


P2SC-ROB-WR-214- 20140428 Weekly report #214	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon April 28 to Sun May 04, 2014 07 May 2014 Erik Pilyser Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

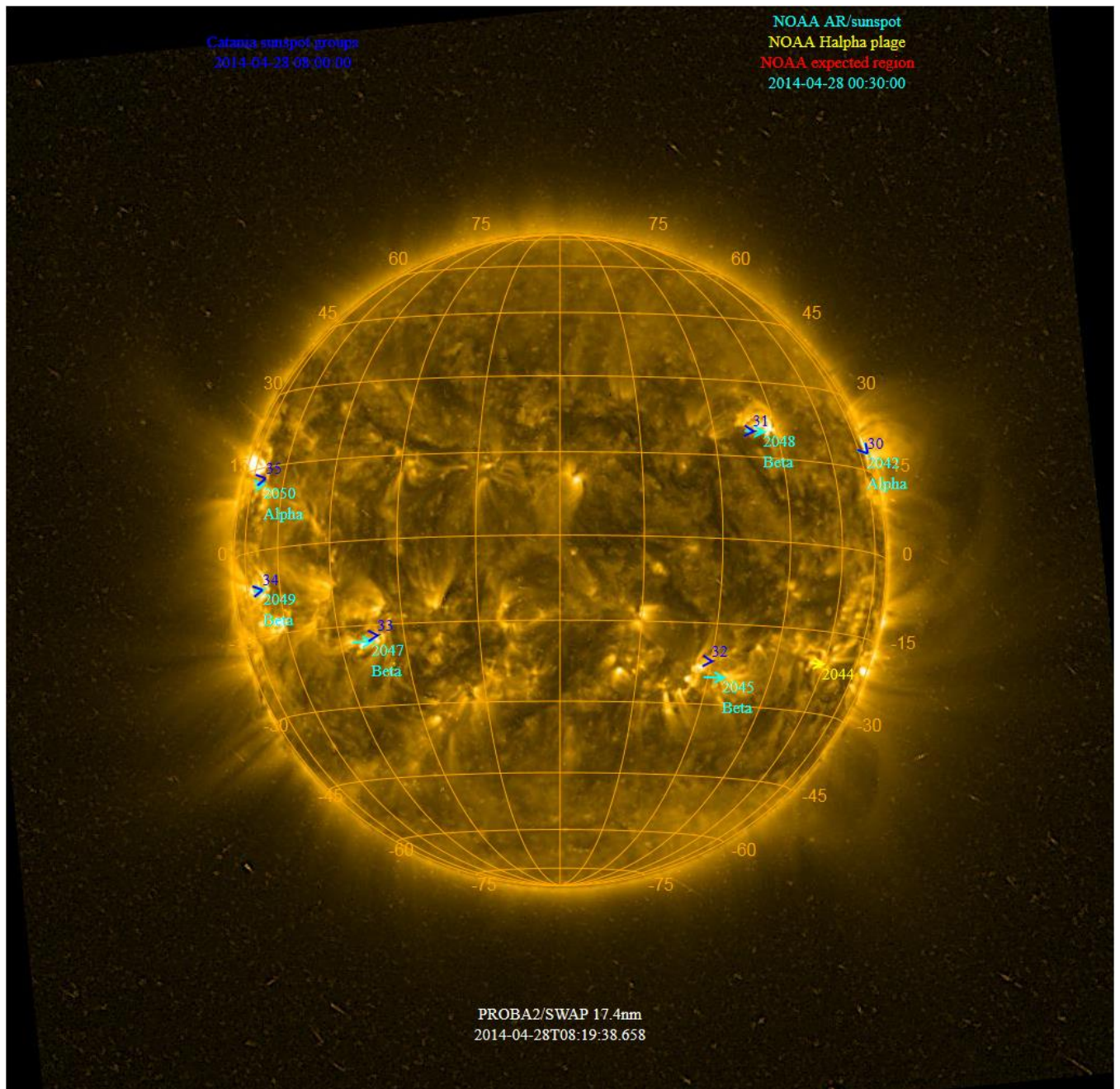
The level of solar activity¹ fluctuated between **very low** and **low** this week.

