


P2SC-ROB-WR-172- 20130708 Weekly report #172	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon July 08 to Sun July 14, 2013 17 July 2013 Erik Pylyser Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

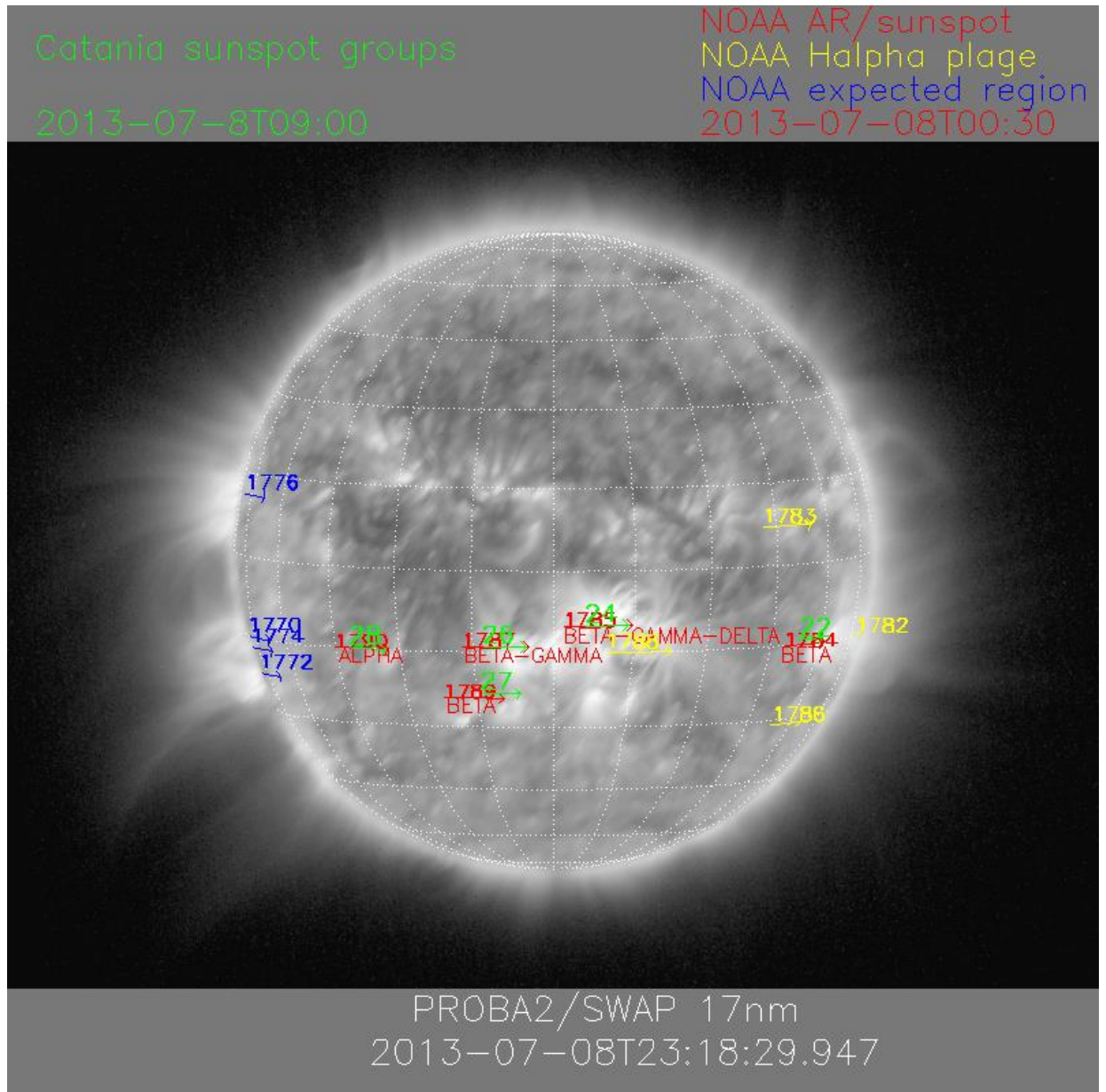
The level of solar activity¹ this week was **low** throughout the week.

