


P2SC-ROB-WR-277 - 20150713 Weekly report #277	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Jul 13 to Sun Jul 19, 2015 23 Jul 2015 Koen Stegen D. B. Seaton	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

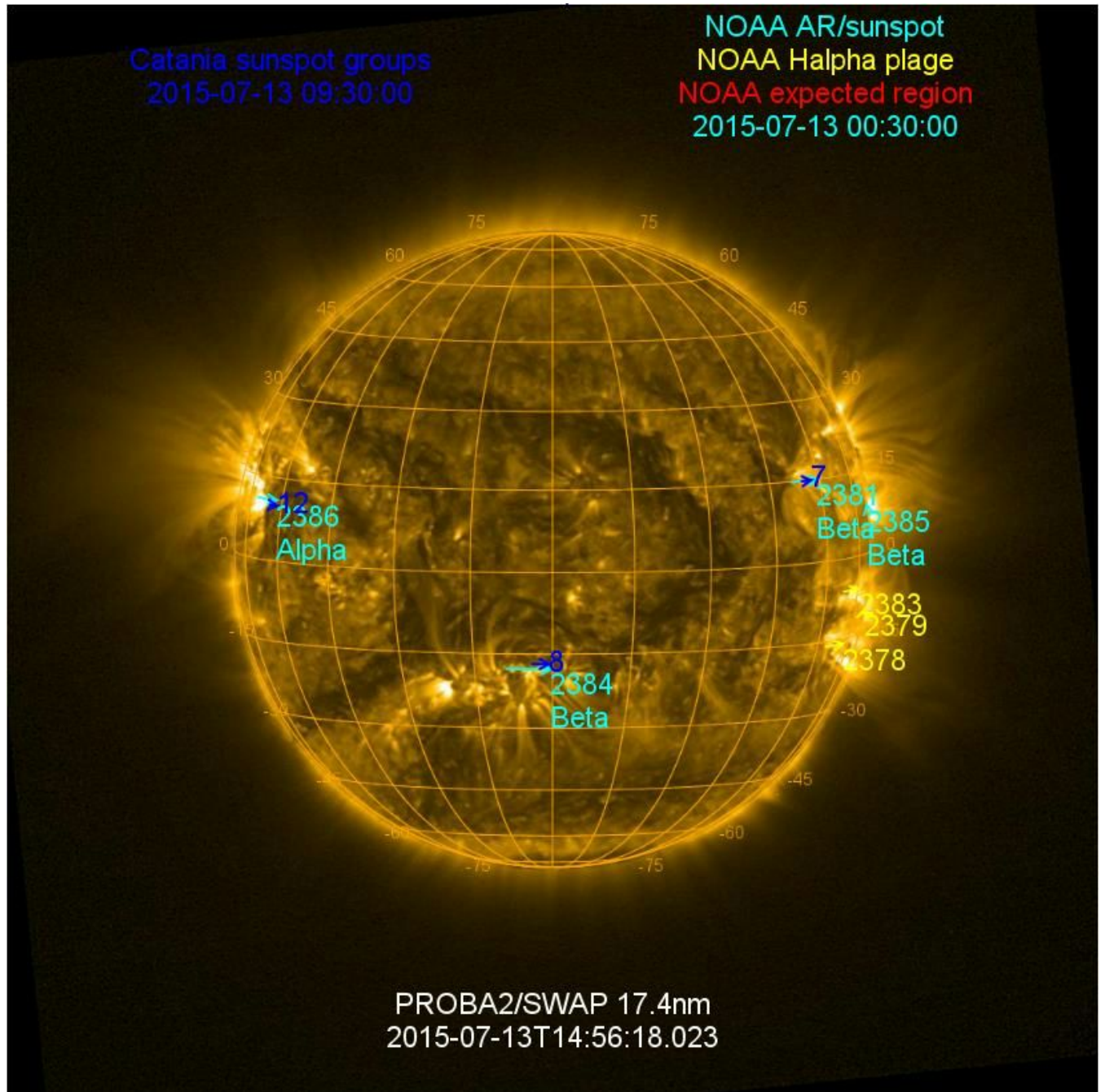
The level of solar activity¹ fluctuated between **very low** and **low** this week.

