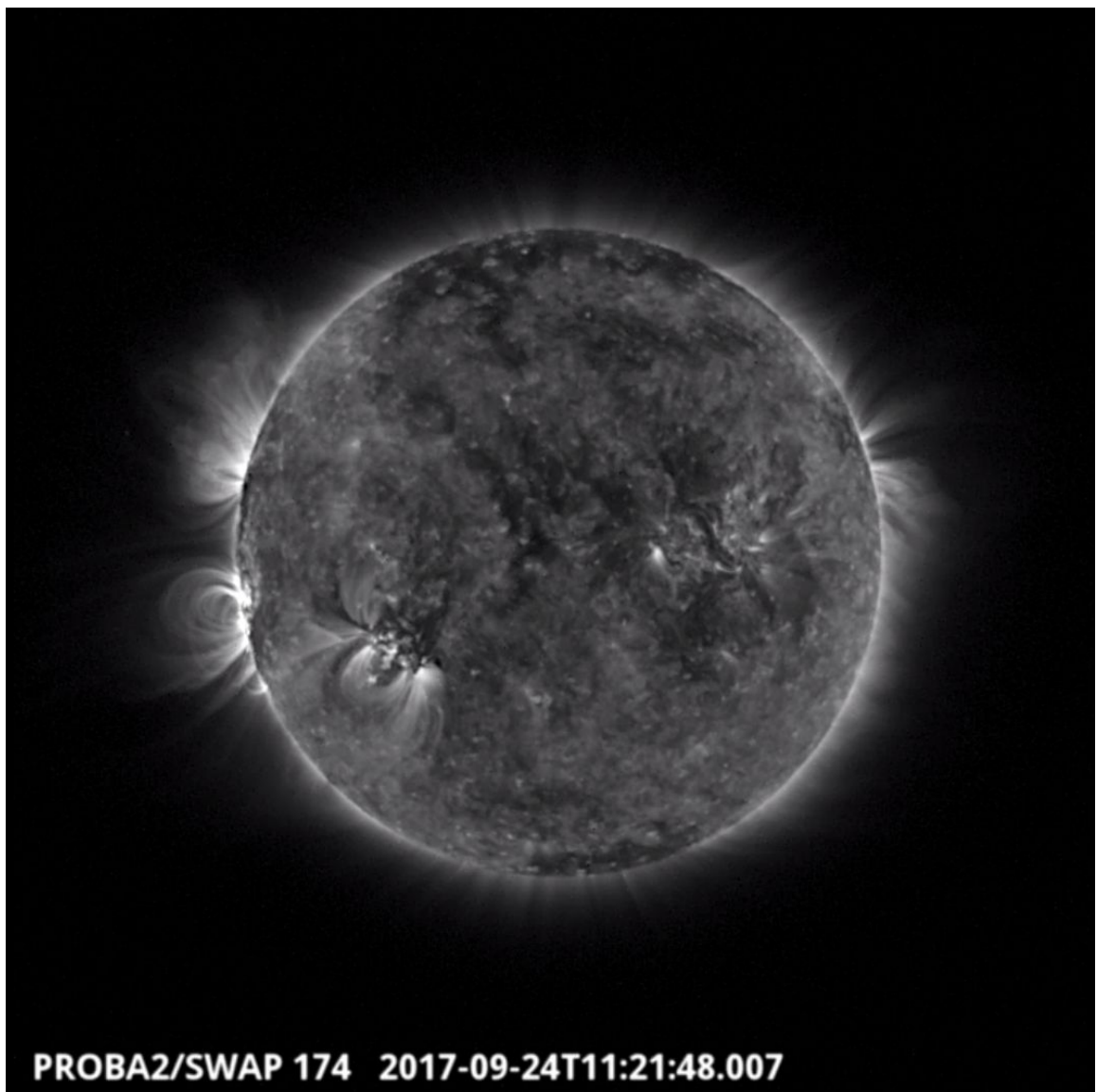
Wednesday Sep 20



The largest flare of the week was a B-class (B8.4) flare and was observed by SWAP on 2017-Sep-20. The flare and associated eruption are visible near the western limb of the Sun in the SWAP image above at 19:30 UT.

