


P2SC-ROB-WR-411 - 20180205 Weekly report #411	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Feb 05 to Sun Feb 11, 2018 12 Feb 2018 Jennifer O'Hara Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

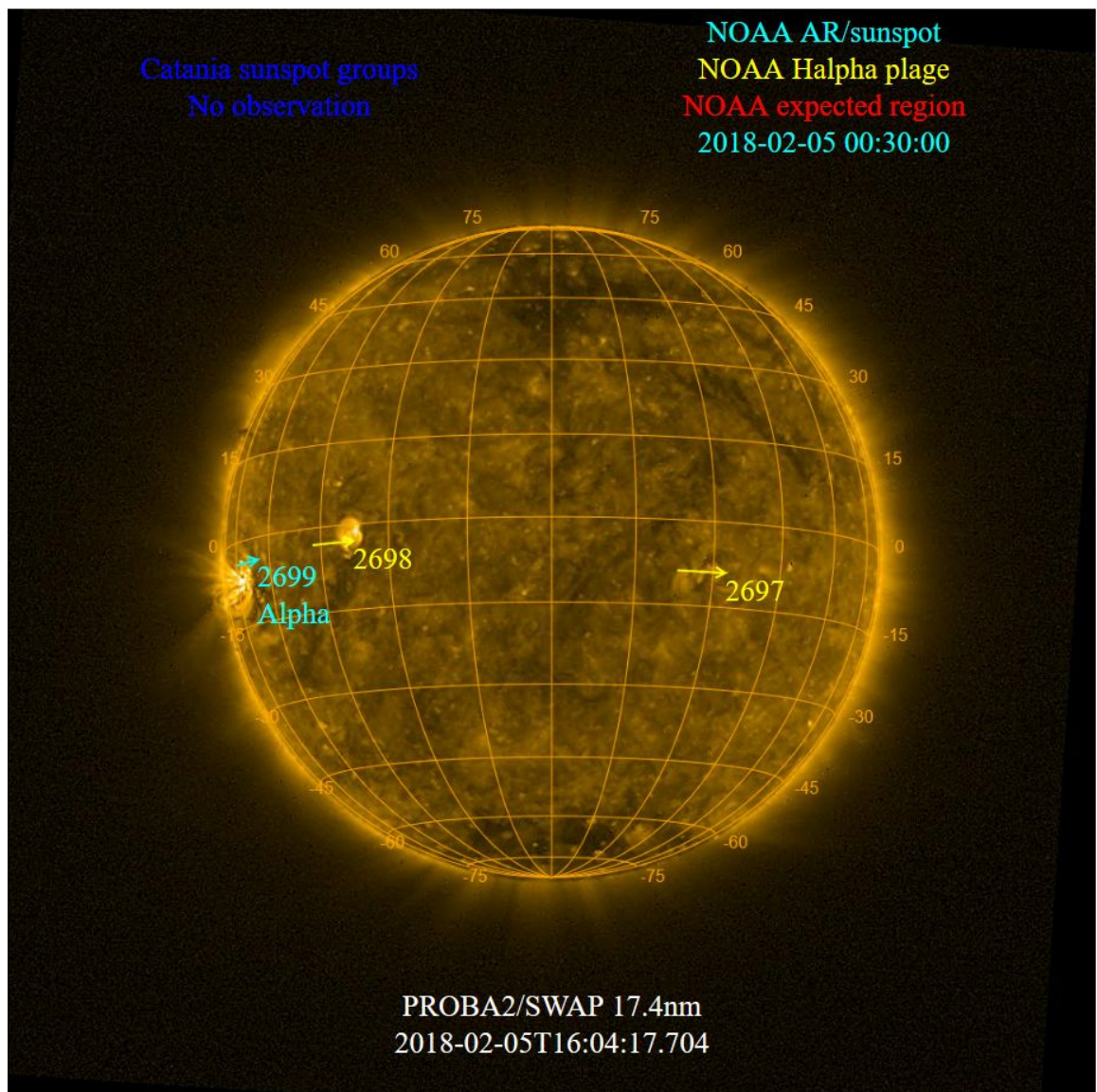
The level of solar activity¹ fluctuated between **very low and low** this week.