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

	Monday 08 Jul	Tuesday 09 Jul	Wednesday 10 Jul	Thursday 11 Jul	Friday 12 Jul	Saturday 13 Jul	Sunday 14 Jul
Activity	low	low	low	low	low	low	low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

The SWAP images of July 08 and July 14 are shown below, with annotated active regions.

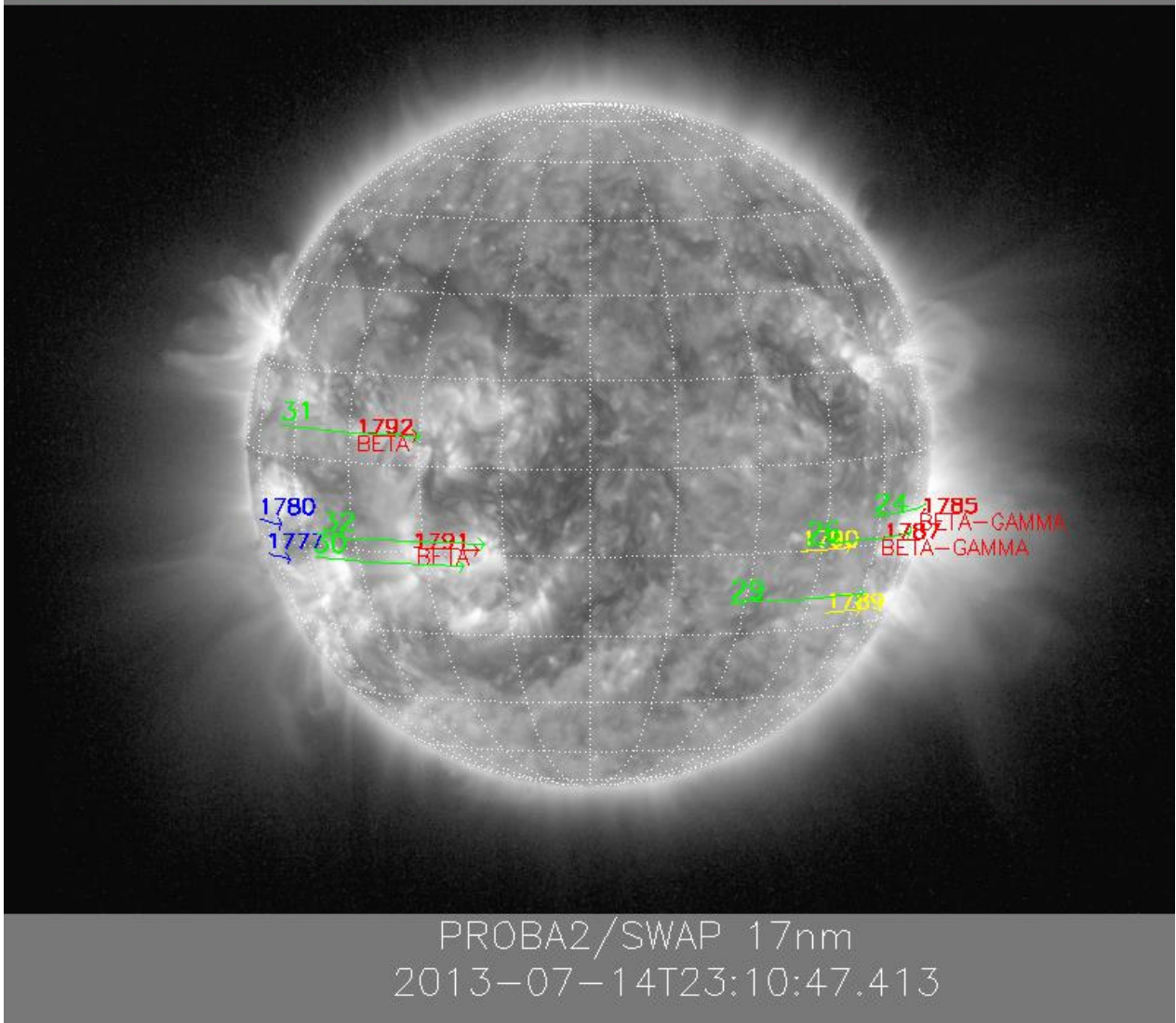


<http://sidc.be/html/CmapPage.html>

Catania sunspot groups

