P2SC-ROB-WR-064-20110606 Weekly report 64	**P2SC Weekly report**	
Period covered: Date: Written by: Released by:	Mon June 06 to Sun June 12 2011 Thu June 16 2011 Erik Pylyser Carlos Cabanas	Royal Observatory of Belgium PROBA2 Science Center
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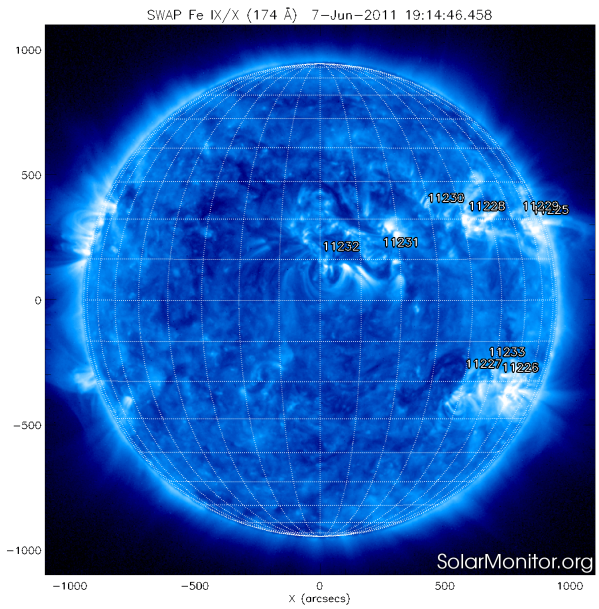
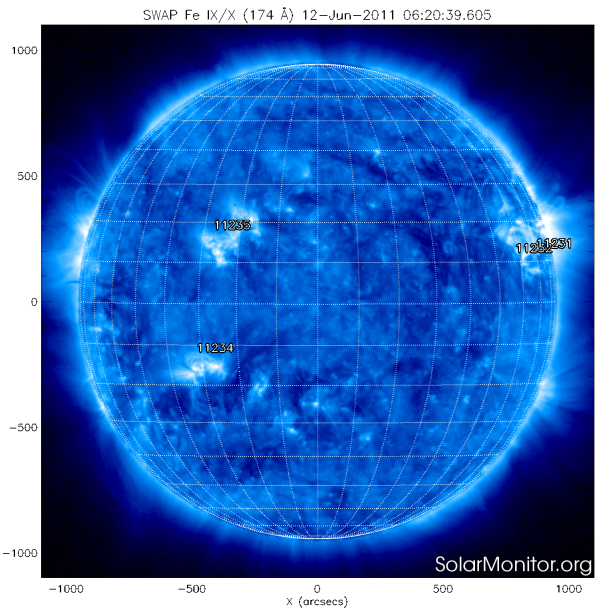
1. Science

