


P2SC-ROB-WR-153-20130225 Weekly report #153	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Feb 25 to Sun Mar 03, 2013 27 Feb 2013 Erik Pylyser Matthew West	Royal Observatory of Belgium PROBA2 Science Center
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1. Science

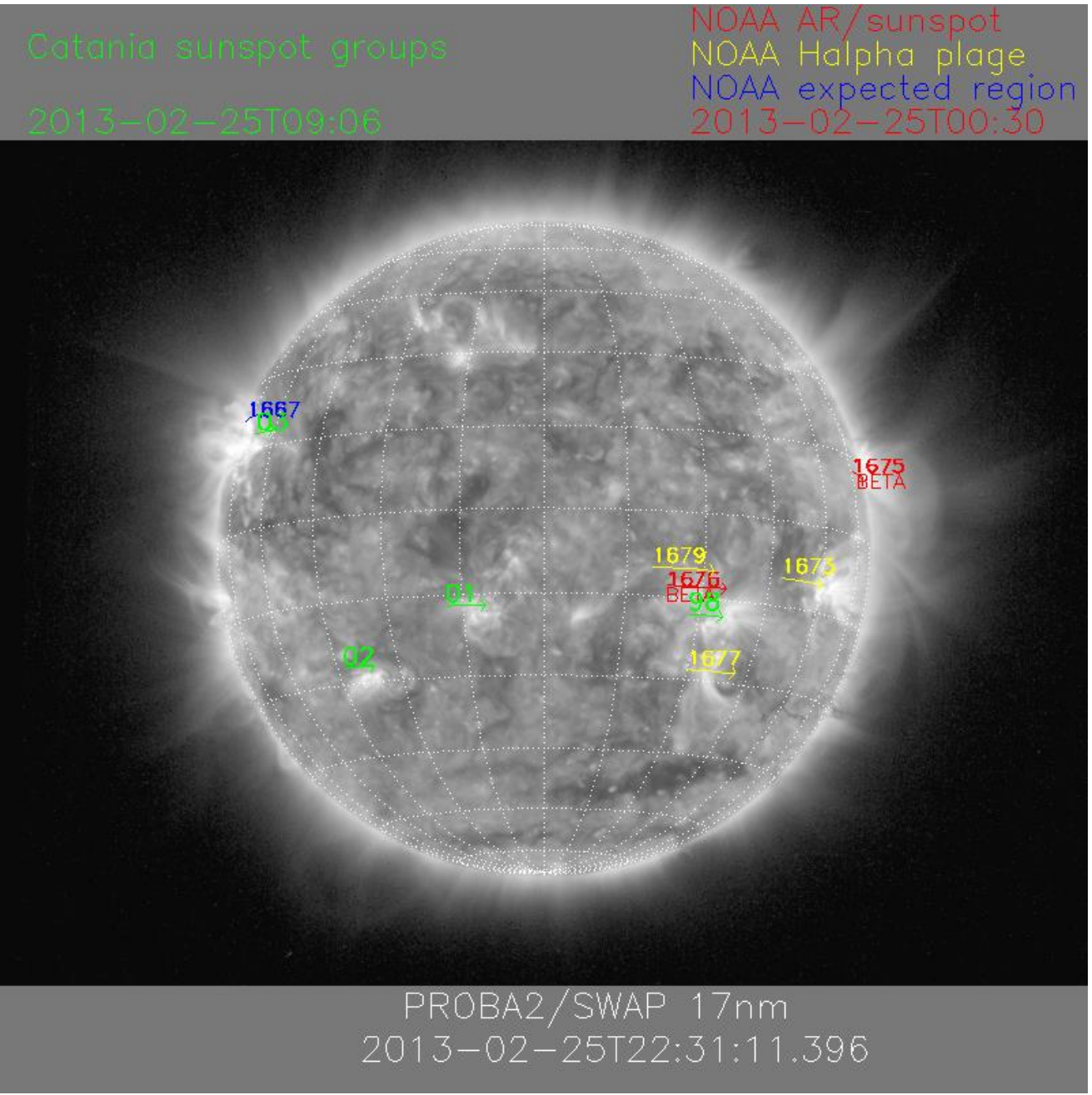
Solar & Space weather events

The level of solar activity¹ this week. Only M- and X-flares are mentioned, the most energetic one(s) are presented in **bold**:

