


P2SC-ROB-WR-393 - 20171002 Weekly report #393	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Oct 02 to Sun Oct 08, 2017 09 Oct 2017 Jennifer O'Hara Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

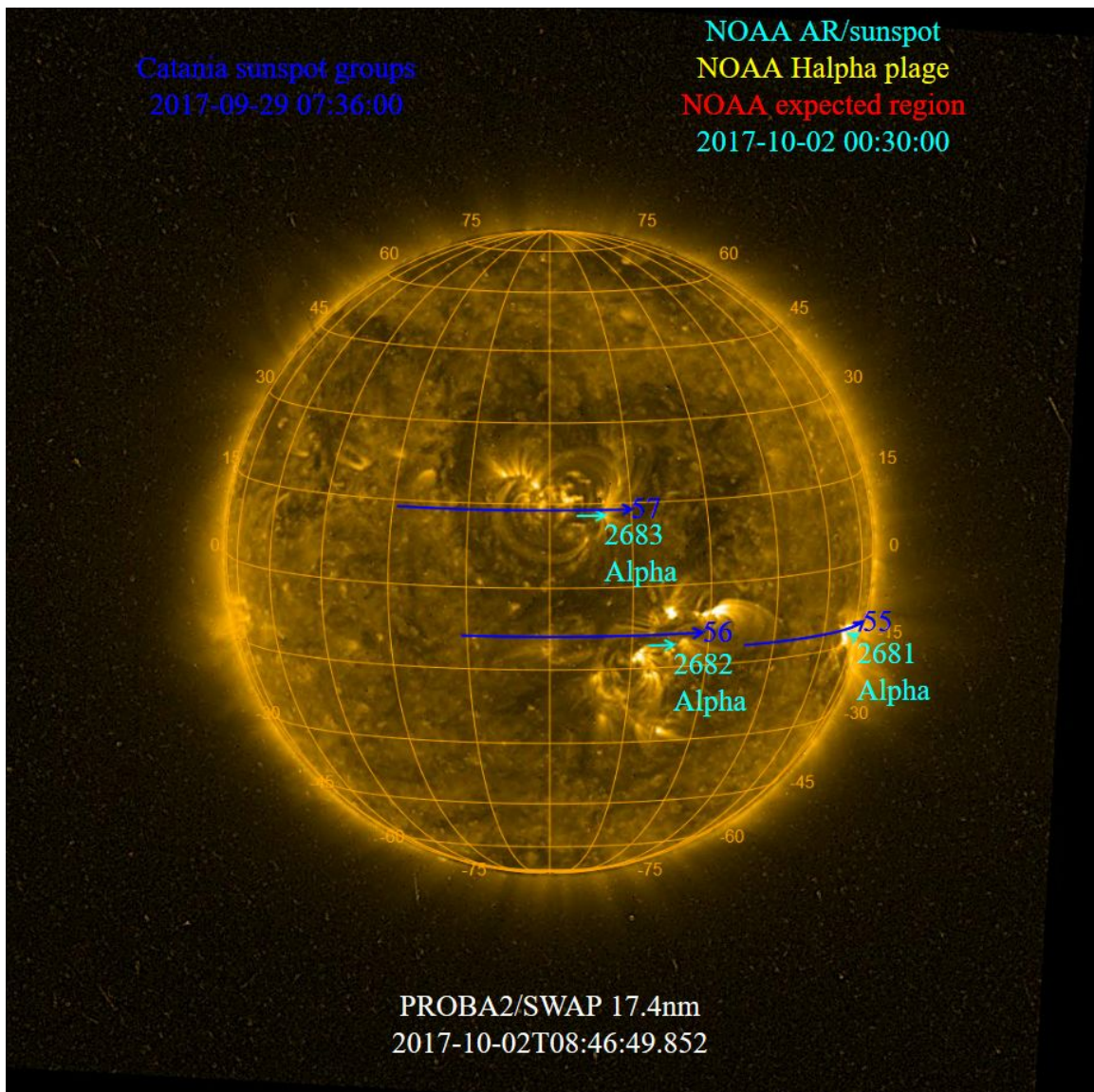
The level of solar activity¹ fluctuated between **very low and low** this week.

