


P2SC-ROB-WR-195 - 20131216 Weekly report #195	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Dec 16 to Sun Dec 22, 2013 25 Dec 2013 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

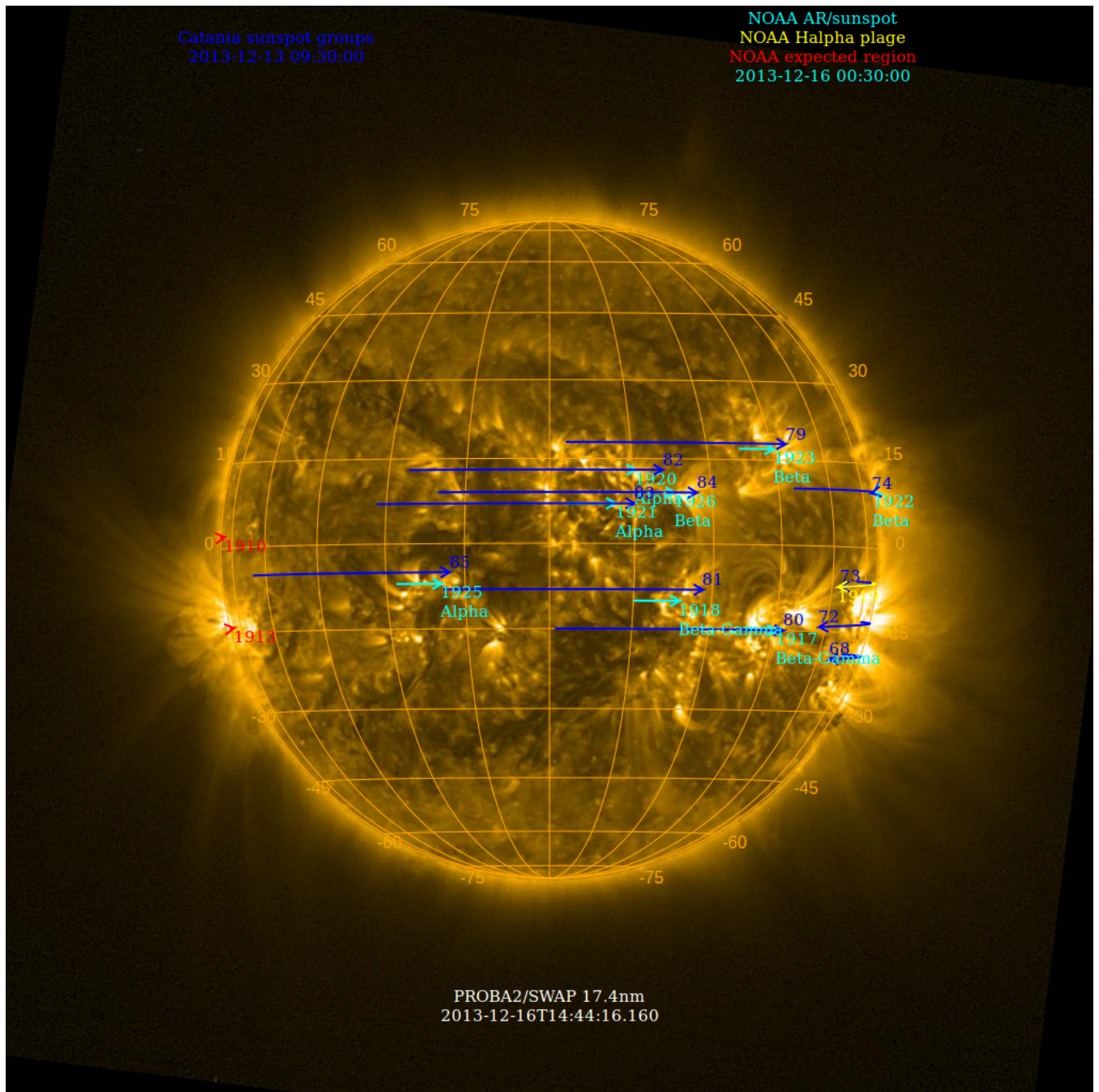
The level of solar activity¹ fluctuated between **low** and **moderate** this week.

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

	Monday 16 Dec	Tuesday 17 Dec	Wednesday 18 Dec	Thursday 19 Dec	Friday 20 Dec	Saturday 21 Dec	Sunday 22 Dec
Activity	low	low	low	moderate	moderate	low	moderate
Flares	-	-	-	M3.5@23:19	M1.6@11:57	-	M1.6@22:08 M3.3@15:12 M1.6@14.38 M1.1@08:37 M1.9@08:11

¹ See appendix. All timings are given in UT.