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

	Monday 13 Jul	Tuesday 14 Jul	Wednesday 15 Jul	Thursday 16 Jul	Friday 17 Jul	Saturday 18 Jul	Sunday 19 Jul
Activity	very low	low	very low	very low	very low	low	low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

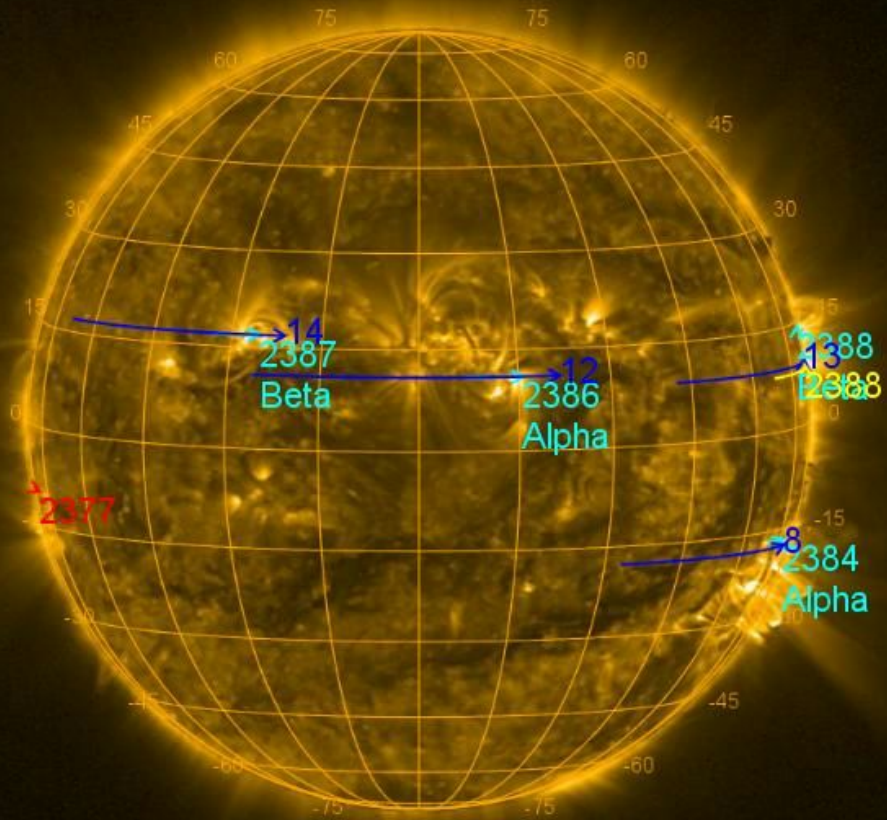
The SWAP images of Jul 06 and Jul 12 are shown below, with annotated active regions.



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

Catania sunspot groups
2015-07-16 08:30:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2015-07-19 00:30:00



PROBA2/SWAP 17.4nm
2015-07-19T14:58:07.686

Solar Activity

Solar flare activity fluctuated between very low and low during the week.