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

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

¹ See appendix. All timings are given in UT.

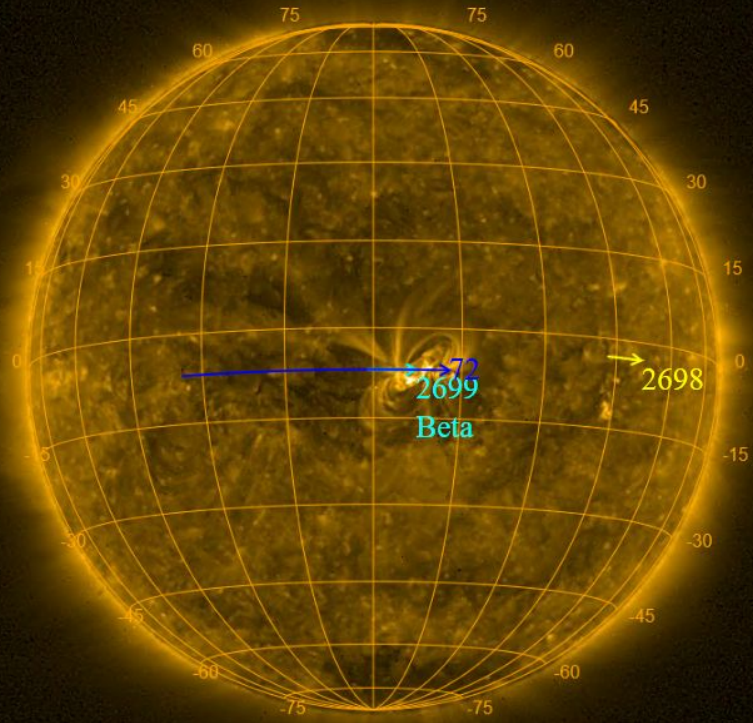
The SWAP images of Feb 05 and Feb 11 are shown below, with annotated active regions.



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

Catania sunspot groups
2018-02-08 09:06:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2018-02-11 00:30:00



PROBA2/SWAP 17.4nm
2018-02-11T13:52:56.860

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>

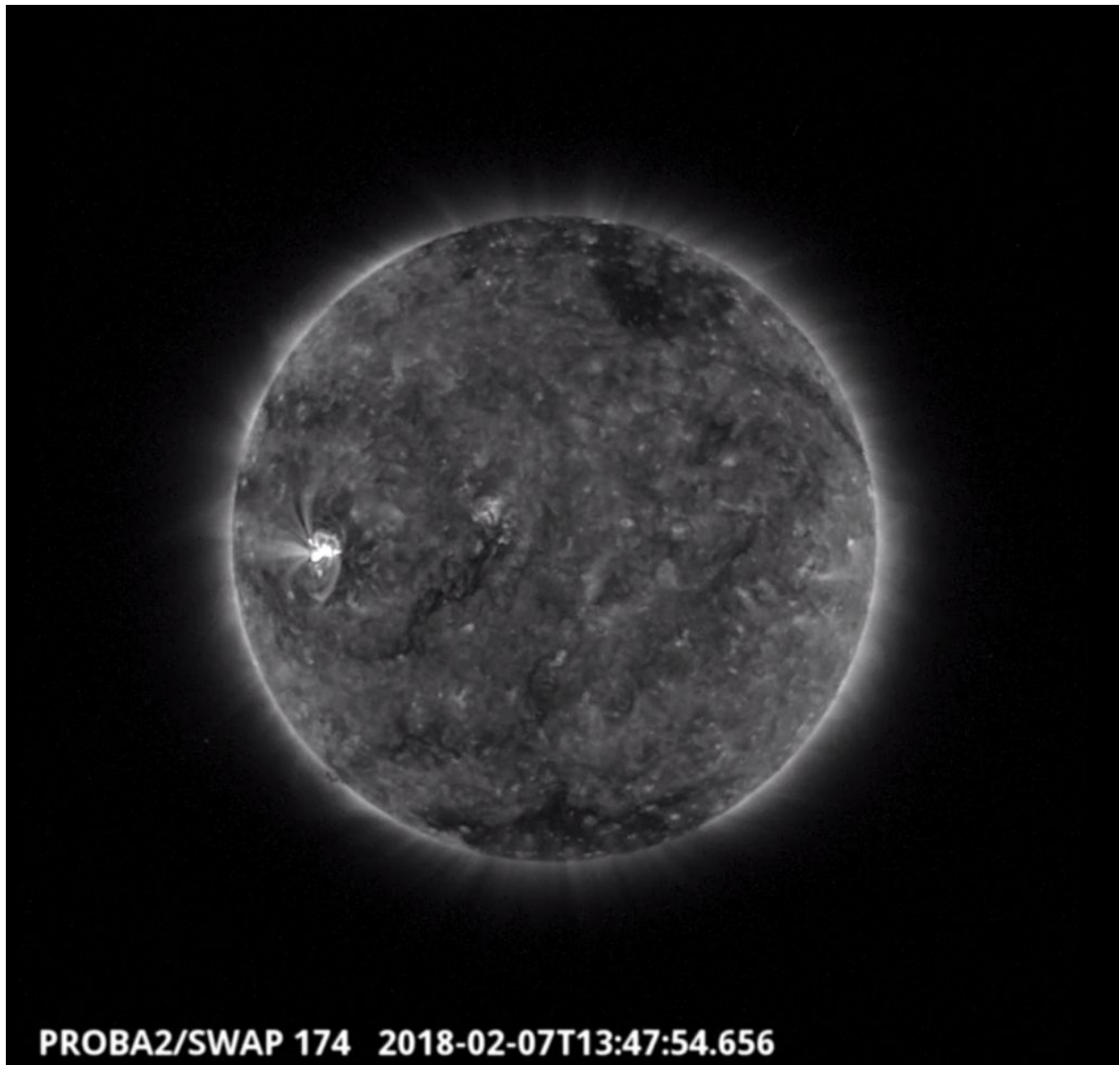
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 411).