2013-07-12T08:36

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2013-07-14T00:30



Solar Activity

Solar (flaring) activity was low throughout the week. Several high-level C flares occurred, but the M-level was not achieved.

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.

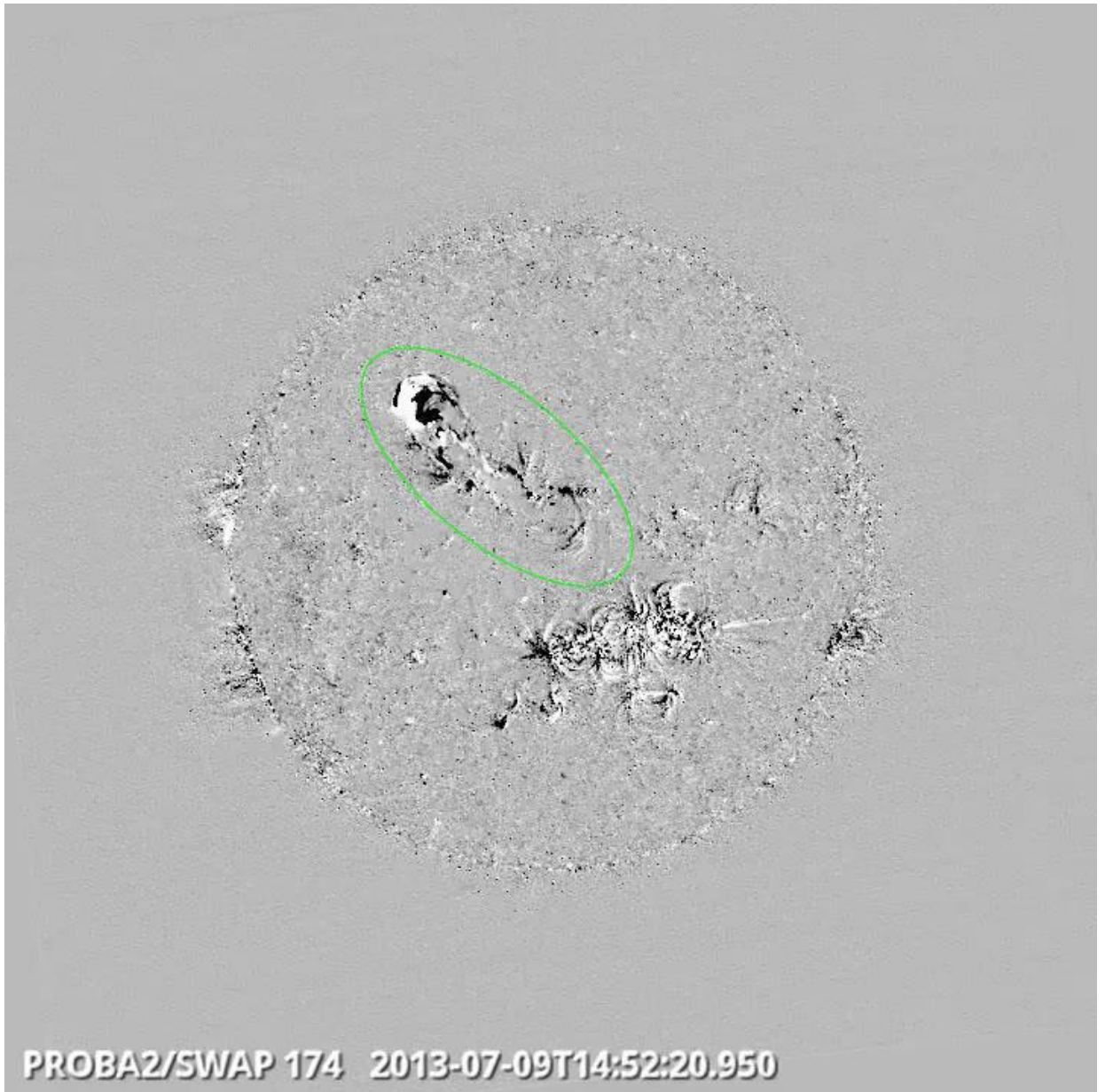
A weekly overview movie can be found [here](#) (SWAP174/AIA304 combination; HelioViewer.org).