Find a movie of the event [here](#) (SWAP movie) and [here](#) (SWAP difference movie)

Sunday Sep 24



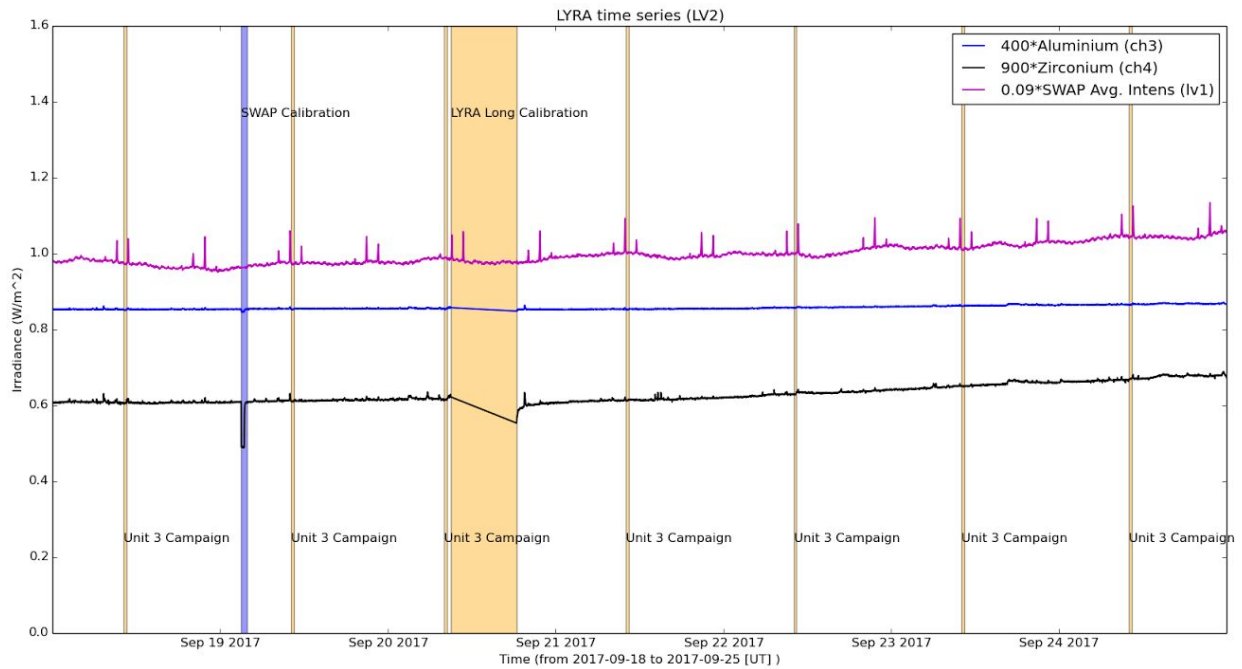
SWAP observed a B2.7 flare from NOAA active region 2682 as it began to appear over the eastern limb of the Sun on 2017-Sep-24. The flare is shown in the SWAP image above at 11:21 UT and resultant flows along the loops can be seen in the SWAP movies below.

Find a movie of the event [here](#) (SWAP movie) and [here](#) (SWAP difference 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:

- Bi-weekly calibration, 2017-Sep-19

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

- Daily unit 3 campaign, 2017-Sep-18
- Daily unit 3 campaign, 2017-Sep-19
- Daily unit 3 campaign, 2017-Sep-20
- Bi-weekly long calibration, 2017-Sep-20
- Daily unit 3 campaign, 2017-Sep-21
- Daily unit 3 campaign, 2017-Sep-22
- Daily unit 3 campaign, 2017-Sep-23
- Daily unit 3 campaign, 2017-Sep-24

The red shaded periods related to other issues corresponds to:

- None

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

Calibration campaign on Wednesday this week.

IOS & operations

Monday 18 Sep	Tuesday 19 Sep	Wednesday 20 Sep	Thursday 21 Sep	Friday 22 Sep	Saturday 23 Sep	Sunday 24 Sep
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + Long calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00647	LYIOS00647	LYIOS00647 LYIOS00649	LYIOS00649	LYIOS00649	LYIOS00649	LYIOS00649

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

On 2017-Sep-20

- Long calibration campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 47.99 and 50.20 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 11686 to 11708.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 18 Sep	Tuesday 19 Sep	Wednesday 20 Sep	Thursday 21 Sep	Friday 22 Sep	Saturday 23 Sep	Sunday 24 Sep
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00715 623 images	IOS00715 708 images	IOS00715 744 images	IOS00715 721 images	IOS00715 690 images	IOS00715 695 images	IOS00715 699 images

Special operations for SWAP, this week:

On 2017-Sep-19

- Bi-weekly calibration campaign

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.65 and 0.79 °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 25209 to 25275) 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 2017 Sep 18 00:00 UT and 2017 Sep 25 00:00 UT: 4928

Highest cadence in this period: 30 seconds

Average cadence in this period: 122.72 seconds

Number of image gaps larger than 300 seconds: 97

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)