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](#)

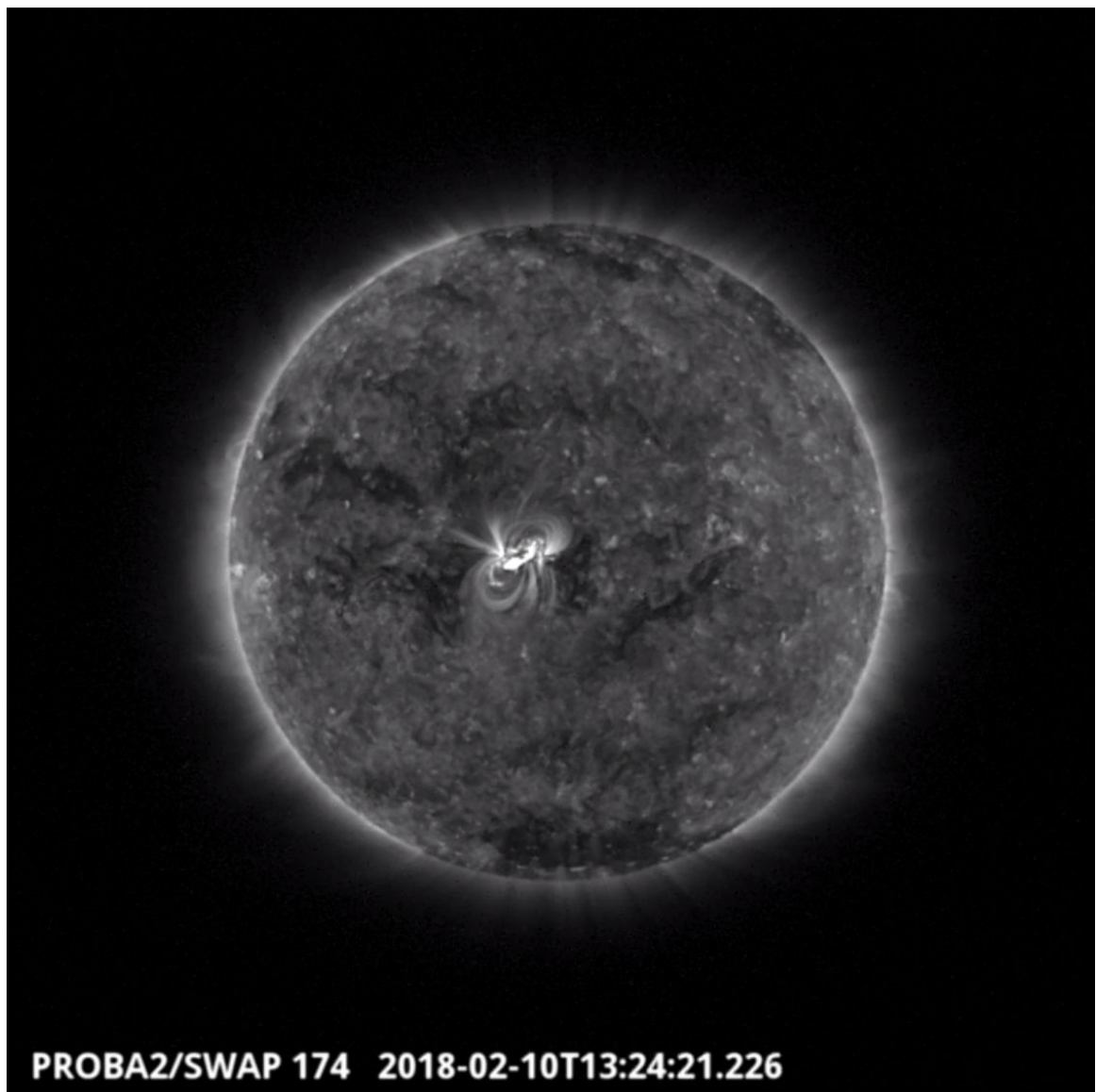
Wednesday Feb 07



The largest flare of the week was a C-class (C8.1) flare, associated with NOAA AR 2699 and was observed by SWAP on 2018-Feb-07. The flare is visible towards the east of the solar disk in the SWAP image above at 13:47 UT.

