


P2SC-ROB-WR-211- 20140407 Weekly report #211	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon April 07 to April 13, 2014 16 April 2014 Erik Pilyser Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

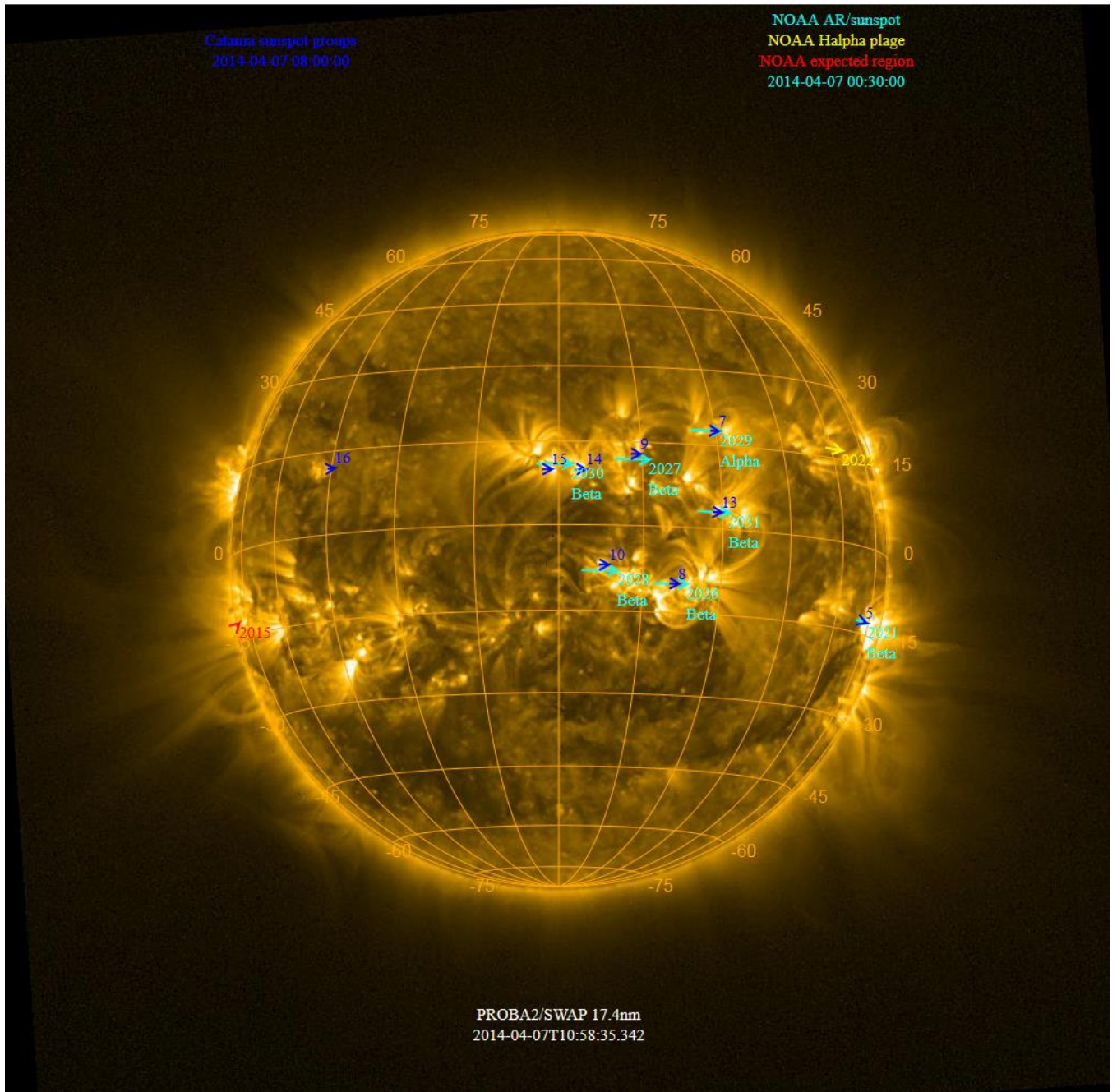
The level of solar activity¹ was **low** this week.

