


P2SC-ROB-WR-363 - 20170306 Weekly report #363	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Mar 06 to Sun Mar 12, 2017 13 Mar 2017 Jennifer O'Hara Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
To:	LYRA PI, marie.dominique@sidc.be SWAP PI, david.berghmans@sidc.be	http://proba2.sidc.be ++ 32 (0) 2 3730559
cc:	ROB DIR, ronald@oma.be ESA Redu, Etienne.Tilmans@esa.int ESA D/SRE, Joe.Zender@esa.int ESA D/TEC, Juha-Pekka.Luntama@esa.int	

1. Science

Solar & Space weather events

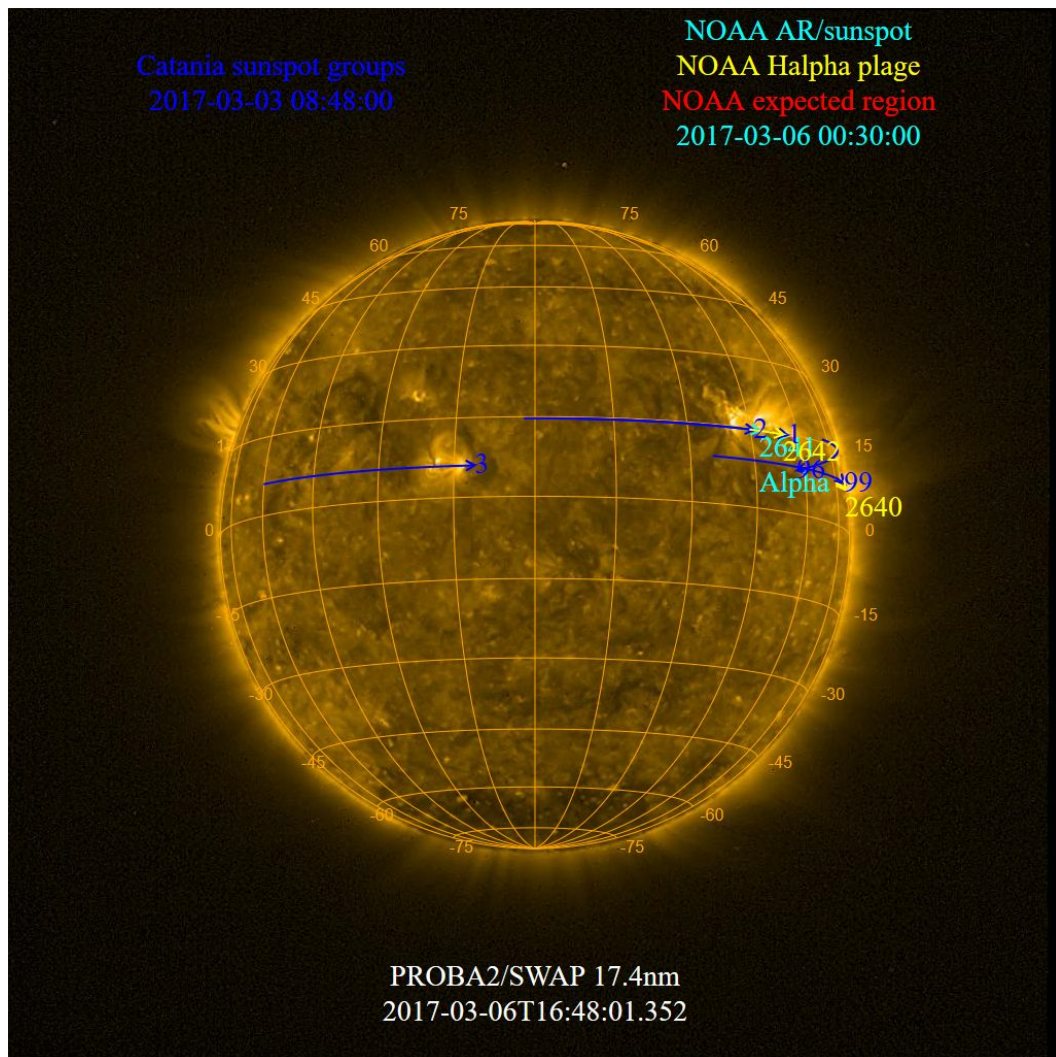
The level of solar activity¹ remained **very low** this week.