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

	Monday 28 Apr	Tuesday 29 Apr	Wednesday 30 Apr	Thursday 01 May	Friday 02 May	Saturday 03 May	Sunday 04 May
Activity	low	very low	low	very low	low	low	low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

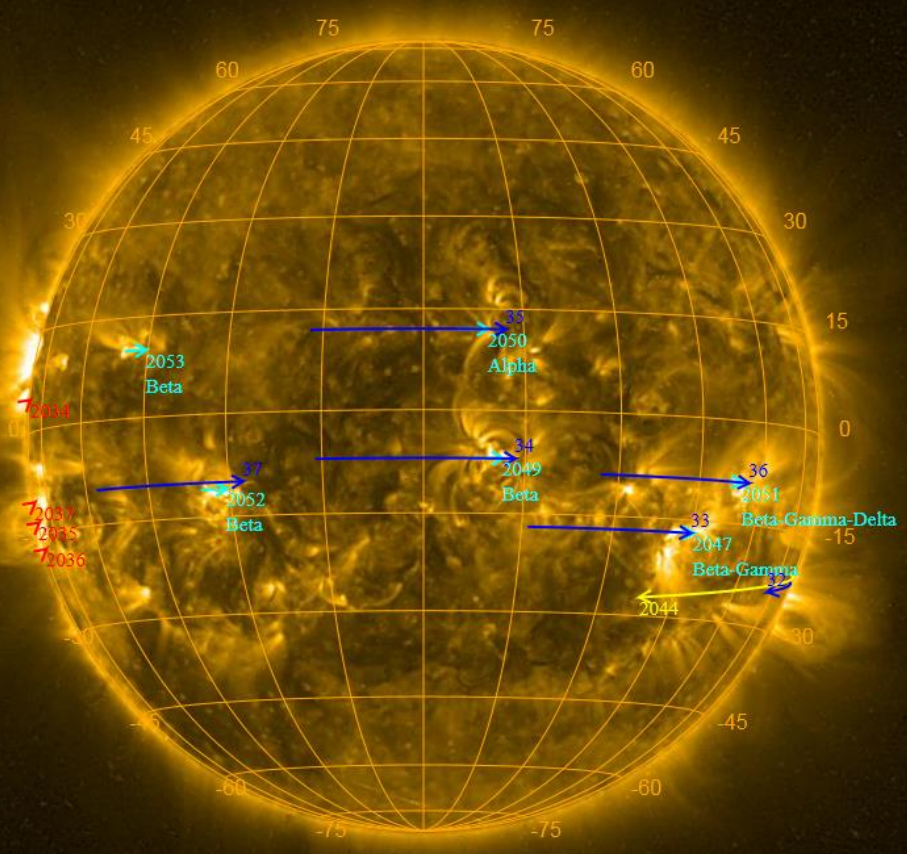
The SWAP images of April 28 and May 04 are shown below, with annotated active regions.



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

Catania sunspot groups
2014-05-02 07:48:00

NOAA AR/sunspot
NOAA Alpha plage
NOAA expected region
2014-05-04 00:30:00



PROBA2/SWAP 17.4nm
2014-05-04T08:11:17.399

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>.

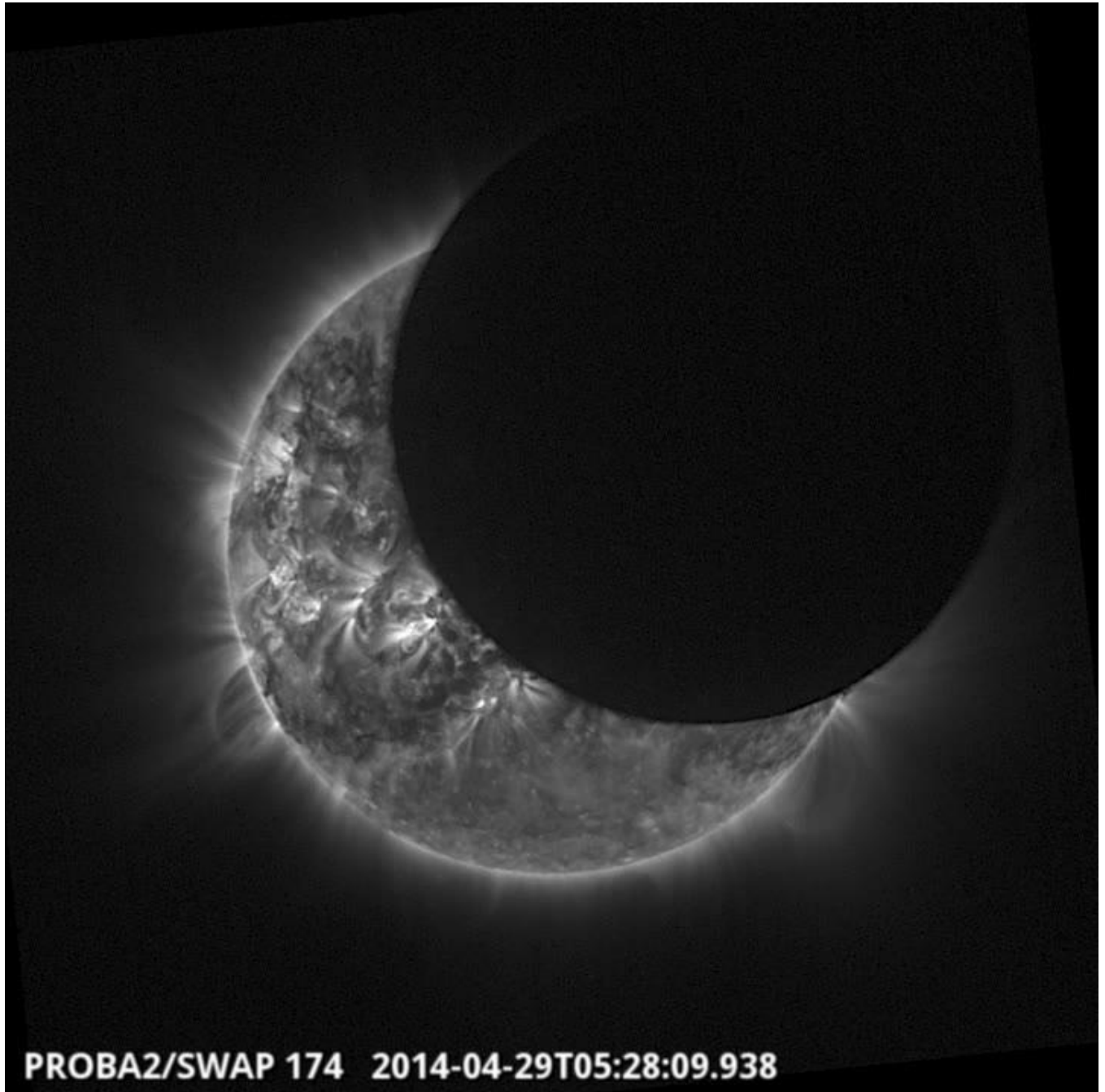
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 214).