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

Saturday Feb 10

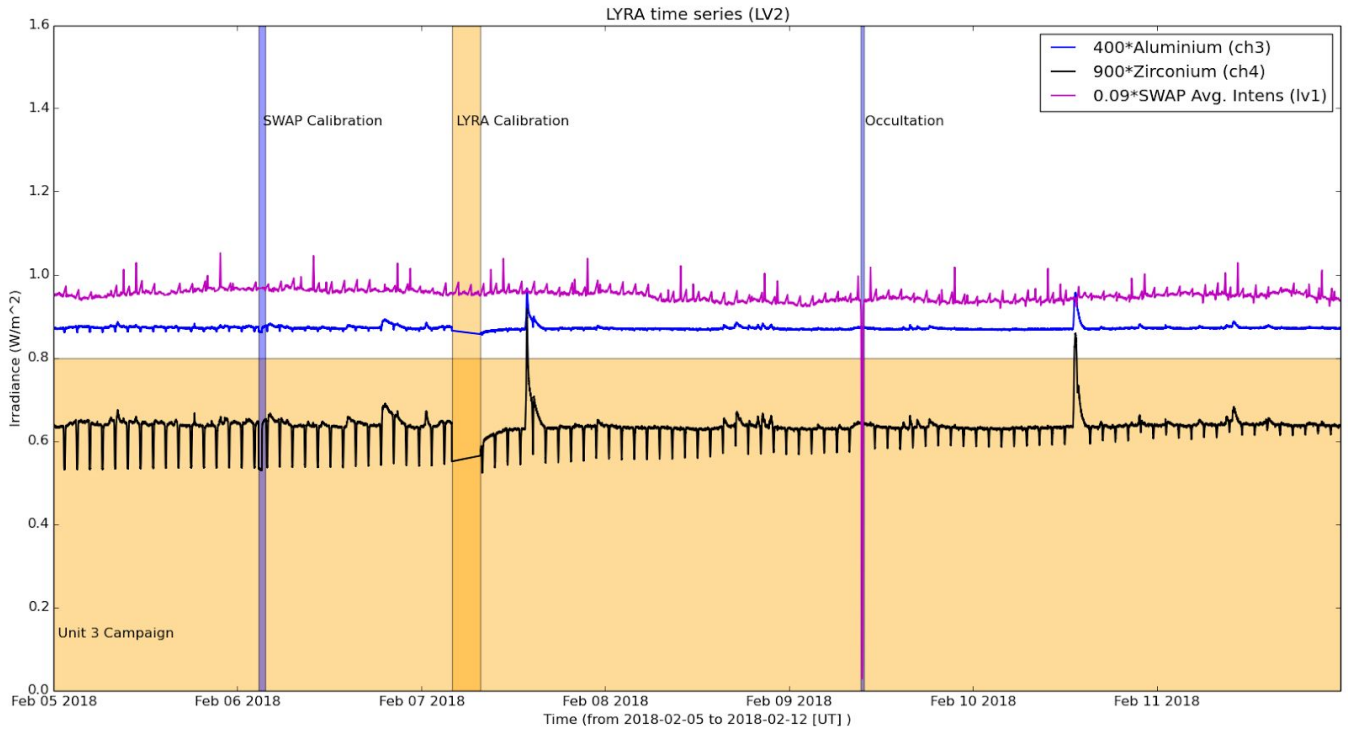


The second largest flare of the week was a C-class (C4.6) flare, also associated with NOAA AR 2699 and was observed by SWAP on 2018-Feb-10. The flare is visible in the centre of the solar disk in the SWAP image above at 13:24 UT.
Find a movie of the event [here](#) (SWAP movie)

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 related to SWAP, correspond to, from left to right:

- Bi-weekly calibration, 2018-Feb-06
- Parallel occultation campaign with LYRA, 2018-Feb-09

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

- Continuous Unit 3 campaign, from 2018-Feb-05 to 2018-Feb-11
- Bi-weekly calibration, 2018-Feb-7

The red shaded periods related to other issues 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>).

Guest Investigator Program

- Ed Thiemann from LASP, Boulder, Colorado is visiting the P2SC for the week between Feb-08 and Feb-15 to begin his collaboration on the project “Comparing the response of the thermospheres of Earth and Mars to solar forcing with contemporaneous solar EUV occultations.” During his visit he also gave a STCE seminar entitled “Mars Thermospheric Variability Revealed by MAVEN EUVM Solar Occultations”.
- Mariana Cécere and Valeria Sieyra (Ph.D. student) from the Instituto de Astronomía Teórica y Experimental, CONICET-UNC, Córdoba, Argentina continued their visit at the P2SC, working on the project: “A Systematic Study of CME Deflections”.
- Alexandros Koukras continued his visit to the P2SC working on his project entitled “A unique opportunity of observing and modeling a CME event from the low to the outer corona”.