	Monday 25 Feb	Tuesday 26 Feb	Wednesday 27 Feb	Thursday 28 Feb	Friday 01 Mar	Saturday 02 Mar	Sunday 03 Mar
Activity	very low	very low	very low	very low	very low	low	very low
Flares	-	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

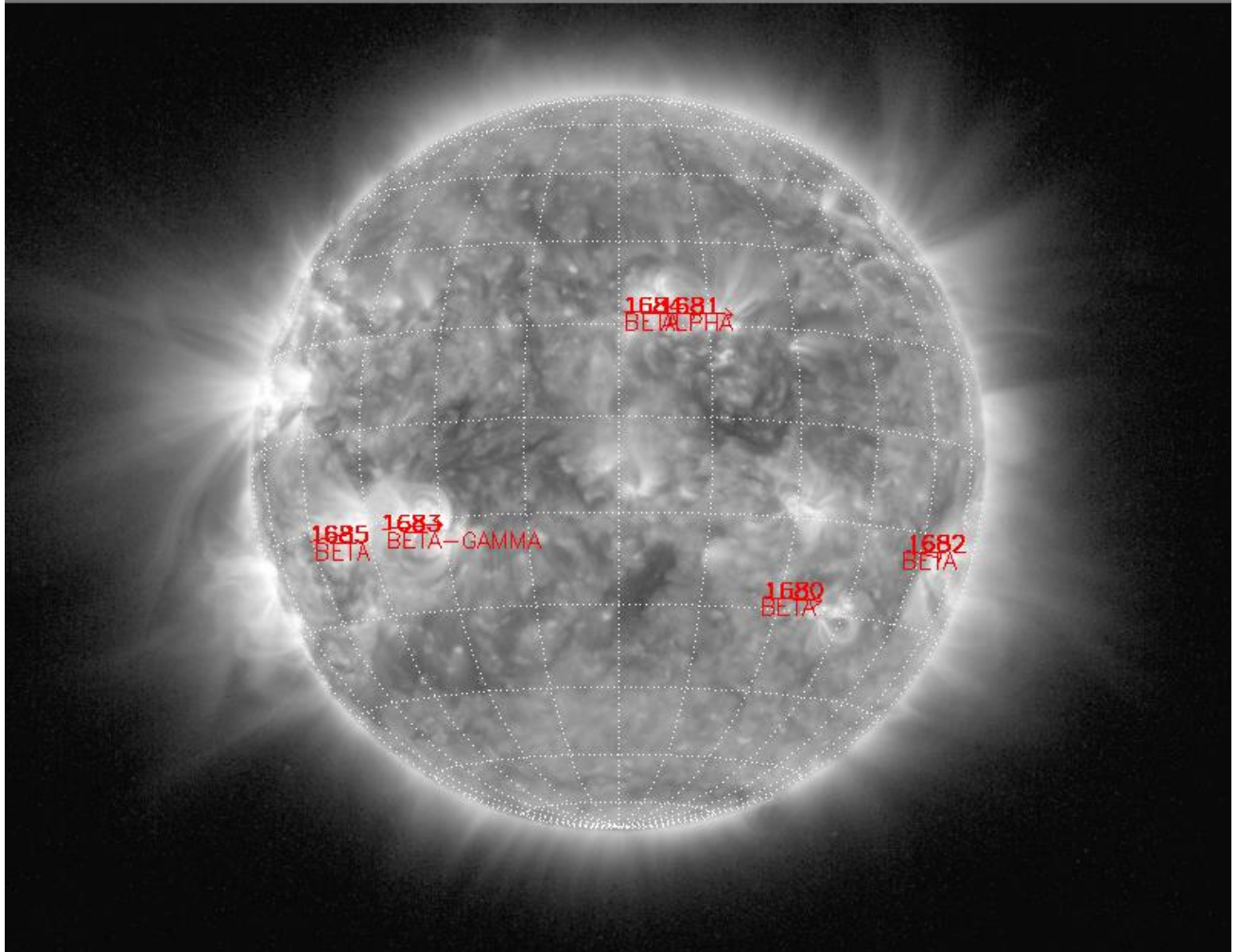
The SWAP images of February 25 and March 03 are shown below, with annotated active regions.



