P2SC-ROB-WR-289 - 20151005 Weekly report #289	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Oct 05 to Sun Oct 11, 2015 14 Oct 2015 Katrien Bonte Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

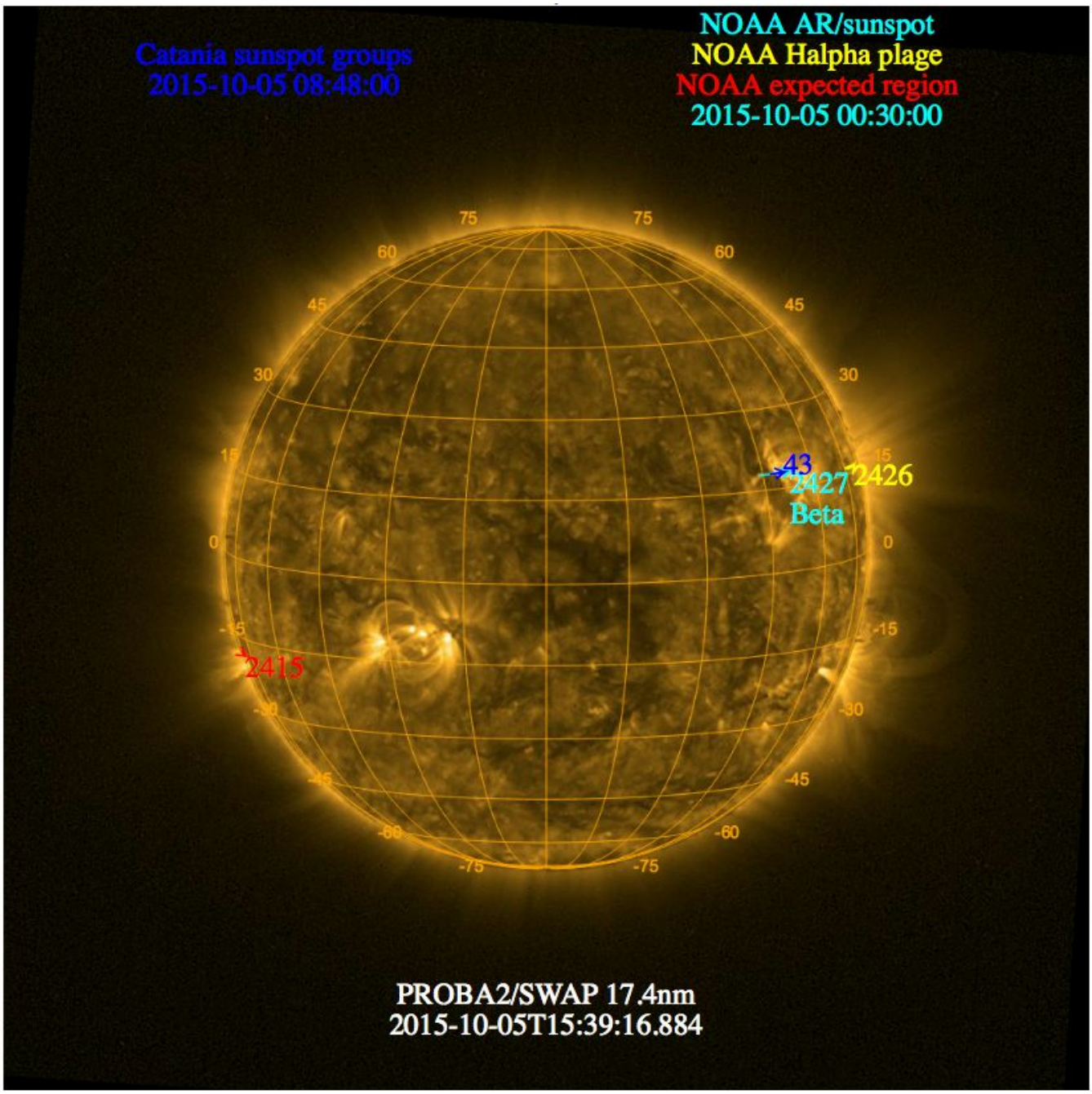
The level of solar activity[1] fluctuated between low and quiet this week.