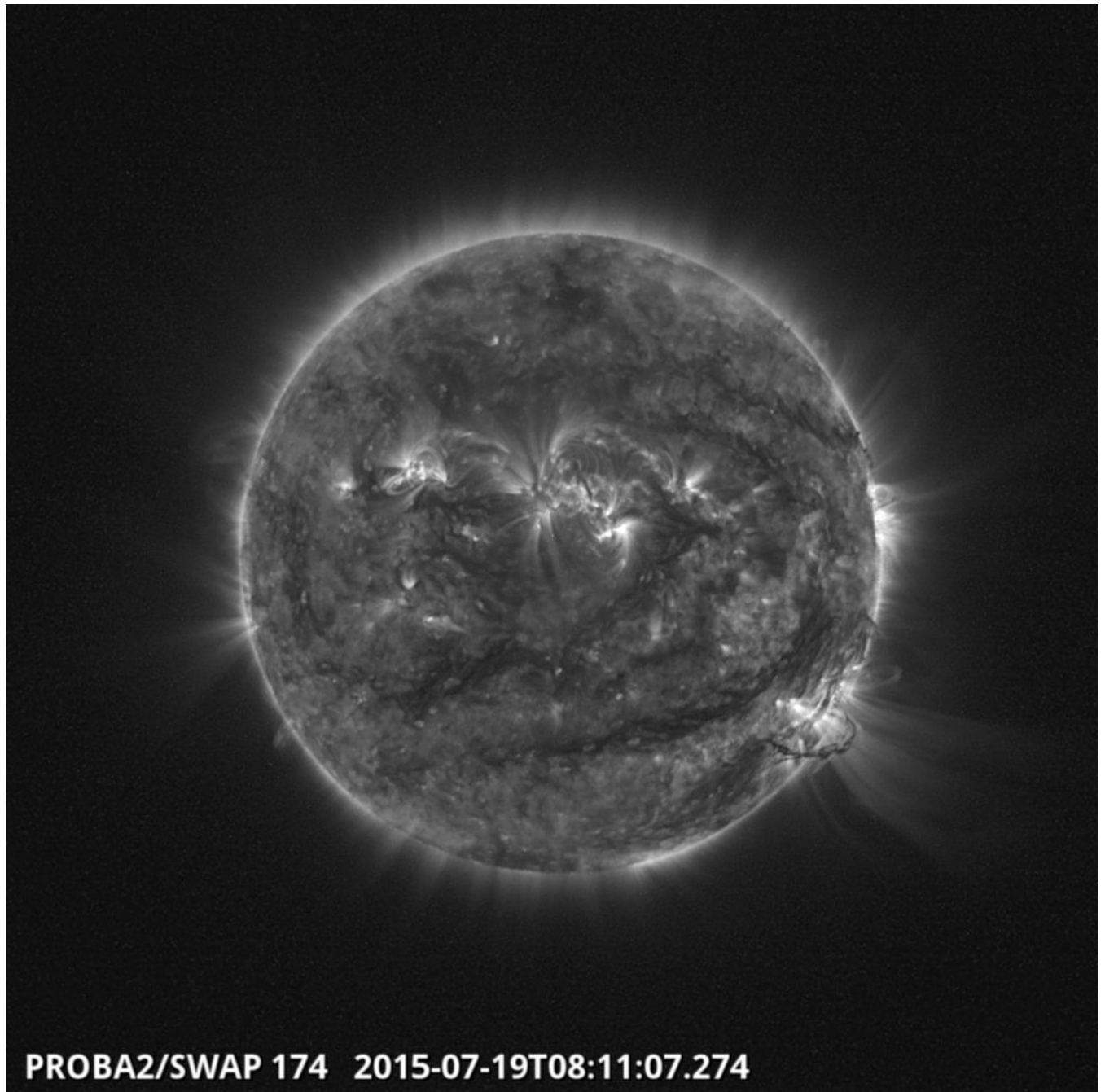
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: <http://proba2.oma.be/ssa>

This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 277).

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

Sunday Jul 19



Large-scale filament eruption (southwest quadrant) at about 07:00 UT- SWAP image

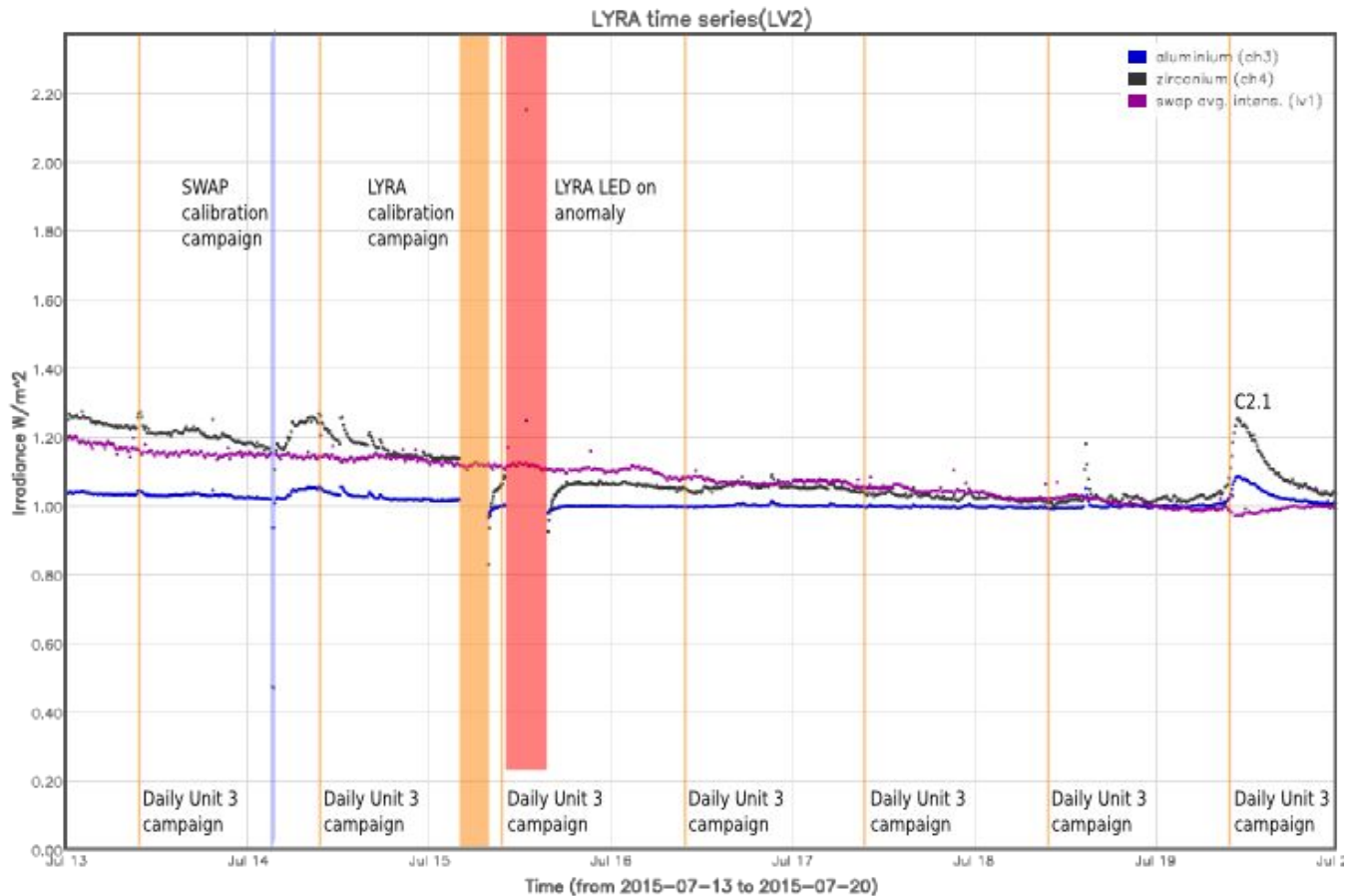
Find a movie of the event [here](#) (SWAP movie)