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

Tuesday July 9th:



Eruption South East Quadrant @ 06:44 - SWAP difference image
Find a movie of the event [here](#) (SWAP difference movie)



Prominence eruption in North East Quadrant @ 14:52 - SWAP difference image

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

Friday July 12th:



Eruption on North East Limb @ 15:51 - SWAP difference image
Find a movie of the event [here](#) (SWAP difference movie)



C3.5 class flare on South West Limb - AR 11785 @ 17:33 - SWAP difference image
Find a movie of the event [here](#) (SWAP difference movie)

Saturday July 13th:

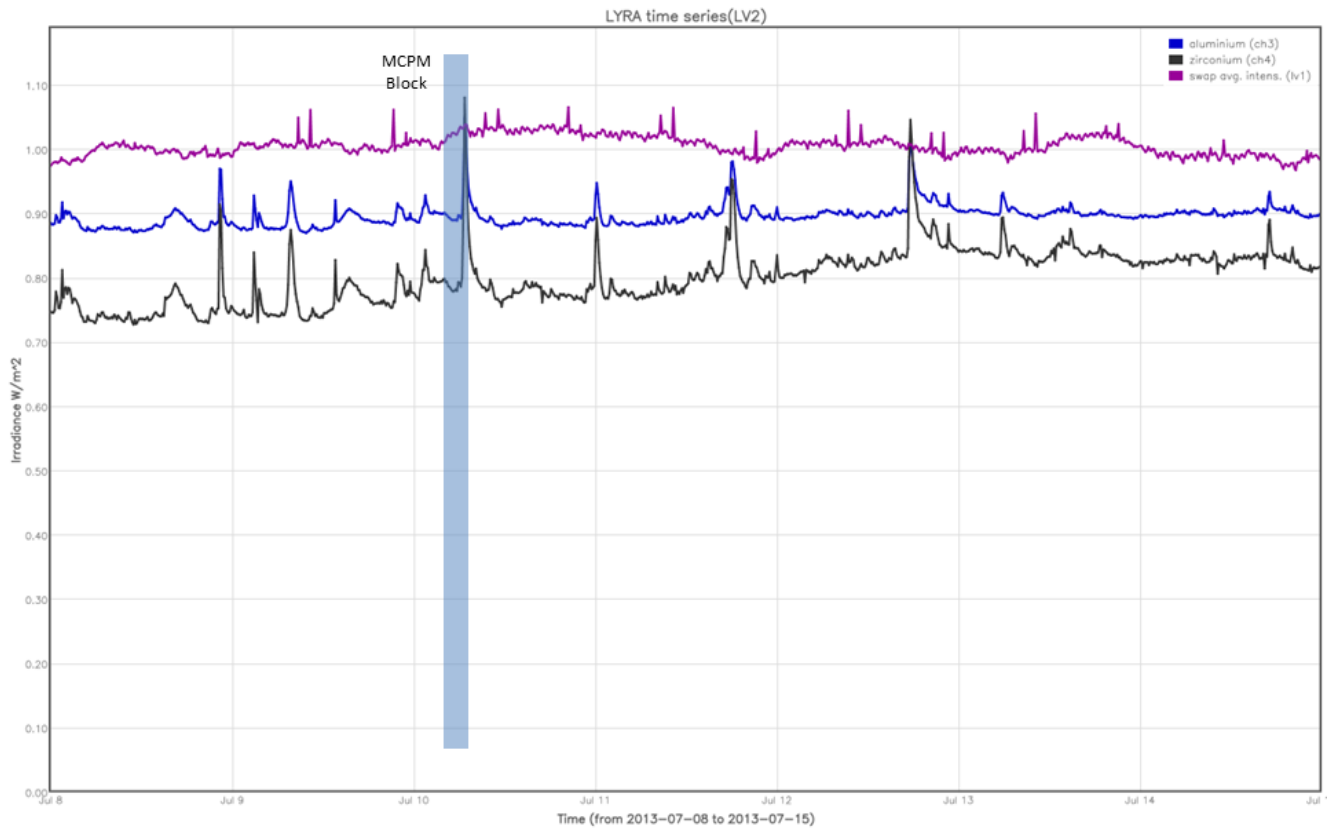


C1.4 class flare in South East Quadrant - AR 11791 @ 06:13 - SWAP difference image
Find a movie of the event [here](#) (SWAP difference movie)

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 (solar intensity derived from 'integrated' SWAP images)



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

- SWAP blockage on Wednesday 10th - from 04:51:41 to 08:15:53

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

- None

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>).

Poster: 'Observations and Modeling of Solar Coronal Structures Using High-Resolution Eclipse Images and Space-based Telescopes with Wide Field of View'; Muzhou Lu et al., 2013; July 08-12; Solar Physics Meeting; Montana, USA.

The authors won a prize with this poster.

Guest Investigator Program

- Nandita Srivastava (SWAP/LYRA) - Role of eruptive filaments/prominences in initiation and propagation of CMEs in heliosphere using SWAP & LYRA Observations: (from June 20 to July 23)

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 08 Jul	Tuesday 09 Jul	Wednesday 10 Jul	Thursday 11 Jul	Friday 12 Jul	Saturday 13 Jul	Sunday 14 Jul