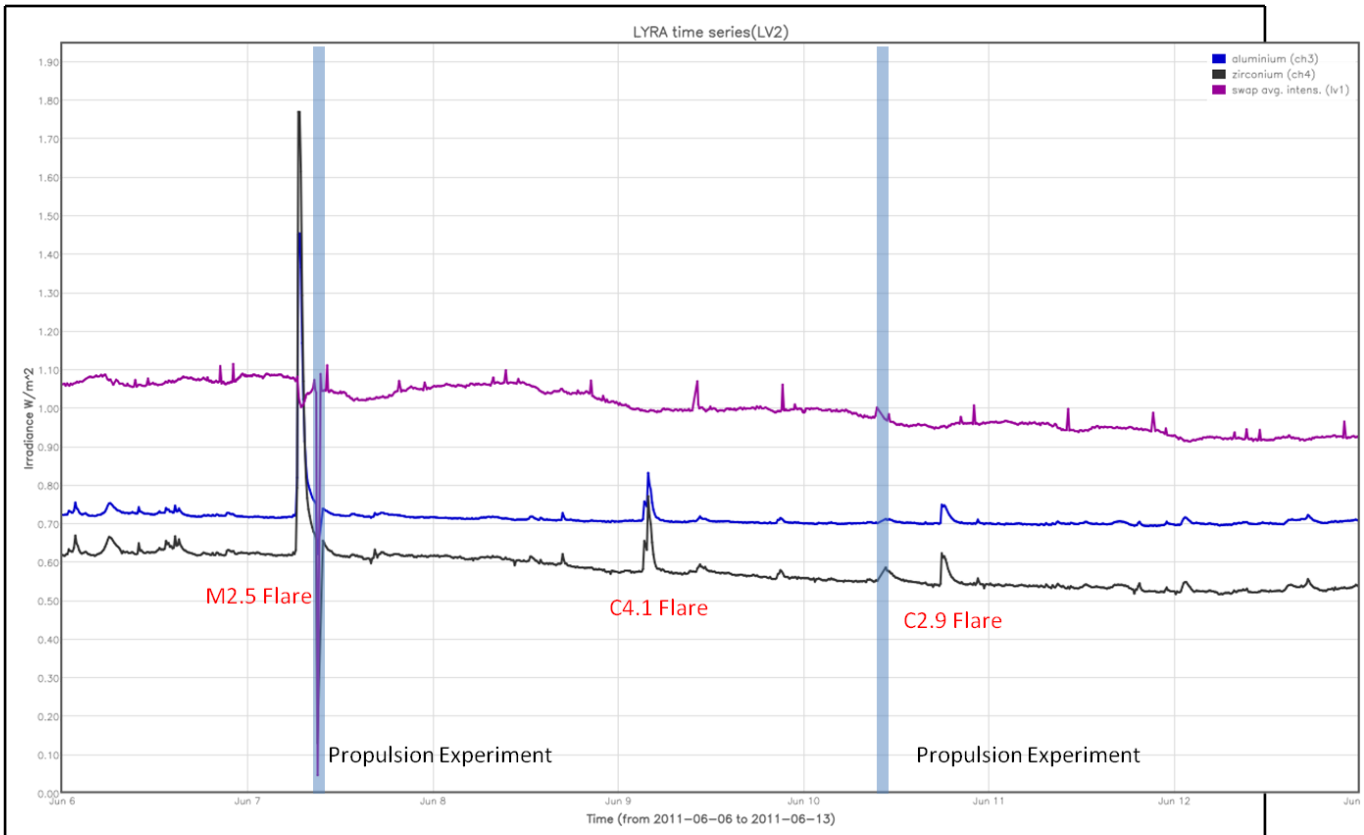
Solar & Space weather events

Overview

The two figures below show the active regions on SWAP images in the beginning and end of the reporting period.