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

No recent Catania data available

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2013-03-03T00:30



PROBA2/SWAP 17nm
2013-03-03T22:23:28.242

Solar Activity

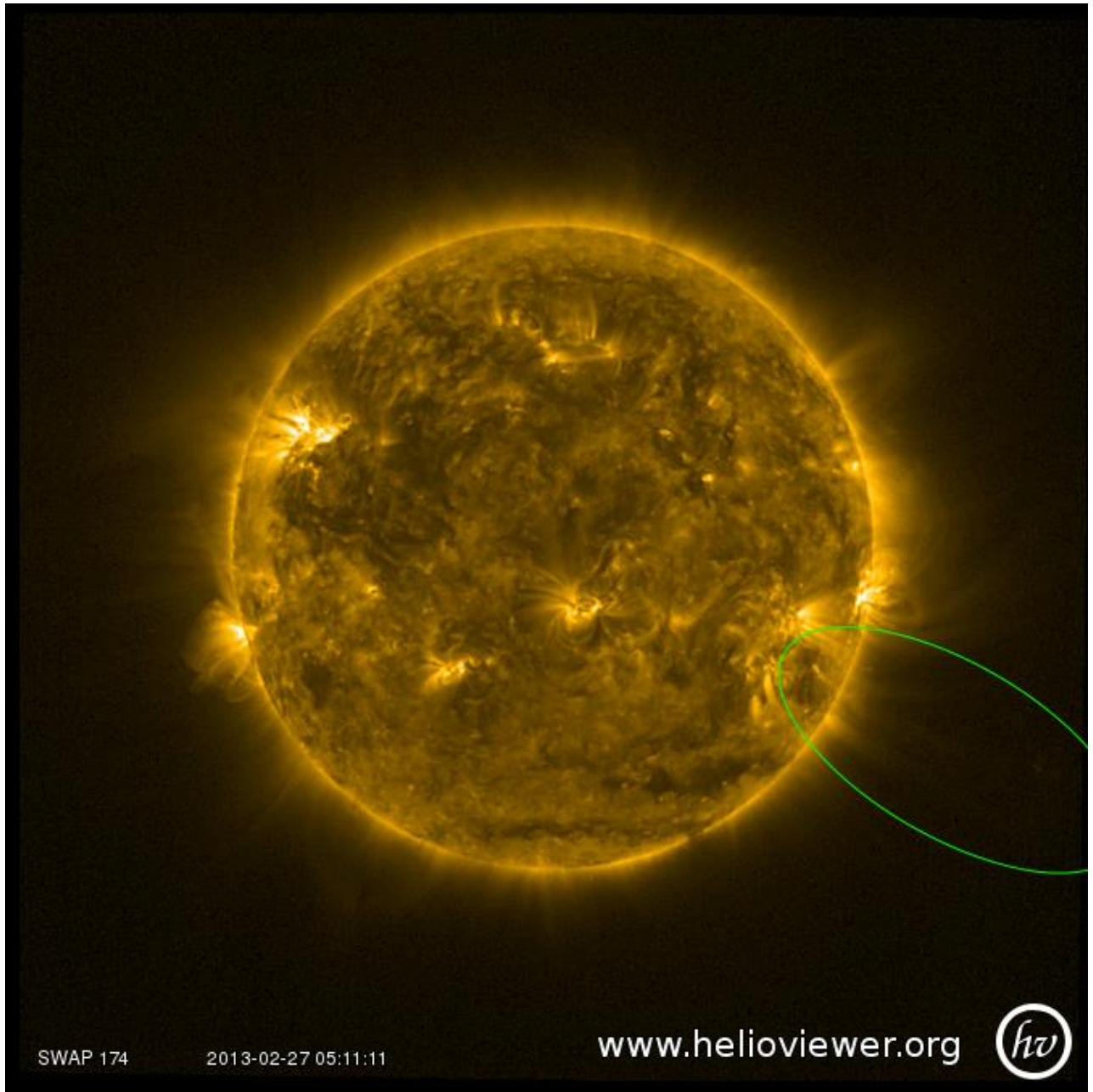
Solar (flaring) activity was **very low** during the whole week, except for Saturday, when 2 low level C flares originated from AR 11687.