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

Tuesday April 29

On this Tuesday, a solar (annular) eclipse occurred in the early morning. The PROBA2 orbit is such that it 'allows' for several eclipse configuration to occur in consecutive orbits. Four eclipses could be observed at this particular occasion.

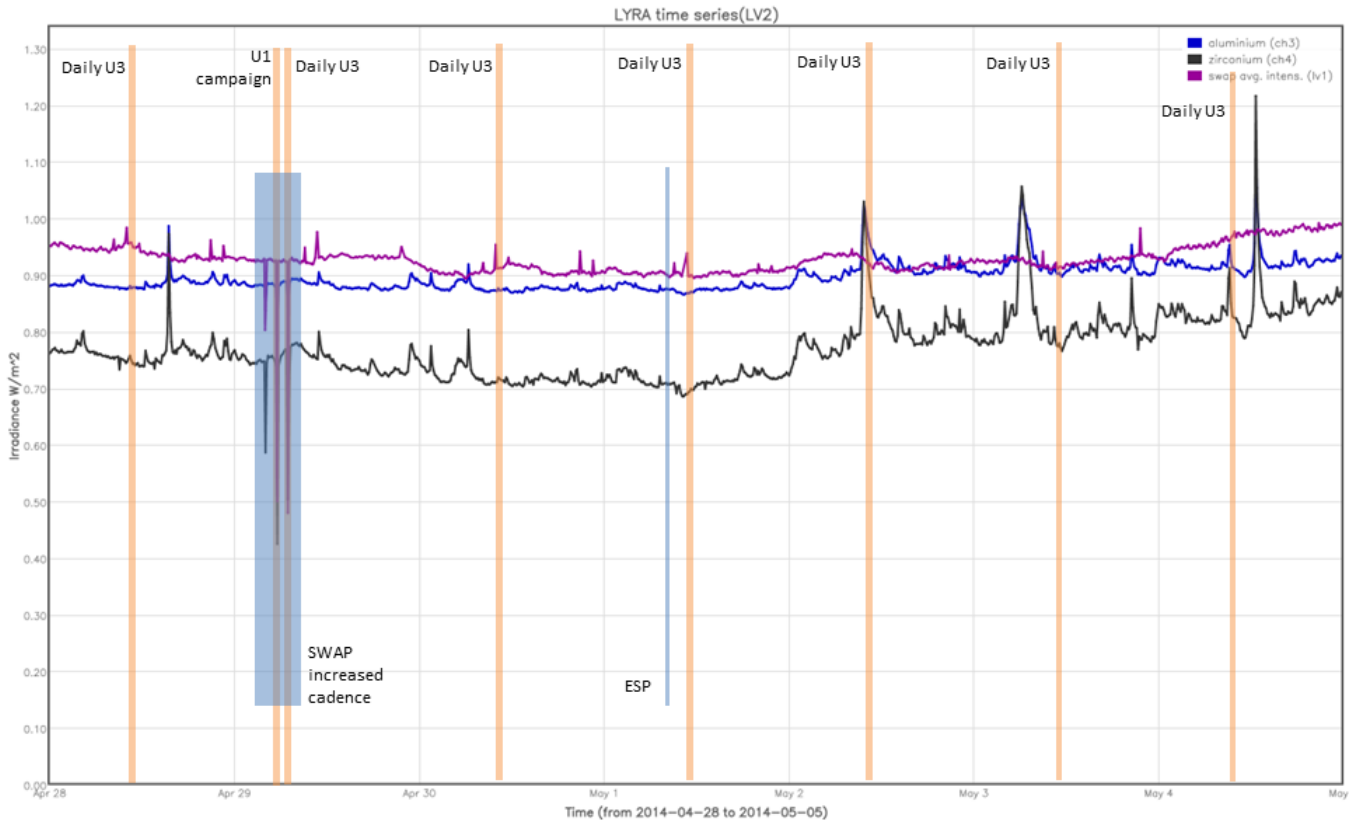


Eclipse @ 08:25 - SWAP difference image
Find a movie of the consecutive eclipses [here](#) (SWAP movie)

An overview of the weekly LYRA & SWAP data is provided below:

The following curves are visible:

- black: Zirconium Channel LYRA Unit 2
- blue: Aluminum Channel of LYRA Unit 2
- purple: SWAVINT (SWAP Average Intensity; integrated solar intensity per SWAP image pixel)



The (LYRA related) orange shaded periods correspond to, from left to right (see section 2):

- Daily LYRA unit 3 campaign (1 day)
- Special unit 1 campaign for the deepest of the 4 eclipses (on Tuesday)
- Daily LYRA unit 3 campaigns (6 consecutive days)

The (SWAP related) blue shaded periods correspond to, from left to right

- Special SWAP campaign, with increased cadence, during the eclipses (on Tuesday)
- Monthly ESP jump (on Thursday)

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.

- None

Guest Investigator Program

- None.

Other Visitors

- None

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 28 Apr	Tuesday 29 Apr	Wednesday 30 Apr	Thursday 01 May	Friday 02 May	Saturday 03 May	Sunday 04 May
Nominal acquisition + daily U3	Nominal acquisition + daily U3 + eclipse U1 campaign	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00394	LYIOS00394	LYIOS00394	LYIOS00394	LYIOS00394	LYIOS00394	LYIOS00394

The following science campaigns were performed by LYRA:

- daily U3 observation campaign (7 consecutive days)
- U1 campaign on Tuesday during the deepest of the 4 eclipses, from 04:55 to 05:50.

LYRA detector temperature