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

	Monday 07 Apr	Tuesday 08 Apr	Wednesday 09 Apr	Thursday 10 Apr	Friday 11 Apr	Saturday 12 Apr	Sunday 13 Apr
Activity	low	low	low	low	low	low	low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

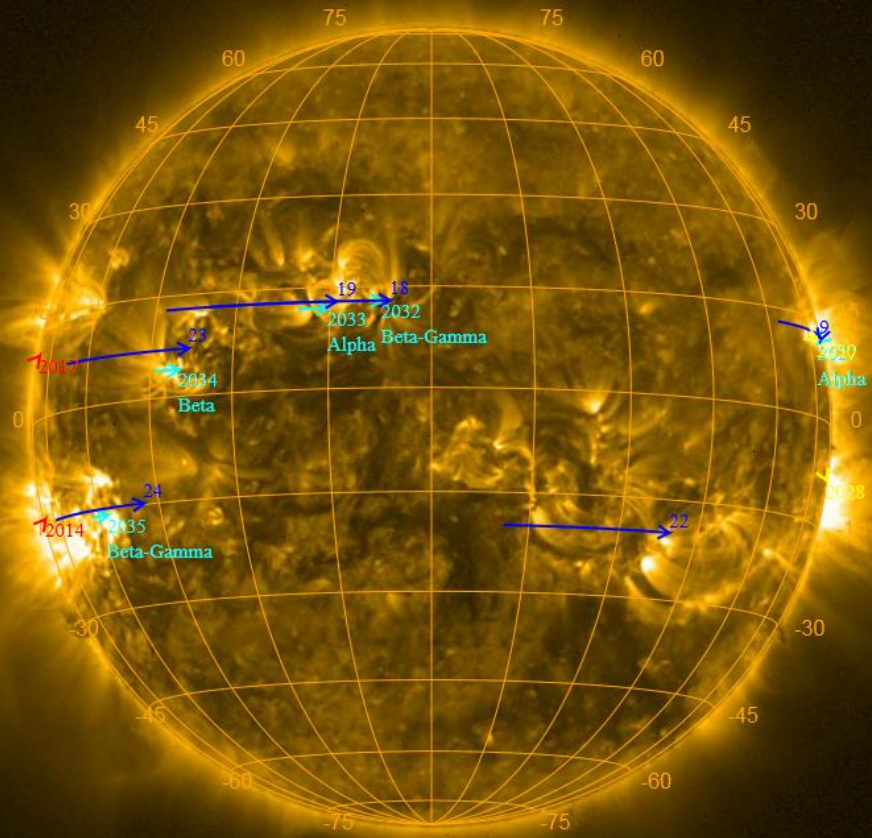
The SWAP images of April 07 and April 13 are shown below, with annotated active regions.



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

Catania sunspot groups
2014-04-11 08:18:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2014-04-13 00:30:00



Solar Activity

Solar activity was low this week. The highest level flare was a C9.4 flare.

In order to view the activity of this week in more detail, we suggest going 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.

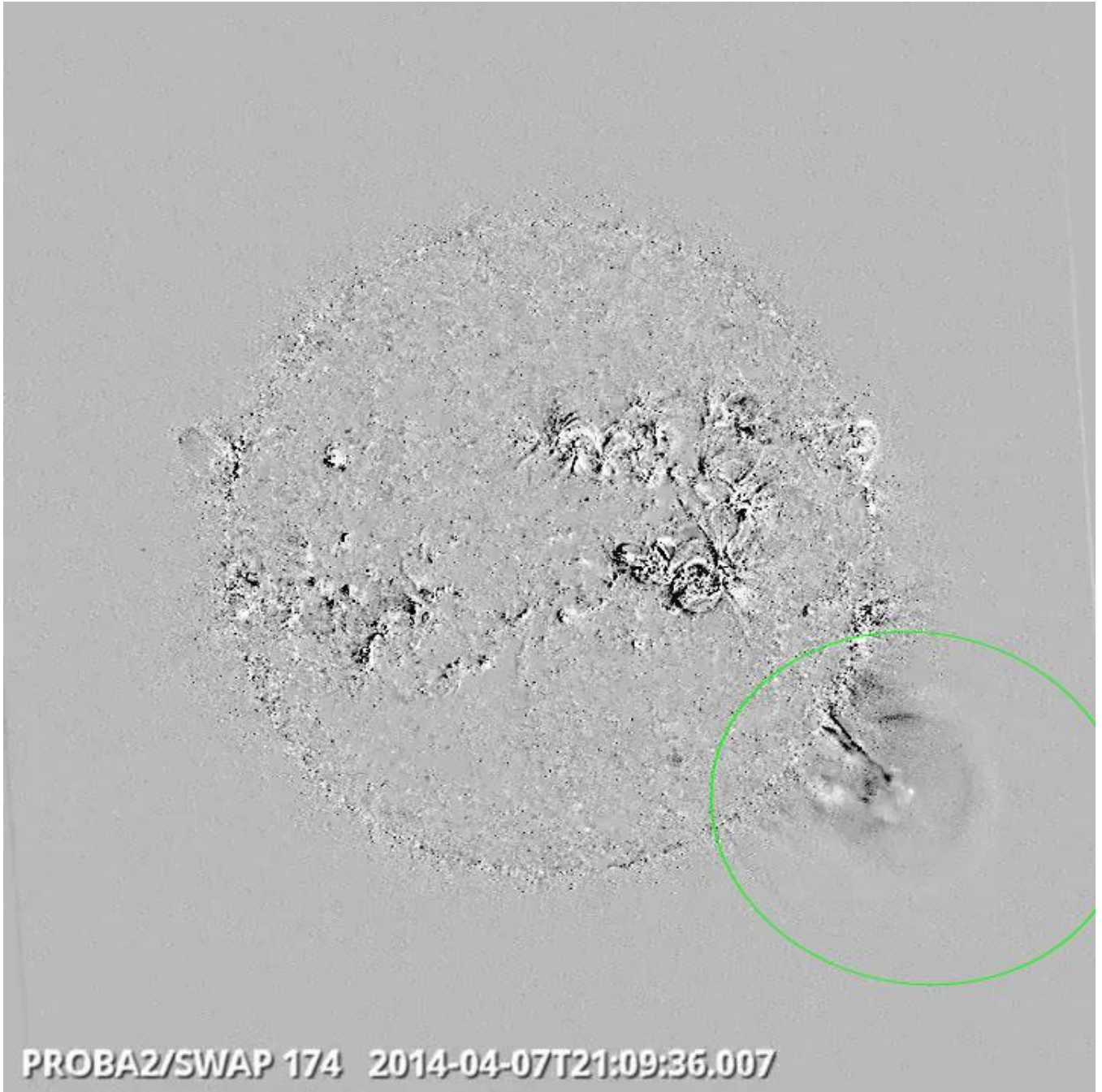
A weekly overview movie can be found [here](#) (SWAP week 211).