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

	Monday 02 Oct	Tuesday 03 Oct	Wednesday 04 Oct	Thursday 05 Oct	Friday 06 Oct	Saturday 07 Oct	Sunday 08 Oct
Activity	very low	very low	very low	low	very low	very low	very low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

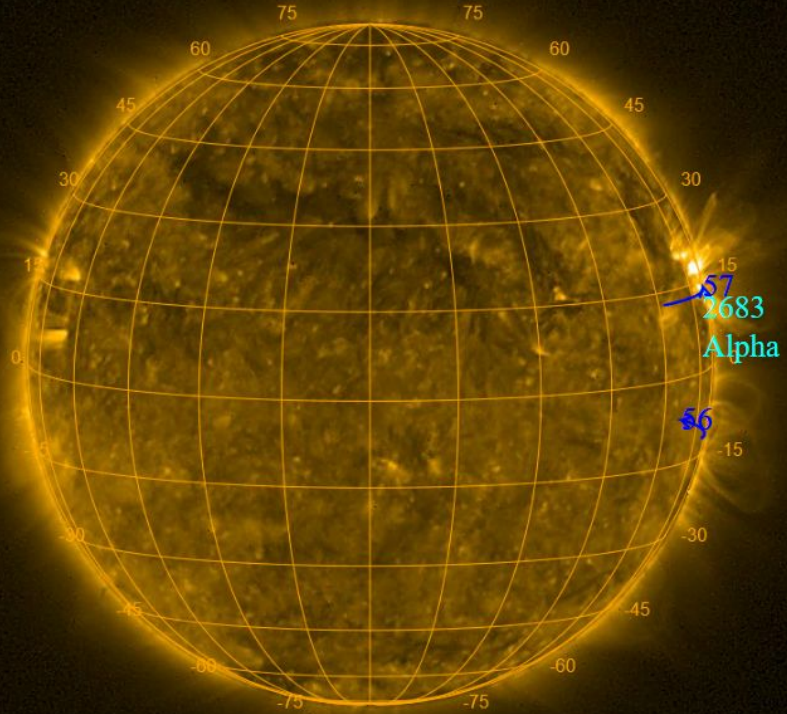
The SWAP images of Oct 02 and Oct 08 are shown below, with annotated active regions.



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

Catania sunspot groups
2017-10-06 08:06:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2017-10-08 00:30:00