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

	Monday 06 Mar	Tuesday 07 Mar	Wednesday 08 Mar	Thursday 09 Mar	Friday 10 Mar	Saturday 11 Mar	Sunday 12 Mar
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.

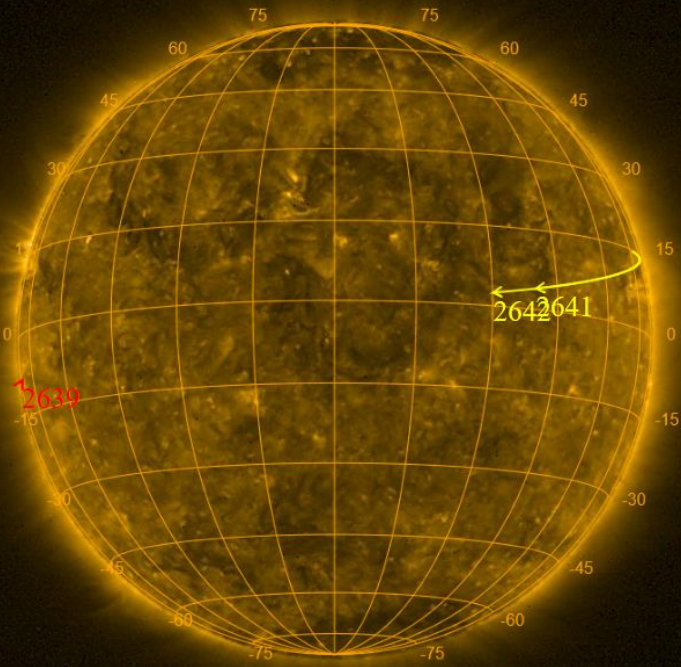
The SWAP images of Mar 06 and Mar 12 are shown below, with annotated active regions.