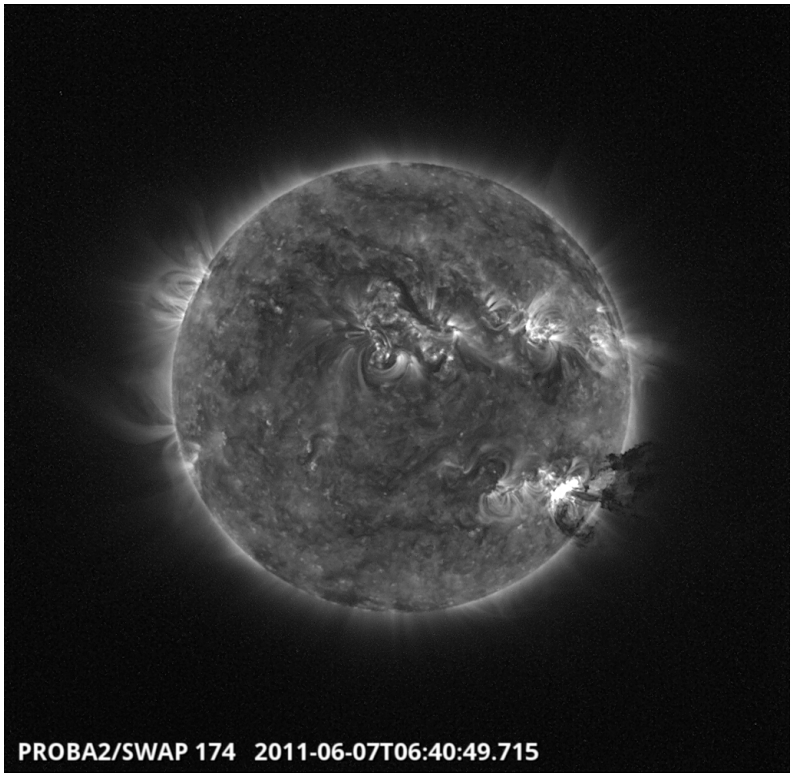




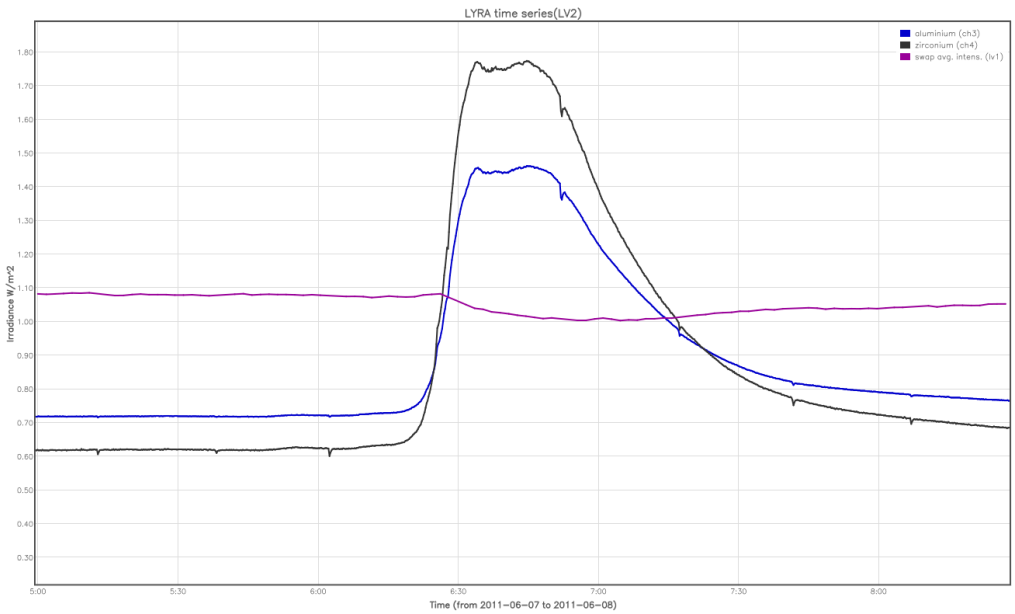
The weekly overview of LYRA short wavelenghts channels, and SWAVINT. The peak 'down' in the propulsion experiment of Tue is due to SWAP and LYRA still being ON at the start of the propulsion experiment (see section 2 below).
Note that the small spikes in the SWAVINT are due to passage over the SAA.

Specific Events

On June 7th, peaking at 06:30 UT, PROBA2 observed an M2.5 flare, from AR 1226, located in the southern hemisphere at the west side of the visible solar disk. The flare is associated with a plasma eruption, dark coronal matter flying back down after a flare and eruptions, a CME, a proton storm, and a type II radio burst.
Click [http://pb2sc.sidc.be:8000/FAST/wiki/20110607_AM_SW_STCEdayEvent] for all the related information.
Below are provided a SWAP image of the flare eruption, as well as the associated LYRA solar illumination curves.

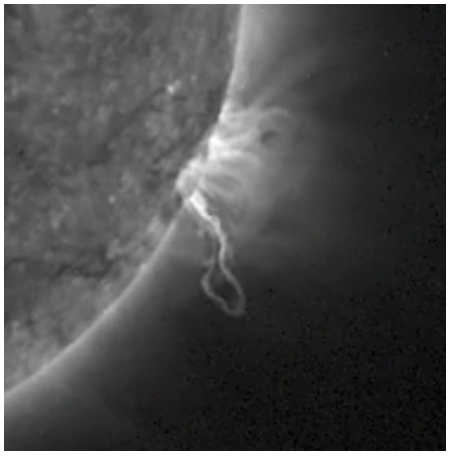


SWAP image of the June 7th event



LYRA solar illumination curves of the June 7th event

On June 10, SWAP recorded a wonderful loop event around 18UT. LYRA detected this event as well, as a GOES identified C2.9 flare:



Scientific campaigns

On June 9th, at 23:51 UT, a test campaign for SWAP high cadence imaging was started for a period of 20 minutes:

* 10 minutes nominal imaging with high cadence 20 sec
* 10 minutes LZW images, no recoding, no decorrelation, high cadence 20 seconds.