PROBA2/SWAP 17.4nm
2017-10-08T08:48:26.970

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>

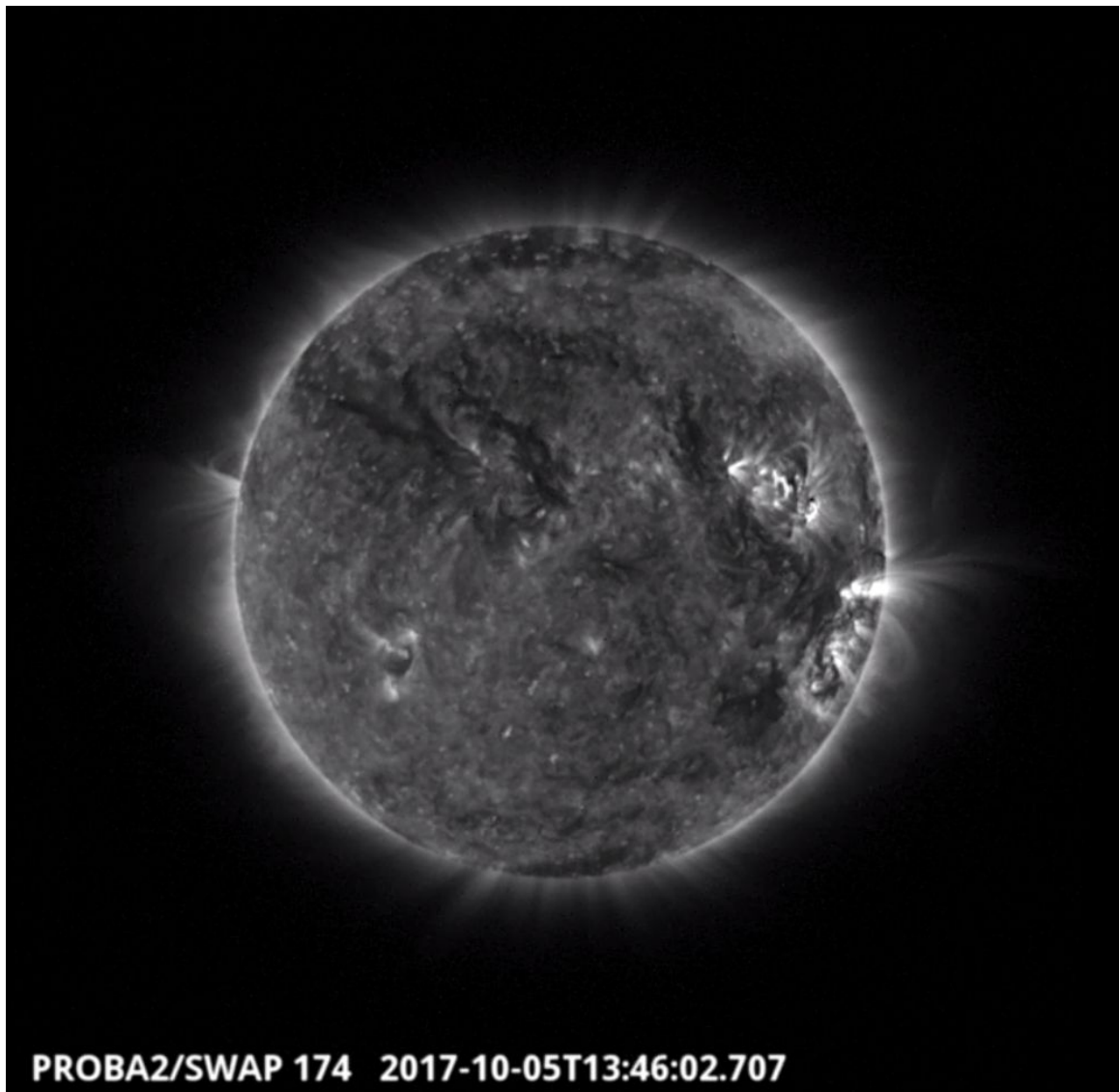
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 393).

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](#)