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00335	LYIOS00335	LYIOS00335	LYIOS00335	LYIOS00335	LYIOS00335	LYIOS00335

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 46.18 and 47.27 degrees C, taking into account the daily U3 activation periods; the latter result in a temperature increase of about 0.6 degrees C.

To be explored

- None

3. SWAP instrument status

Calibration

No calibration this week.

MCPM errors

The number of MCPM recoverable errors increased from 9415 to 9639.

The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 08 Jul	Tuesday 09 Jul	Wednesday 10 Jul	Thursday 11 Jul	Friday 12 Jul	Saturday 13 Jul	Sunday 14 Jul
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00469 654 images	IOS00469 547 images	IOS00469 632 images	IOS00469 616 images	IOS00469 656 images	IOS00469 520 images	IOS00469 513 images

Special operations for SWAP, this week:

- None.

On July 10th, the MCPM blocked (again) at 04:51:41 UT, during pass 11501.

Unblocking procedure was performed by REDU during pass 11502 (2013-07-10T08:13:24); the first packet after blockage was received at 08:15:53.

On July 12th (at 02:47:01), the usual LAR delay of 7 minutes was not implemented. This had no impact, except for a short temperature increase of SWAP (see below).

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.84 and -0.66 degrees C. The above-mentioned LAR delay failure resulted in an (estimated) temperature increase of about 0.65 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 11483 to 11541) 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 2013 Jul 08 0UT and 2013 Jul 15 0UT: 4138

Highest cadence in this period: 130 seconds

Average cadence in this period: 146.12 seconds

Number of image gaps larger than 300 seconds: 0

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
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)
- (+ extreme?)