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

Catania sunspot groups
No observation

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
No observation



PROBA2/SWAP 17.4nm
2017-03-13T07:06:09.385

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>

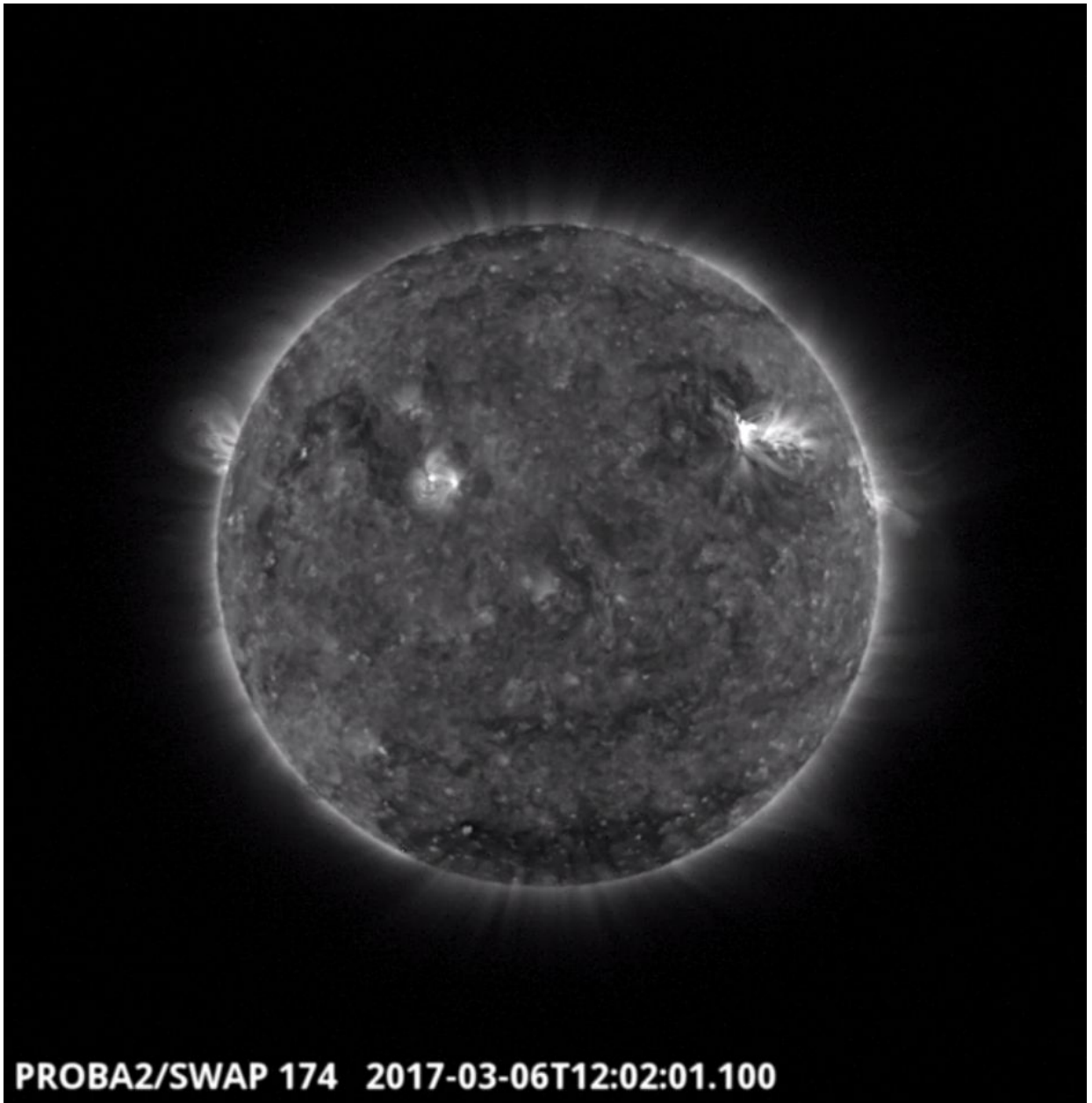
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 363).

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](#)