In order to view the activity of this week in more detail, we suggest going 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 the events in this movie can be found further below (limited to SWAP imaging).

On Wednesday 27th, an eruption occurred on the South West limb. The ejected material can be followed up to the end of SWAPs Field of View, and it can be seen at the end of the movie mentioned below:



Right before this eruption, a (two?) prominence(s) erupted along the North limb. These could hardly be seen in SWAP, but a movie, showing the prominence's evolution and the subsequent SW eruption can be found [here](#) (SWAP/AIA304; HelioViewer.com).

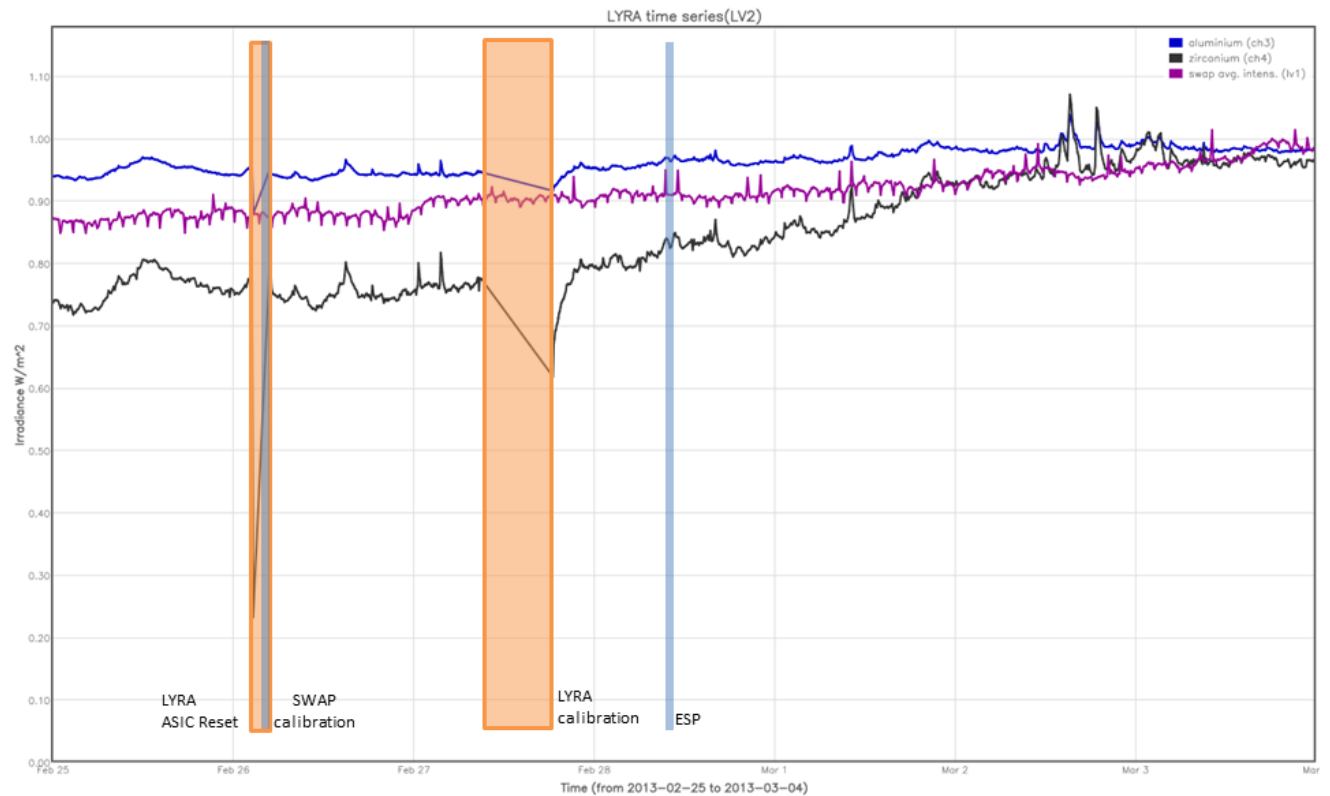
On Saturday March 2nd, an eruption occurred along the East limb (slightly North). A SWAP difference movie of this eruption can be found [here](#).