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

Monday Apr 07



Prominence eruption, North East limb @ 06:23 - SWAP difference image



Eruption, South West limb @ 21:09 - SWAP difference image
This eruption could be followed up to the limit of SWAP FoV.

Friday Apr 11



C9.4 Flare eruption, South East limb @ 11:32 - SWAP difference image
This eruption generated an EIT wave progressing southwards along the SE limb.

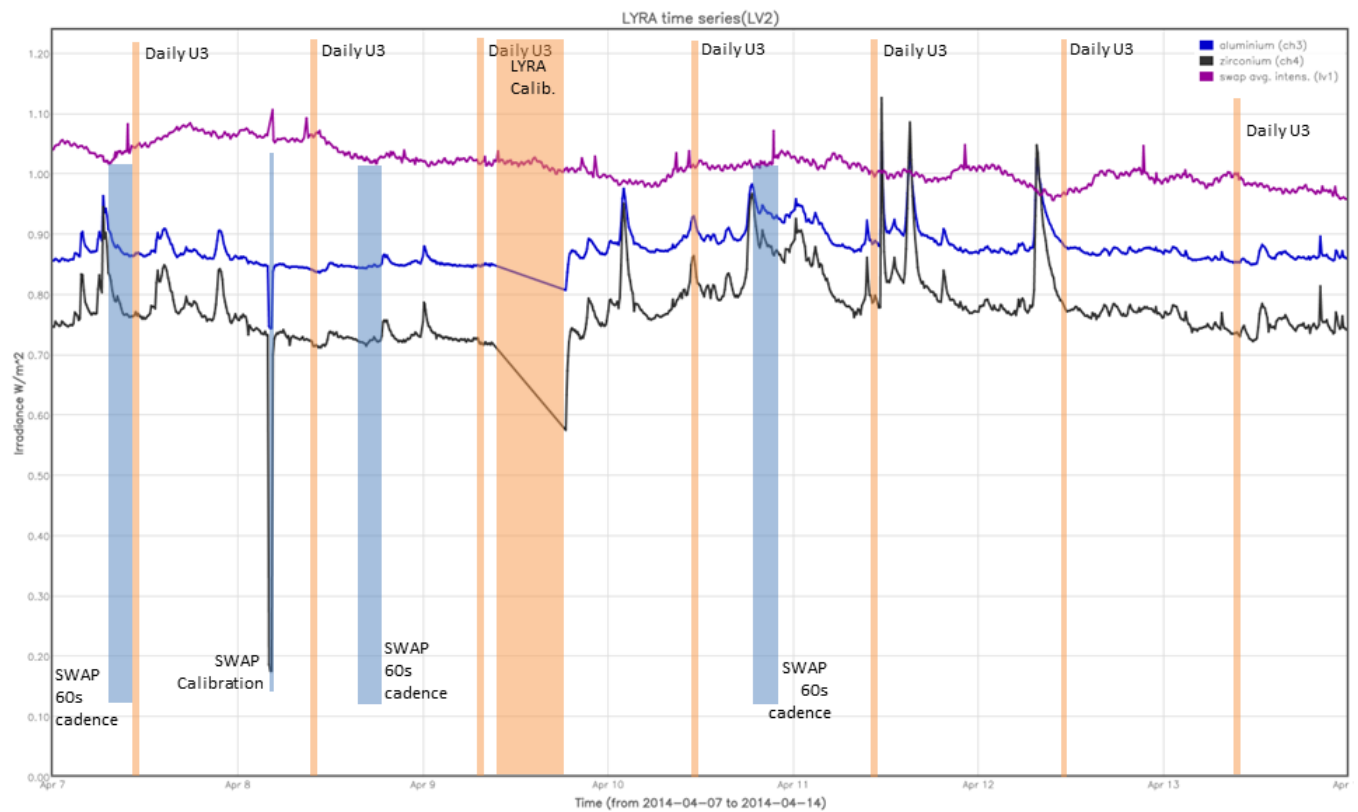


C5.3 Flare eruption, South East limb @ 14:56 - SWAP difference image

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 (7 consecutive days)
- Calibration campaign on Wednesday 09/04.

The (SWAP related) blue shaded periods correspond to, from left to right (see section 3):

- High cadence campaigns (60s) on 07/04, for 3.5 hrs.
- Calibration campaign on Tuesday 08/04.
- High cadence campaigns (60s) on 08/04, for 3.5 hrs.
- High cadence campaigns (60s) on 10/04, for 3.5 hrs.

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

- The GI team of Deborah Baker is finalising its activities this week. Their study is: “Investigating the nature and extent of large-scale AR loop expansion off-limb”. Several specific SWAP campaigns were performed this week in support of their study.
- Chloe Guennou arrived for her GI stay (1 week) on Thursday 10th of April. Her study, based on SWAP image analysis, is: “Performing tomographic reconstruction, in order to study the geometrical properties of coronal streamers.”

Other Visitors

- None

2. LYRA instrument status

Calibration

Calibration done on Wednesday this week.

IOS & operations

Monday 07 Apr	Tuesday 08 Apr	Wednesday 09 Apr	Thursday 10 Apr	Friday 11 Apr	Saturday 12 Apr	Sunday 13 Apr
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
LYIOS00391	LYIOS00391	LYIOS00391	LYIOS00391	LYIOS00391	LYIOS00391	LYIOS00391