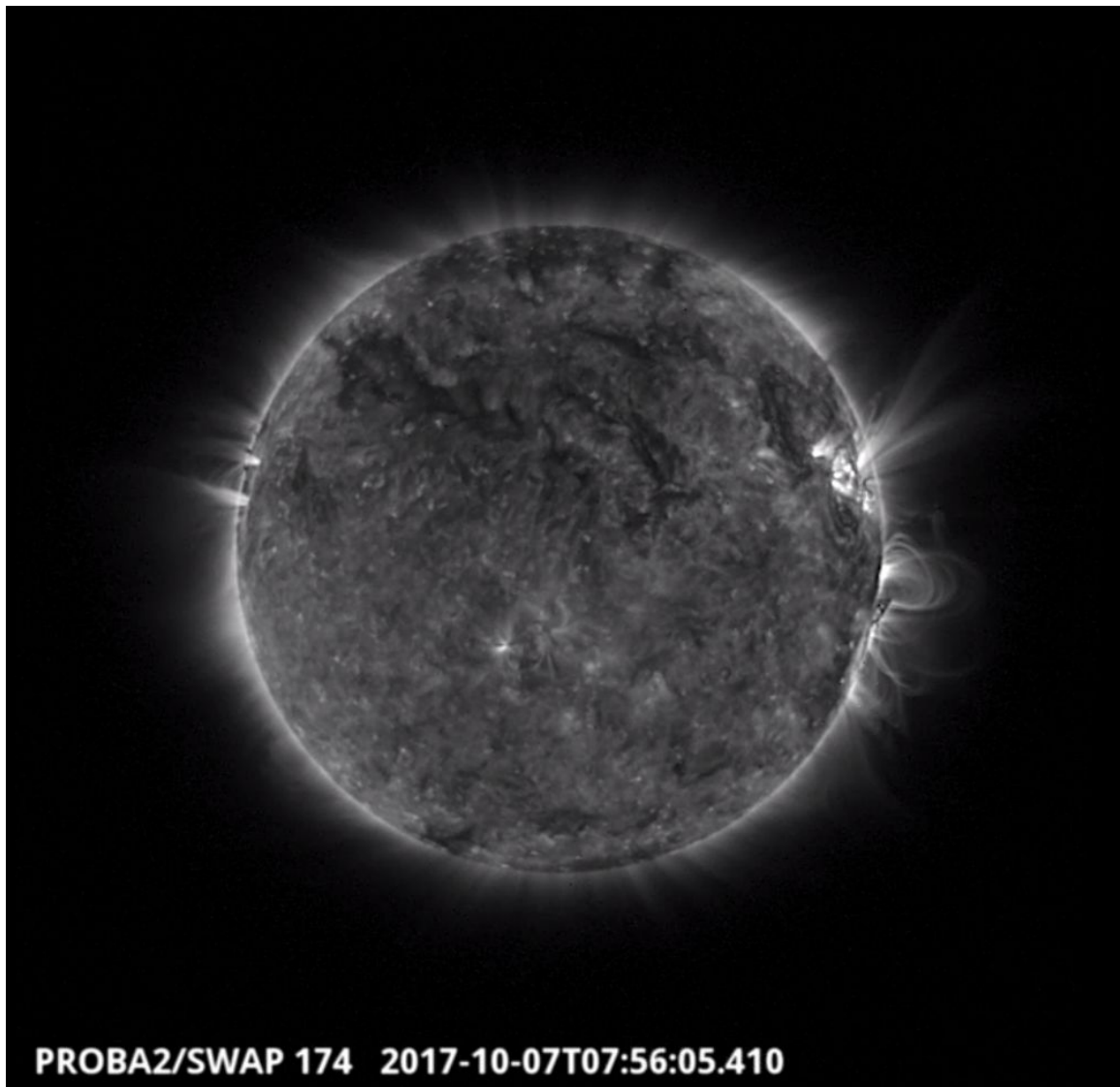
Thursday Oct 05



The largest flare of the week was a C-class (C1.0) flare and was observed by SWAP on 2017-Oct-05. The flare is visible in the north-western quadrant of the Sun in the SWAP image above at 13:46 UT.