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 calibration on Tuesday
- ESP experiment on Thursday

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

- ASIC reset on Tuesday
- LYRA calibration on Wednesday

The red shaded period corresponds to:

- None

Outreach, papers, presentations, etc.

- The scientific part of the contents of the "Solar Activity" section above is published in this week's STCE Bulletin (see <http://www.stce.be/newsletter/newsletter.php>)

- Presentation by M. J. West at MET Office UK (<http://www.metoffice.gov.uk/>), on Monday 25th;

Title: 'PROBA2 Atmospheric Observations and Space Weather Forecasting at the Regional Warning Center in Belgium'.

- Article in the February Issue of 'Heelal' (<http://www.vvs.be/over-vvs/heelal/heelal-februari-2013>); Title: 'De totale Zonsverduistering van 13 November 2012'; Author: Kris Delcourte; a SWAP eclipse image was used, in an article about the total eclipse of November 13th.

Please also 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.

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

LYRA calibration on Wednesday this week.

IOS & operations

Monday 25 Feb	Tuesday 26 Feb	Wednesday 27 Feb	Thursday 28 Feb	Friday 01 Mar	Saturday 02 Mar	Sunday 03 Mar
Nominal acquisition + daily U3	Nominal acquisition + daily U3 + ASIC reload	Nominal acquisition + daily U3 + calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00312	LYIOS00313	LYIOS00313	LYIOS00314	LYIOS00314	LYIOS00314	LYIOS00314

The following science campaigns were performed by LYRA:

- daily U3 'occultation' campaign, until Wednesday
- daily U3 observations campaign, from Thursday on - as before the occultation season

LYRA detector temperature

LYRA detector 2 temperature globally varied between 49.3 to 50.7 degrees C, including the daily U3 activation periods; the latter result in a temperature increase of about 0.6 degrees C.

During ASIC reload, temperature decreased to 48.0 degrees C.

To be explored

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3. SWAP instrument status

Calibration

SWAP calibration on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 6892 to 6953.

The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 25 Feb	Tuesday 26 Feb	Wednesday 27 Feb	Thursday 28 Feb	Friday 01 Mar	Saturday 02 Mar	Sunday 03 Mar
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition + ESP	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00455 517 images	IOS00456 672 images	IOS00456 651 images	IOS00456 522 images	IOS00456 550 images	IOS00456 566 images	IOS00456 484 images

Special operations for SWAP, this week:

- ESP jump

SWAP detector temperature

The SWAP Cold Finger temperature globally varied between 0.56 and 1.92 degrees C.

To be explored

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4. PROBA2 Science Center Status

The main operator is Koen Stegen.

The following changes were made to the P2SC:

Complete Update of Repository

01/03/2013: version r4703

PPT

01/03/2013: version r4703

PPT/TLE

01/03/2013: version r4703 (re-written significantly)

5. Data reception & discussions with MOC

Passes

The delivery of the passes for this week (passes 10337 to 10395) was nominal, except for:
- None

Data coverage HK

All HK data files (LYRA_AD) have been received, except for:
- None

Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received, except for:
- None

Total number of images between 2013 Feb 25 0UT and 2013 Mar 04 0UT: 4009
Highest cadence in this period: 30 seconds
Average cadence in this period: 150.83 seconds
Number of image gaps larger than 300 seconds: 1
Largest data gap: 34.33 minutes

The large gap is due to the ESP experiment on Thursday.

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received, except for:
- 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
EIT	Extreme ultraviolet Imaging Telescope
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

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?)