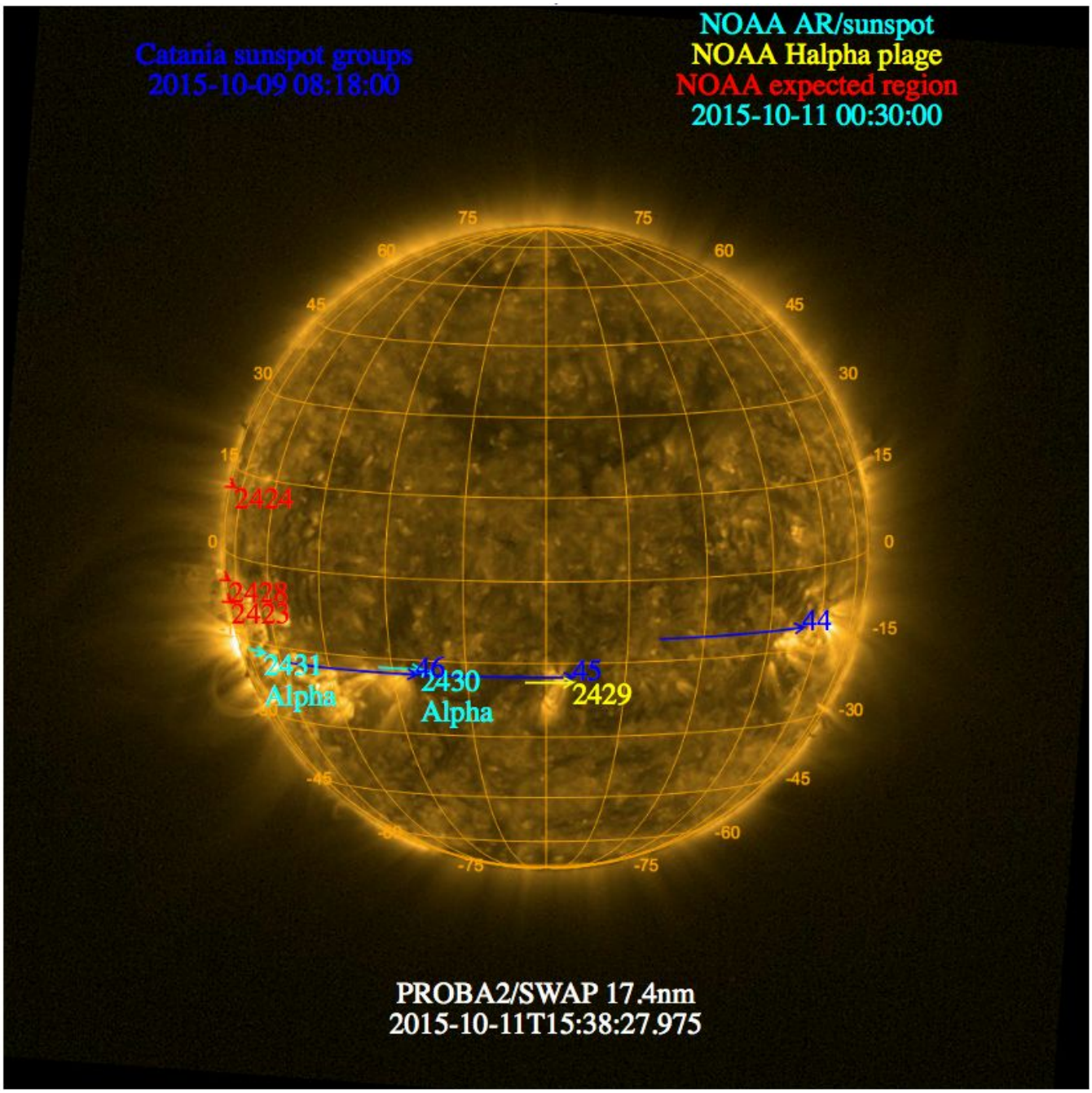
Only M- and X-flares are mentioned, the most energetic one(s) per day are presented in **bold**:

	Monday 05 Oct	Tuesday 06 Oct	Wednesday 07 Oct	Thursday 08 Oct	Friday 09 Oct	Saturday 10 Oct	Sunday 11 Oct
Activity	quiet	very low	very low	very low	very low	very low	low
Flares	-	-	-	-	-	-	-

[1] See appendix. All timings are given in UT.

The SWAP images of 2015-Oct-05 and 2015-Oct-11 are shown below, with annotated active regions.