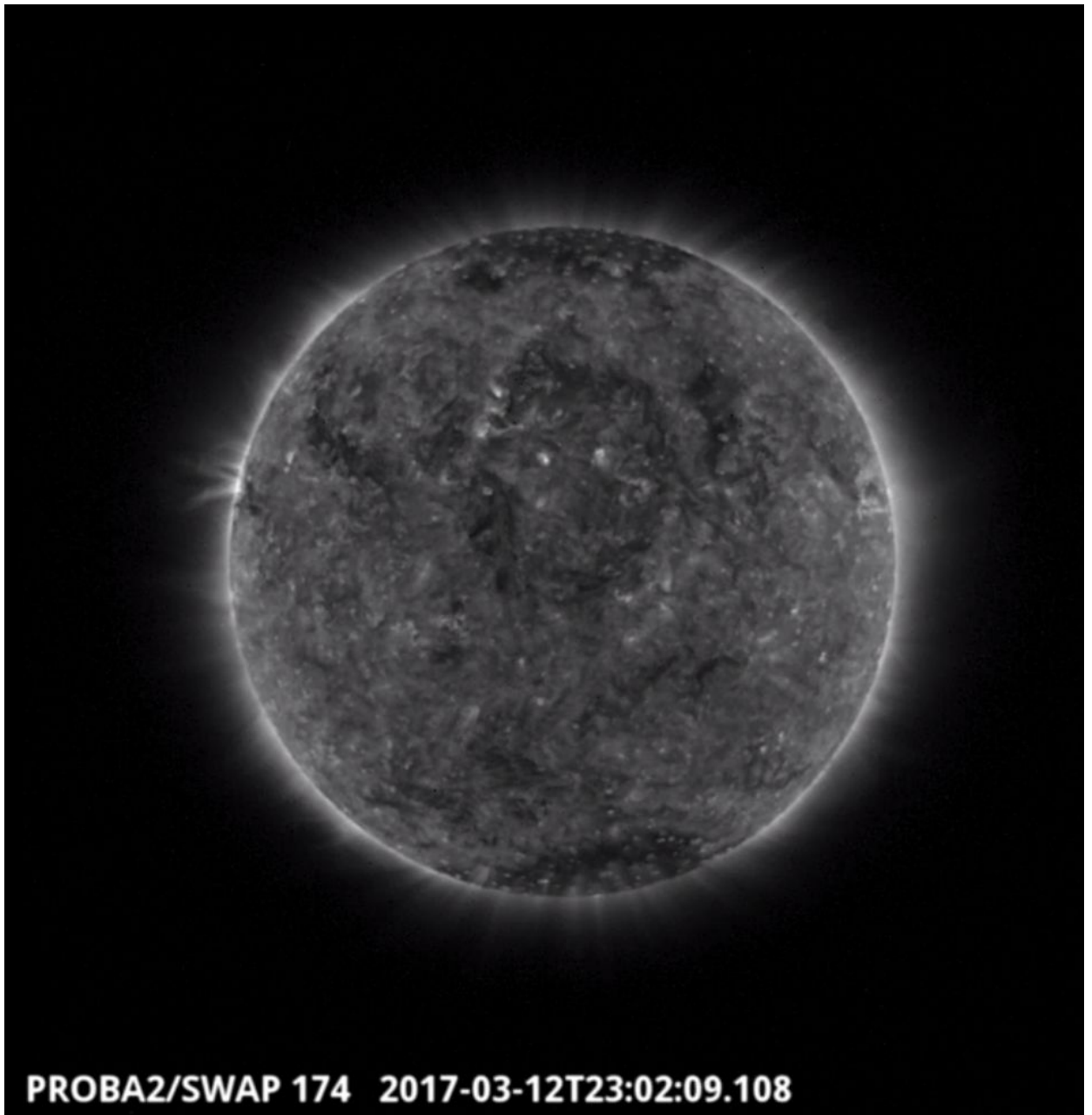
Monday Mar 06



A flare (B1.5 class) produced by AR 2641 was observed by SWAP on 2017-Mar-06 shown here in the western hemisphere of the Sun at 12:02 UT.