LYRA detector 2 temperature varied between 48.1 °C and 46.2 °C (minimum during eclipse on Tuesday), taking into account the daily U3 activation temperature peaks.

3. SWAP instrument status

Calibration

No calibration this week.

MCPM errors

The number of MCPM recoverable errors increased from 18179 to 18380.

The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 28 Apr	Tuesday 29 Apr	Wednesday 30 Apr	Thursday 01 May	Friday 02 May	Saturday 03 May	Sunday 04 May
Nominal acquisition	Nominal acquisition + higher cadence (during the 4 eclipses)	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00519 664 images	IOS00519 907 images	IOS00519 665 images	IOS00519 649 images	IOS00519 642 images	IOS00519 557 images	IOS00519 608 images

Special SWAP operations this week:

- eclipse campaign on Tuesday (60s cadence between 02:09 and 08:45)

SWAP detector temperature

The SWAP Cold Finger Temperature varied between -0.50 °C and -1.92 °C (minimum during the eclipse on Tuesday) .

4. PROBA2 Science Center Status

The main operator is Erik Pylyser (supported by Robbe Vansintjan)

The following changes were made to the P2SC:

LY-BSDG

- 05/05/2014: r5086 Move the generation of images from LYBSDG to LYQLK.

ODP/PP_PLOT

- 05/05/2014: r5086 Move the generation of images from LYBSDG to LYQLK.

5. Data reception & discussions with MOC

Passes

The delivery of the passes for this week (passes 14017 to 14081) was nominal.

Data coverage HK

All HK data files (LYRA_AD) have been received.

Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received.

Total number of images between 2014 Apr 28 0UT and 2014 May 05 0UT: 4692

Highest cadence in this period: 60 seconds

Average cadence in this period: 128.89 seconds

Number of image gaps larger than 300 seconds: 1

Largest data gap: 34.33 minutes

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received.

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
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
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)