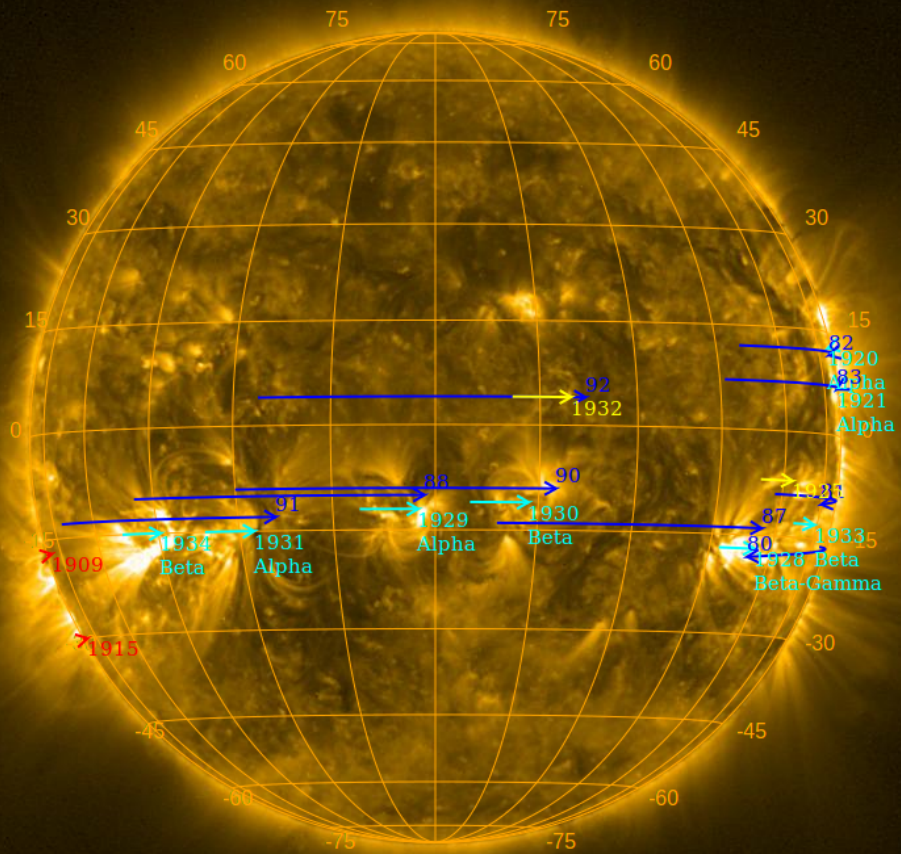
The SWAP images of Dec 16 and Dec 22 are shown below, with annotated active regions.



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

Catania sunspot groups
2013-12-19 08:30:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2013-12-22 00:30:00



PROBA2/SWAP 17.4nm
2013-12-22T14:33:52.034

Solar Activity

Solar flare activity fluctuated between low and moderate 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 SWAP overview movie can be found [here](#) (SWAP week 195).