Preliminary results of the campaign are:

* A stack of LZW compressed images gave a slightly better results than JPEG compressed images, as expected.
* First analyses reveals that 20-25 images are sufficient to produce a daily stack image.
* A new test campaign will be performed soon, testing the difference between JPEG+fixed recoding 10-3600 (default settings) and JPEG + fixed recoding 0-3600.

Outreach, papers, presentations, etc.

Two Guest Investigator was visiting this week: Vladimir Slemzin and Louise Harra.
Future joint observation campaigns of SWAP and Hinode EIS were discussed, as well as the daily stack campaign.

In relation to the June 7th event, the following PR activities occurred:

- PROBA2 on ESA news: http://www.esa.int/esaCP/SEMYK9RHPOG_index_0.html
- Eva Robbrecht on Belgian VTM channel: http://pb2sc.sidc.be/~swap/FAST/20110607-M2.5_spectacularEruption-SW/PTL_20110609T193244_20110609_W_ZONNESTORM.mp4
- A SWAP cropped 'polar' movie was posted on youtube: http://proba2.sidc.be/swap/data/mpg/movies/campaign_movies/20110607_SWAP-Mflare_polar_cropped.mp4, youtube version
- Anik Degroof wrote a news item on the P2SC website: http://proba2.oma.be/index.html/gallery/breve/extra-ordinary-m-flare
- David Berghmans presented this event on the annual STCE day, shortly after the event occurred.

To be explored

N/A

2. LYRA instrument status

Calibration

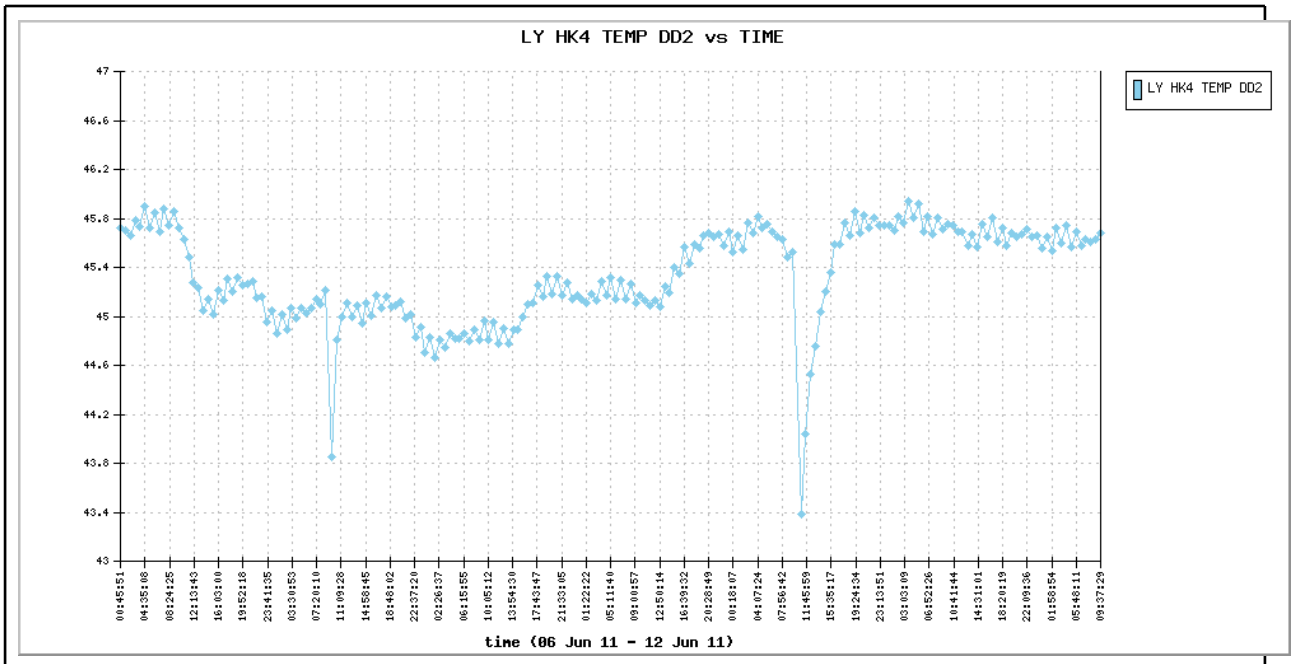
There was no LYRA calibration campaign foreseen this week.