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 05 Feb	Tuesday 06 Feb	Wednesday 07 Feb	Thursday 08 Feb	Friday 09 Feb	Saturday 08 Feb	Sunday 11 Feb
Nominal acquisition + U3	Nominal acquisition + U3	Nominal acquisition + U3 + calibration	Nominal acquisition + U3	Nominal acquisition + U3	Nominal acquisition + U3	Nominal acquisition + U3
LYIOS00673	LYIOS00673	LYIOS00673	LYIOS00673	LYIOS00674	LYIOS00674	LYIOS00674

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 51.44 and 55.58 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 1200 to 1638.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 05 Feb	Tuesday 06 Feb	Wednesday 07 Feb	Thursday 08 Feb	Friday 09 Feb	Saturday 08 Feb	Sunday 11 Feb
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition + occultation	Nominal acquisition	Nominal acquisition
IOS00759 684 images	IOS00759 760 images	IOS00760 803 images	IOS00760 691 images	IOS00760 715 images	IOS00760 612 images	IOS00761 697 images

Special operations for SWAP, this week:

On 2018-Feb-06:

- Bi-weekly calibration campaign

On 2018-Feb-09:

- Occultation campaign

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between 2.62 and 4.07 °C.

4. PROBA2 Science Center Status

The main operator is Jennifer O'Hara.

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 26536 to 26600) 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 2018 Feb 05 00:00 UT and 2018 Feb 12 00:00 UT: 4964

Highest cadence in this period: 29 seconds

Average cadence in this period: 121.81 seconds

Number of image gaps larger than 300 seconds: 113

Largest data gap: 28.62 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
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)