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

Monday Dec 16



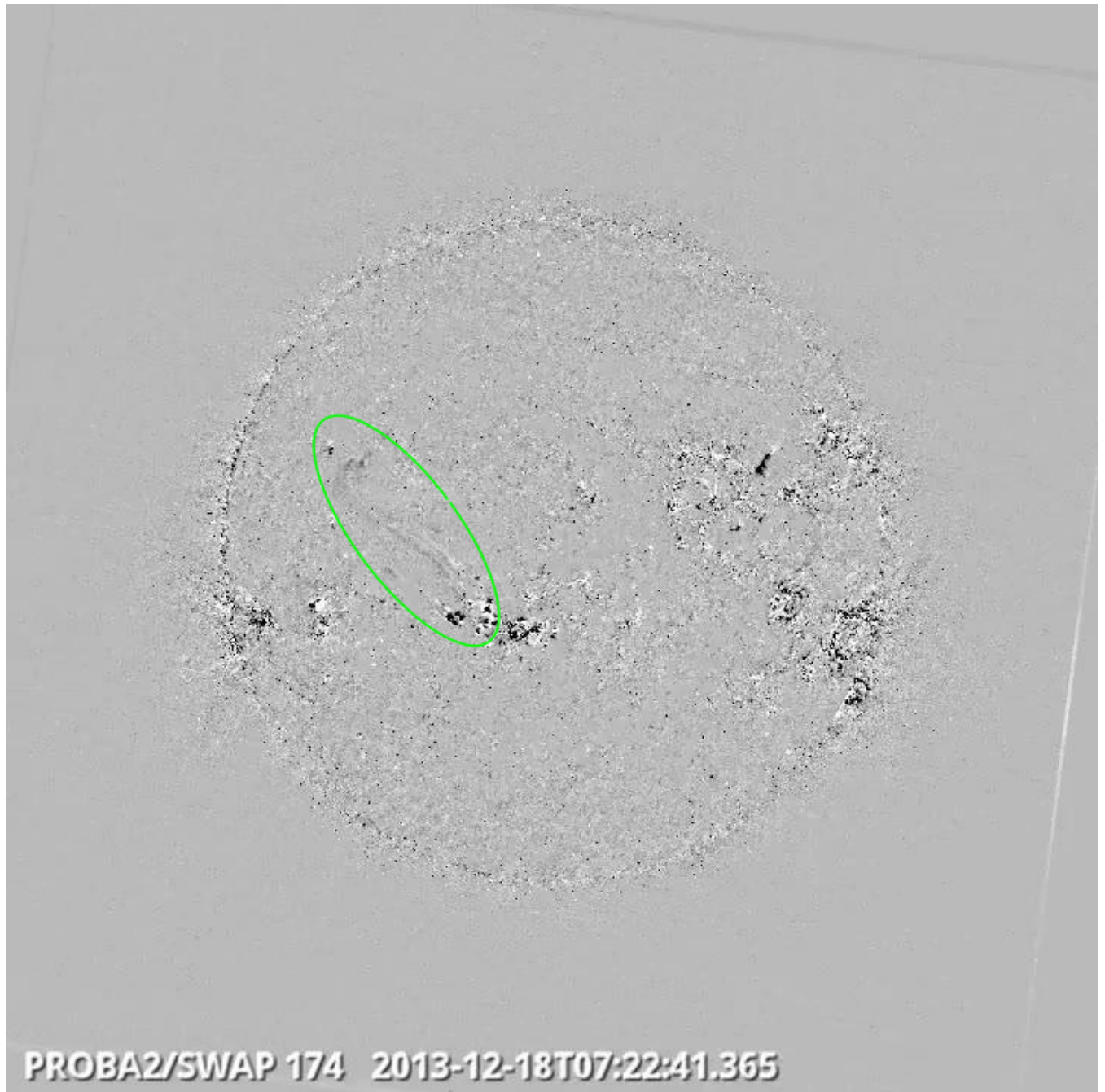
PROBA2/SWAP 174 2013-12-16T20:57:50.478

Eruption on the West Limb @ 20:57 - SWAP difference image

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

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

Wednesday Dec 18



Eruption in the Center @ 07:22 - SWAP difference image
Find a movie of the event [here](#) (SWAP difference movie)

Thursday Dec 19:

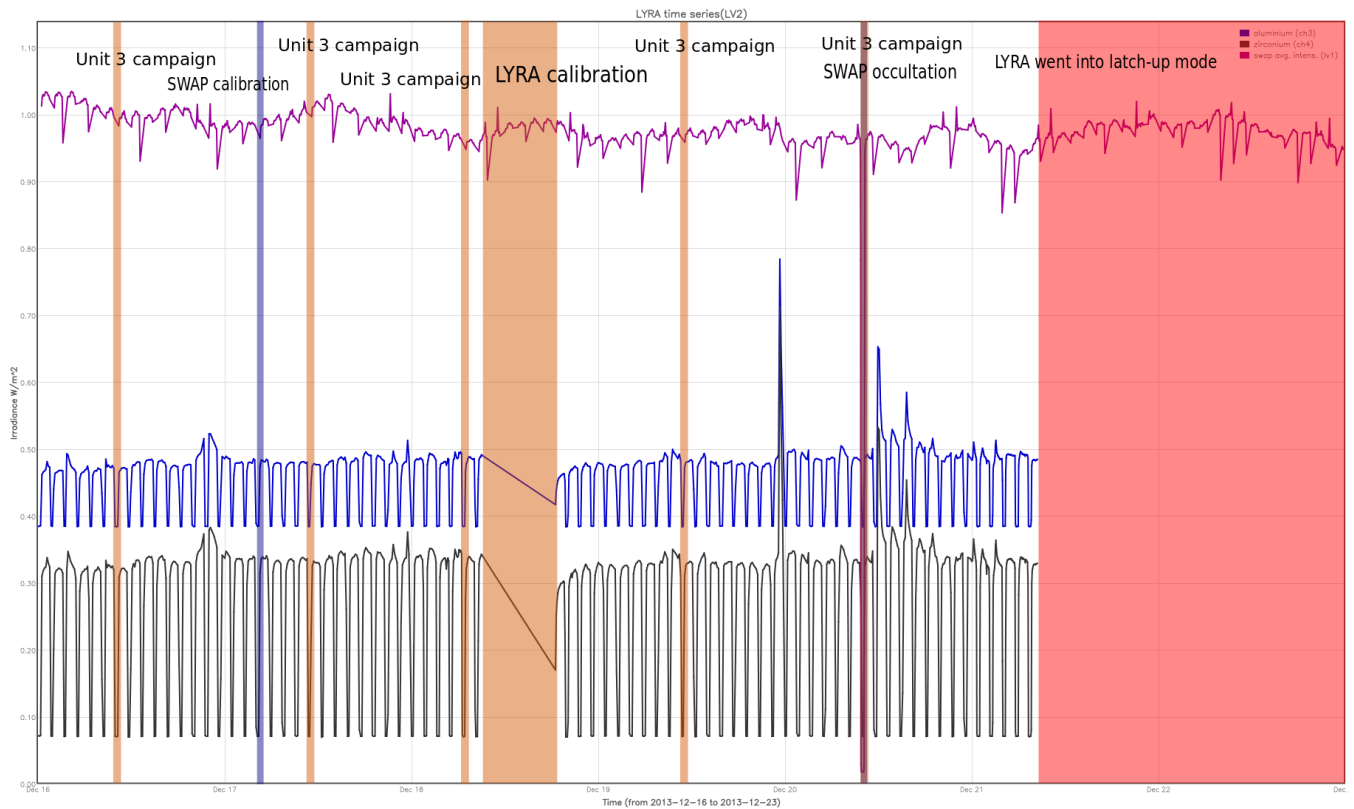


Eruption on the East Limb @ 23:21 - SWAP difference image
Find a movie of the event [here](#) (SWAP difference movie)

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 correspond to, from left to right:

- bi-weekly SWAP calibration
- SWAP occultation campaign in parallel with LYRA

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

- LYRA Unit 3 campaign, three times
- bi-weekly LYRA calibration
- LYRA Unit 3 campaign, two times

The red shaded period corresponds to:

- LYRA going into latch-up mode.

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>).

- The “PRHo-Ho-HoBA2 Holiday Countdown” calendar on the proba2 website.
- A. Kobelski gave a presentation on his work done at ROB.

Guest Investigator Program

- A. Kobelski currently visiting on the GI program studying AR-AR Reconnection after Flux Emergence.

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 16 Dec	Tuesday 17 Dec	Wednesday 18 Dec	Thursday 19 Dec	Friday 20 Dec	Saturday 21 Dec	Sunday 22 Dec
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition	instrument switched to recovery latchup mode
LYIOS00356	LYIOS00357	LYIOS00357	LYIOS00357	LYIOS00357	LYIOS00358	LYIOS00359

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- bi-weekly calibration

LYRA detector temperature

LYRA detector 2 temperature globally varied between 36.4 and 41.6 °C, taking into account the daily U3 activation periods and LYRA going into latch-up mode.

To be explored

- None

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 14630 to 14818.

The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 16 Dec	Tuesday 17 Dec	Wednesday 18 Dec	Thursday 19 Dec	Friday 20 Dec	Saturday 21 Dec	Sunday 22 Dec
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition + occultation campaign	Nominal acquisition	Nominal acquisition
IOS00491 549 images	IOS00492 597 images	IOS00492 551 images	IOS00492 556 images	IOS00492 605 images	IOS00492 553 images	IOS00492 555 images

Special operations for SWAP, this week:

- bi-weekly calibration
- parallel occultation campaign with LYRA

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -5 and -2.9 °C.

To be explored

- None

4. PROBA2 Science Center Status

The main operator is Koen Stegen.

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 12869 to 12927) 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 2013 Dec 16 0UT and 2013 Dec 23 0UT: 3967

Highest cadence in this period: 0 seconds

Average cadence in this period: 152.10 seconds

Number of image gaps larger than 300 seconds: 100

Largest data gap: 31.07 minutes

Data coverage LYRA

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

- 12915, 12916, 12917, 12918, 12919, 12920, 12921, 12922, 12923, 12924, 12925, 12926, 12927

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)