The following science campaigns were performed by LYRA:

- daily U3 observation campaign

LYRA detector temperature

LYRA detector 2 temperature globally decreased from 47.8 °C to 48.7 °C, taking into account the daily U3 activation temperature peaks. Temperature decreased to 46.4 °C during LYRA calibration.

3. SWAP instrument status

Calibration

Calibration done on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 17649 to 17835.

The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 07 Apr	Tuesday 08 Apr	Wednesday 09 Apr	Thursday 10 Apr	Friday 11 Apr	Saturday 12 Apr	Sunday 13 Apr
Nominal acquisition + high cadence campaign (60s)	Nominal acquisition + calibration + high cadence campaign (60s)	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00514 592 images	IOS00515->516 705 images	IOS00516 631 images	IOS00516->517 674 images	IOS00517 625 images	IOS00517 528 images	IOS00517 664 images

Special SWAP operations for the GI team Deborah Baker, in parallel with EIS (Extreme-ultraviolet Imaging Spectrometer) campaigns (Hinode):

- High cadence campaigns (60s) on 07/04, from 06:30 until 10:00 hrs.
- High cadence campaigns (60s) on 08/04, from 14:30 until 18:00 hrs.
- High cadence campaigns (60s) on 10/04, from 18:30 until 22:00 hrs.

SWAP detector temperature

The SWAP Cold Finger Temperature varied between -0.93 °C and -0.24 °C.

4. PROBA2 Science Center Status

The main operator is Erik Pylyser

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 13835 to 13893) 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 07 0UT and 2014 Apr 14 0UT: 4419

Highest cadence in this period: 0 seconds

Average cadence in this period: 136.86 seconds

Number of image gaps larger than 300 seconds: 2

Largest data gap: 6.50 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)