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

Saturday Oct 07



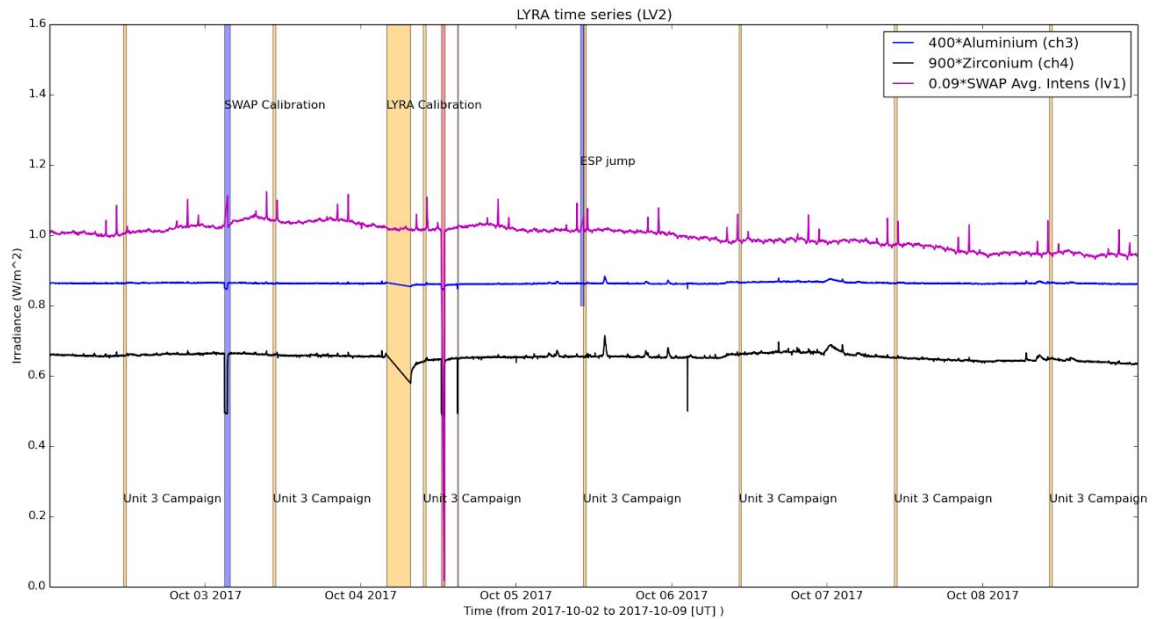
An eruption was observed by SWAP on 2017-Oct-07 and is visible on the western limb of the Sun in the SWAP image above at 07:56 UT.

You can see this event more clearly in the movies of the day found [here](#) (SWAP movie) and [here](#) (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-Oct-03
- ESP Jump, 2017-Oct-05

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

- Daily unit 3 campaign, 2017-Oct-02
- Daily unit 3 campaign, 2017-Oct-03
- Bi-weekly long calibration, 2017-Oct-04
- Daily unit 3 campaign, 2017-Oct-04
- Daily unit 3 campaign, 2017-Oct-05
- Daily unit 3 campaign, 2017-Oct-06
- Daily unit 3 campaign, 2017-Oct-07
- Daily unit 3 campaign, 2017-Oct-08

The red shaded periods related to other issues corresponds to:

- Incorrect rotation manoeuvre, spacecraft not sun-centered and caused SWAP CF temperature increase between 12:31:01 and 12:58:31, 2017-Oct-04
- Incorrect rotation manoeuvre, spacecraft not sun-centered and caused SWAP CF temperature increase between 15:00:00 and 15:03:00, 2017-Oct-04

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 02 Oct	Tuesday 03 Oct	Wednesday 04 Oct	Thursday 05 Oct	Friday 06 Oct	Saturday 07 Oct	Sunday 08 Oct
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00650	LYIOS00650	LYIOS00650	LYIOS00650	LYIOS00651	LYIOS00651	LYIOS00651

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

On 2017-Oct-04

- LYRA bi-weekly calibration campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 48.12 and 51.13 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 11747 to 11935.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 02 Oct	Tuesday 03 Oct	Wednesday 04 Oct	Thursday 05 Oct	Friday 06 Oct	Saturday 07 Oct	Sunday 08 Oct
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition + Incorrect rotation manoeuvre	Nominal acquisition + ESP jump	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00716 640 images	IOS00716 709 images	IOS00716 714 images	IOS00716 705 images	IOS00716 695 images	IOS00716 698 images	IOS00716 663 images

Special operations for SWAP, this week:

On 2017-Oct-03

- SWAP bi-weekly calibration campaign

On 2017-Oct-05

- ESP Jump

On 2017-Oct-04

- Incorrect rotation manoeuvre, spacecraft not sun-centered and caused SWAP CF temperature increase.

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 0.31 and 5.43 °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 25341 to 25405) 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 Oct 02 00:00 UT and 2017 Oct 09 00:00 UT: 4937

Highest cadence in this period: 30 seconds

Average cadence in this period: 122.49 seconds

Number of image gaps larger than 300 seconds: 108

Largest data gap: 33.67 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)