IOS & operations

Monday 06 June	Tuesday 07 June	Wednesday 08 June	Thursday 09 June	Friday 10 June	Saturday 11 June	Sunday 12 June
Nominal acquisition (LYIOS00171)	Nominal acquisition Cmds in prep of the propulsion exp were not sent. LYRA into OFF mode through FDIR. Recovery of LYRA done by LYIOS00172. (LYIOS00172)	Nominal acquisition (LYIOS00172)	Nominal acquisition (LYIOS00172)	Nominal acquisition + Propulsion experiment (LYIOS00172)	Nominal acquisition (LYIOS00172)	Nominal acquisition (LYIOS0017 2)

The ASIC reload (automatically scheduled onboard every 100 orbits) took place on 07/06/2011 - 16:23.

LYRA detector temperature
The LYRA detector 2 temperature (nominal unit) fluctuated between 43 and 46 degrees Celsius. Effects were seen of the 2 propulsion experiments.



To be explored

N/A

3. SWAP instrument status

MCPM recoverable errors

This week, the number of MCPM recoverable errors increased from 1289 to 1304. The number of MCPM unrecoverable errors is still 0.

On Sunday 5th of June, the MCPM got blocked. No packets were received since pass 4797.
REDU applied the SWAP MCPM unblocked procedure during pass 4809.
REDU says that SWAP has been unblocked successfully at 06:33:43, on June 6th.