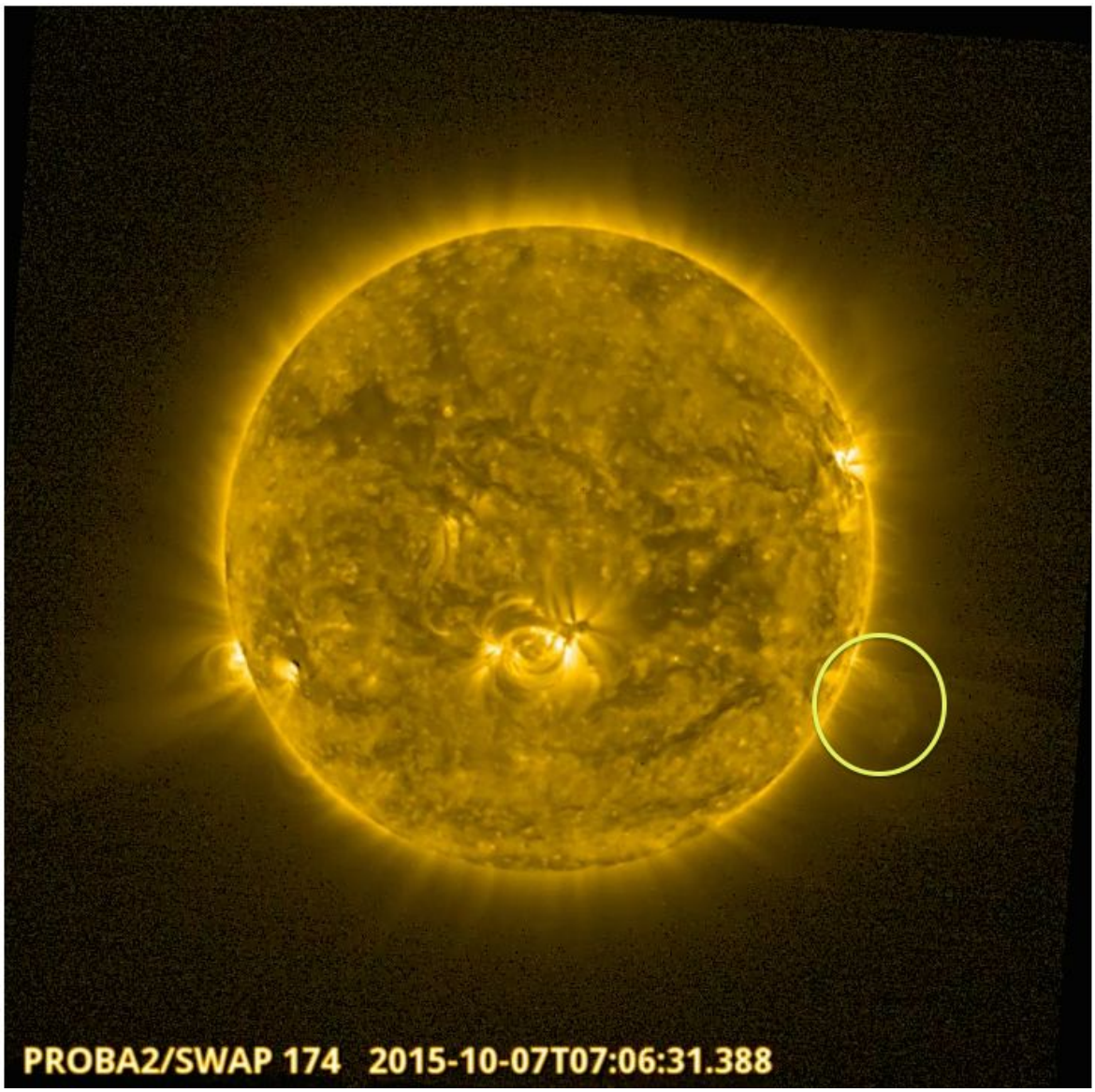

Catania sunspot groups
2015-10-09 08:18:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2015-10-11 00:30:00
75
60
45
30
15
0
-15
-30
-45
-60
-75
2424
2428
2423
2431
Alpha
46
2430
Alpha
45
2429
44
PROBA2/SWAP 17.4nm
2015-10-11T15:38:27.975

Solar Activity

Solar flare activity fluctuated between low and quiet 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 289).

Solar activity was low this week, only one C-class flare occurred (on 2015-Oct-11 around 22:27 UT, on the East limb). SWAP also observed an eruption on the West limb on 2015-Oct-07 around 07:06 UT, see the annotated SWAP image below.