This eruption was apparently linked to an earlier eruption from the northwest, which began early in the day, shortly after 00 UT. The northern eruption activated a filament channel that extended as far south as the erupting filament seen in the image above. The eruption of the southern filament was a multi-step process and is not well understood at the moment. An analysis of this event is ongoing.

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 campaign, 2015-07-14

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

- Daily unit 3 campaign, 2015-07-13
- Daily unit 3 campaign, 2015-07-14
- LYRA bi-weekly calibration campaign, 2015-07-15
- Daily unit 3 campaign, 2015-07-16
- Daily unit 3 campaign, 2015-07-17
- Daily unit 3 campaign, 2015-07-18
- Daily unit 3 campaign, 2015-07-19

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

- LYRA LED on anomaly, 2015-07-15 from 10:02 till 15:35

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.

L. Rachmeler presented a poster, 'Southern Polar field reversal as revealed by a Pseudostreamer', at the SHINE workshop in Vermont, USA. The poster described research on a large coronal feature seen in SWAP.

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 13 Jul	Tuesday 14 Jul	Wednesday 15 Jul	Thursday 16 Jul	Friday 17 Jul	Saturday 18 Jul	Sunday 19 Jul
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + calibration campaign + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00483	LYIOS00483	LYIOS00483	LYIOS00483	LYIOS00484	LYIOS00484	LYIOS00484

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 45.8 and 48.6 °C.

Anomalous change of state

LYRA experienced an unexpected change of state at 2015-Jul-15 10:02 UT, switching to a cadence of 5000 ms and switching visible LEDs on. This anomaly appears to be related to an IOS command executed at 10:02. LEDs spontaneously switched off at 15:35 and LYRA was returned to nominal mode by a second command executed the following day.

3. SWAP instrument status

Calibration

Calibration campaign on Wednesday this week.

MCPM errors

The number of MCPM recoverable errors remained at 126.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 13 Jul	Tuesday 14 Jul	Wednesday 15 Jul	Thursday 16 Jul	Friday 17 Jul	Saturday 18 Jul	Sunday 19 Jul
Nominal acquisition	Nominal acquisition + calibration campaign	Nominal acquisition	Nominal acquisition + mosaic campaign	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00588 604 images	IOS00588 688 images	IOS00588 678 images	IOS00588 685 images	IOS00589 609 images	IOS00589 579 images	IOS00589 576 images

Special operations for SWAP, this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.45 and -0.33 °C.

4. PROBA2 Science Center Status

The main operator is Robbe Vansintjan.

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 17909 to 17969) 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 2015 Jul 13 0UT and 2015 Jul 20 0UT: 4419

Highest cadence in this period: 30 seconds

Average cadence in this period: 136.88 seconds

Number of image gaps larger than 300 seconds: 179

Largest data gap: 11.00 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
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)