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

Sunday Mar 12

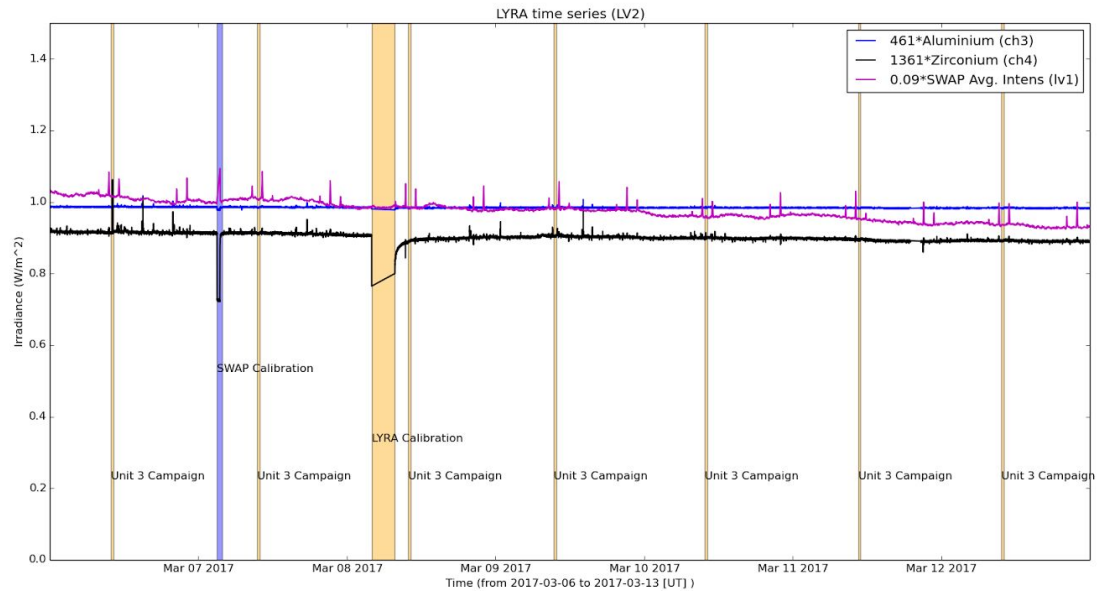


The solar activity remained very low over the week and for periods there were no sunspots visible on the solar disk. An example of the quiet Sun is shown here on 2017-03-12.

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:

- SWAP bi-weekly calibration, 2017-Mar-07

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

- Daily unit 3 campaign, 2017-Mar-06
- Daily unit 3 campaign, 2017-Mar-07
- LYRA bi-weekly Calibration, 2017-Mar-08
- Daily unit 3 campaign, 2017-Mar-08
- Daily unit 3 campaign, 2017-Mar-09
- Daily unit 3 campaign, 2017-Mar-10
- Daily unit 3 campaign, 2017-Mar-11
- Daily unit 3 campaign, 2017-Mar-12

The red shaded period 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>).

PROBA2 was referenced multiple times during the L5 in Tandem with L1: Future Space-Weather Missions Workshop. Many of these references referred to SWAPs large Field of view, and it's uses for forecasting at L5, also to the compact nature of the SWAP instrument and how it would not be too big a burden on such a mission.

Guest Investigator Program

- Guest Investigator Vladamir Slemzin returned to the P2SC to continue his studies of properties of the inner corona and search of solar wind flows by illumination from backside solar flares.

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 06 Mar	Tuesday 07 Mar	Wednesday 08 Mar	Thursday 09 Mar	Friday 10 Mar	Saturday 11 Mar	Sunday 12 Mar
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
LYIOS00603	LYIOS00603	LYIOS00603	LYIOS00603	LYIOS00604	LYIOS00604	LYIOS00604

The following science campaigns were performed by LYRA:

- Daily U3 observations campaign

On 2017-Mar-08

- LYRA bi-weekly calibration

LYRA detector temperature

LYRA detector 2 temperature globally varied between 49.27 and 51.67 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 7360 to 7619.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 06 Mar	Tuesday 07 Mar	Wednesday 08 Mar	Thursday 09 Mar	Friday 10 Mar	Saturday 11 Mar	Sunday 12 Mar
Nominal acquisition	Nominal acquisition + Calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00692 593 images	IOS00692 637 images	IOS00692 694 images	IOS00692 682 images	IOS00692 709 images	IOS00692 697 images	IOS00692 656 images

Special operations for SWAP, this week:

On 2017-Mar-07

- SWAP bi-weekly calibration, 2017-Mar-07

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 0.55 and 1.83 °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 23383 to 23446) 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 Mar 06 00:00 UT and 2017 Mar 13 00:00 UT: 4795

Highest cadence in this period: 30 seconds

Average cadence in this period: 126.12 seconds

Number of image gaps larger than 300 seconds: 125

Largest data gap: 9.17 minutes

Data coverage LYRA

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

- None

However, a data gap on 2017-03-11 occurred due to BINLYRA packet 23436 being corrupted due to weak signal.

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)