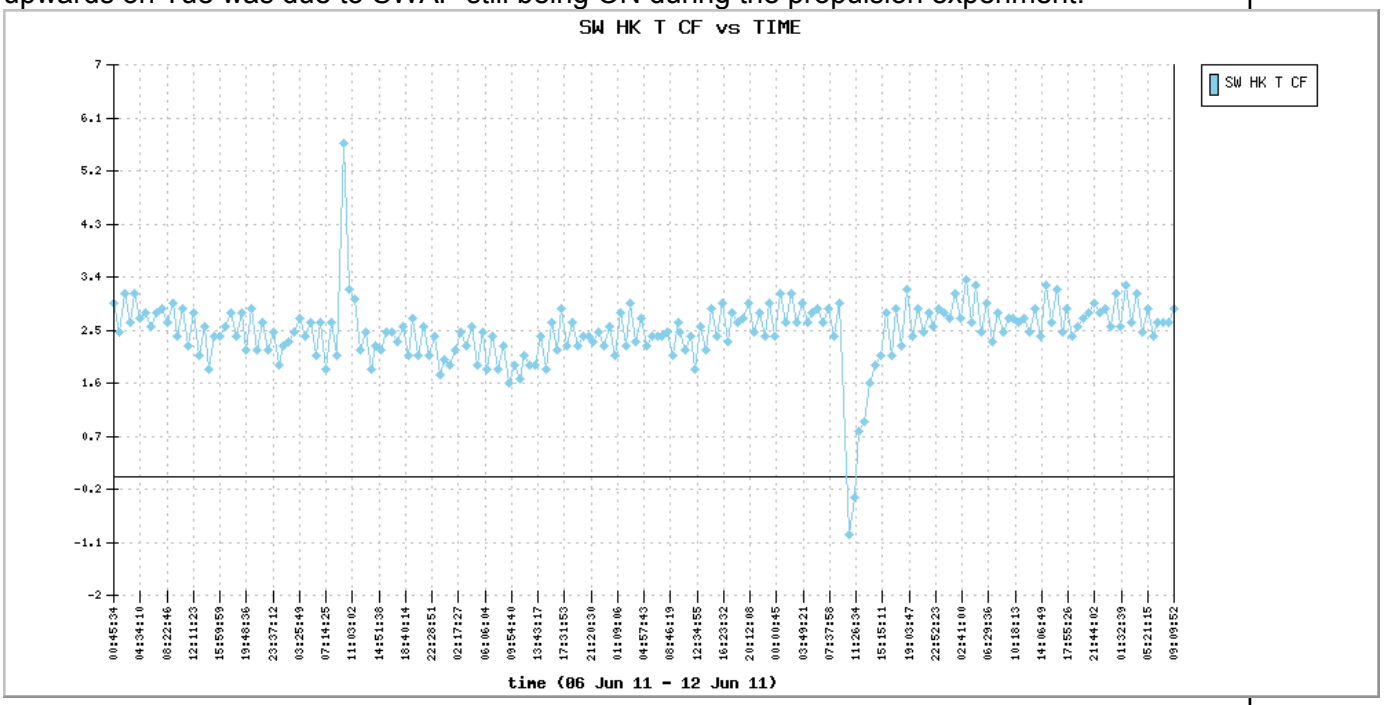
IOS & operations

Monday 06 June	Tuesday 07 June	Wed 08 June	Thu 09 June	Friday 10 June	Saturday 11 June	Sunday 12 June

Nominal acquisition (IOS00304) 409 images	Nominal acquisition Cmds in prep of the propulsion exp were not sent. SWAP into IDLE through FDIR. Recovery of SWAP done by IOS00305. 690 images	Nominal acquisition (IOS00305) 784 images	Nominal acquisition + special high cadence campaign + ESP campaign (IOS00308) 707 images	Nominal acquisition + Propulsion experiment (IOS00308) 793 images	Nominal acquisition (IOS00308) 746 images	Nominal acquisition (IOS00308) 760 images

SWAP detector temperature

The SWAP Cold Finger Temperature fluctuated between -1 and 6 degrees Celsius. The peak upwards on Tue was due to SWAP still being ON during the propulsion experiment.



To be explored

Check complete arrival of all missing passes from the week-end (cfr. the problem with the Svalbard passes, which occurred from Fri 10th evening).

4. PROBA2 Science Center Status

Carlos Cabanas was operator during this week. Erik Pylyser was present half-time during operations, as operator in training.

<u>No tools were updated</u> on the operational server.

5. Data reception & discussions with MOC

Passes On Fri evening, there was a problem with the passes originating from Svalbard - a problem lasting until the next Mon. Data recovery was done manually at the start of the next week (see next weekly report). Data was missing for the following passes: 4855, 4856, 4859, 4860, 4863, 4864, 4865, 4866, 4867, 4868, 4871, 4872, 4873, 4876, 4877
Data coverage HK The HK data coverage was nominal.
Data coverage SWAP The overall data coverage was very good, except on Mon due to MCPM blockage. Statistics for complete week: *Total number of images between 2011 Jun 06 0UT and 2011 Jun 13 0UT: 4889* *Highest cadence in this period: 19 seconds* *Average cadence in this period: 123.66 seconds* *Number of image gaps larger than 300 seconds: 150* *Largest data gap: 40.78 minutes* *Gaps are due to propulsion experiments on Tue & Fri, one MCPM blockage (several small gaps) on Mon, an ESP campaign on Thu.*
Data coverage LYRA Data coverage for LYRA this week was nominal (see overview).

6. APPENDIX Frequently used acronyms

ADP	Ancillary Data Processor
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
DR	Destructive Readout
DSLP	Dual Segmented Langmuir Probe
EIT	Extreme ultraviolet Imaging Telescope
FITS	Flexible Image Transport System
FOV	Field Of View FPA Focal Plane Assembly
FPGA	Field Programmable Gate Arrays
GPS	Global Positioning System

HAS	High Accuracy Star tracker
HK	Housekeeping
ICD	Interface Control Document
IIU	Instrument Interface Unit
IOS	Instrument Operations Sheet
LED	Light Emitting Diode
LEO	Low Earth Orbit
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
OBET	On board Elapsed Time
OBSW	On board Software
PE	Proximity Electronics
PGA	Programmable Gain Amplifier
PI	Principal Investigator
P2SC	PROBA2 Science Center
PPT	Pointing, Positioning and Time (software module of P2SC)
ROB	Royal Observatory of Belgium
SAA	South Atlantic Anomaly
SCOS	Spacecraft Operation System
SEU	Single Event Upset
SOHO	Solar and Heliospheric Observatory
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
TBW	To Be Written
TC	Telecommand
TPMU	Thermal Plasma Measurement Unit
UTC	Coordinated Universal Time
UV	Ultraviolet