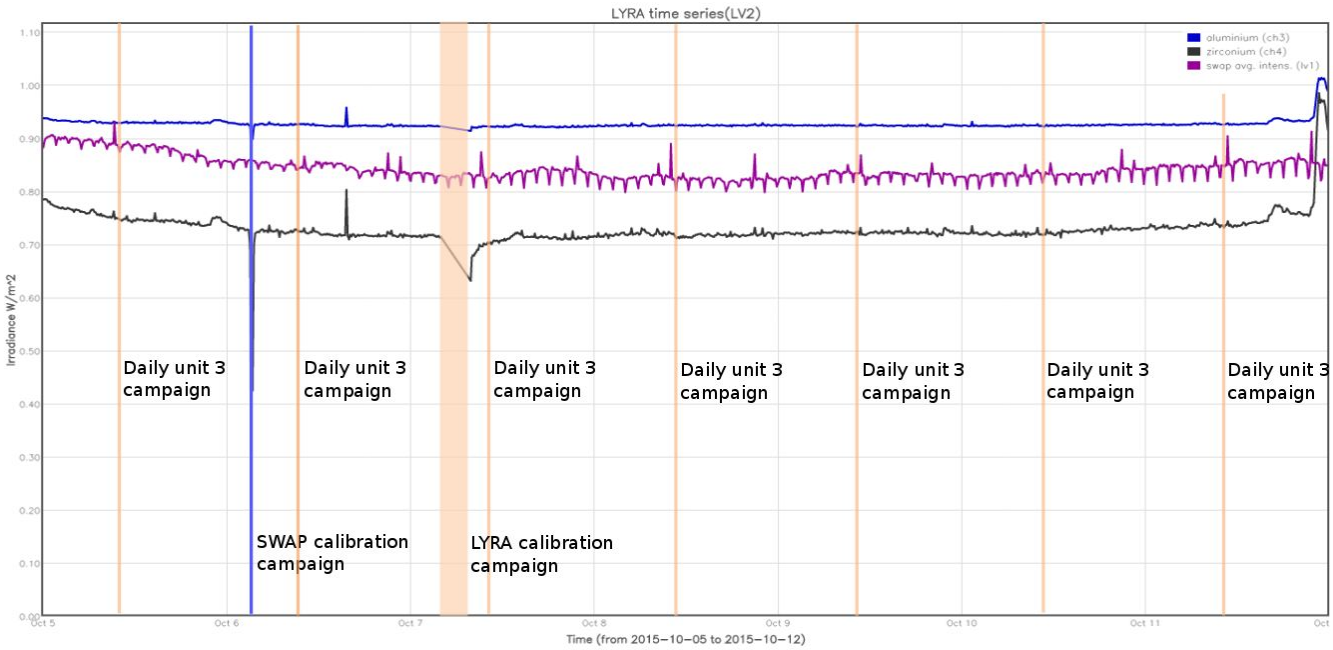
Eruption on the West limb around 07:06 UT - SWAP image

Find a movie of the event here (SWAP daily 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:

- SWAP bi-weekly calibration campaign on 2015-Oct-06

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

- LYRA daily U3 campaign on 2015-Oct-05
- LYRA daily U3 campaign on 2015-Oct-06
- LYRA short bi-weekly calibration on 2015-Oct-07
- LYRA daily U3 campaign on 2015-Oct-07
- LYRA daily U3 campaign on 2015-Oct-08
- LYRA daily U3 campaign on 2015-Oct-09
- LYRA daily U3 campaign on 2015-Oct-10
- LYRA daily U3 campaign on 2015-Oct-11

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

- None

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 05 Oct	Tuesday 06 Oct	Wednesday 07 Oct	Thursday 08 Oct	Friday 09 Oct	Saturday 10 Oct	Sunday 11 Oct
Nominal acquisition + daily U3 LYIOS00500	Nominal acquisition + daily U3 LYIOS00500	Nominal acquisition + daily U3 + calibration LYIOS00500	Nominal acquisition + daily U3 LYIOS00500	Nominal acquisition + daily U3 LYIOS00501	Nominal acquisition + daily U3 LYIOS00501	Nominal acquisition + daily U3 LYIOS00501

The following science campaigns were performed by LYRA:

- Daily U3 observation campaigns
- Short bi-weekly calibration on 2015-Oct-07

LYRA detector temperature

LYRA detector 2 temperature globally varied between 48.58 and 51.05 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 138 to 144.
The number of MCPM unrecoverable errors remained 0.

IOS & operations

Monday 05 Oct	Tuesday 06 Oct	Wednesday 07 Oct	Thursday 08 Oct	Friday 09 Oct	Saturday 10 Oct	Sunday 11 Oct
Nominal acquisition IOS00600 550 images	Nominal acquisition + calibration IOS00600 613 images	Nominal acquisition IOS00600 537 images	Nominal acquisition IOS00600 574 images	Nominal acquisition IOS00601 619 images	Nominal acquisition IOS00601 549 images	Nominal acquisition IOS00601 637 images

Special operations for SWAP, this week:

- Bi-weekly calibration on 2015-Oct-06

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 0.95 and 1.91 °C.

4. PROBA2 Science Center Status

The main operator is Katrien Bonte.

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 18641 to 18700) 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-Oct-05 00:00 UT and 2015-Oct-12 00:00 UT: 4120
Highest cadence in this period: 30 seconds
Average cadence in this period: 146.81 seconds
Number of image gaps larger than 300 seconds: 231
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)