P2SC-ROB-WR-009-20100510 Weekly Report # 009	**P2SC Weekly report**	
Period Covered: Date: Written By: Released By:	Mon May 10 to Sun May 16 2010 May 12 2010 Joe Zender David Berghmans	Royal Observatory of Belgium PROBA2 Science Center
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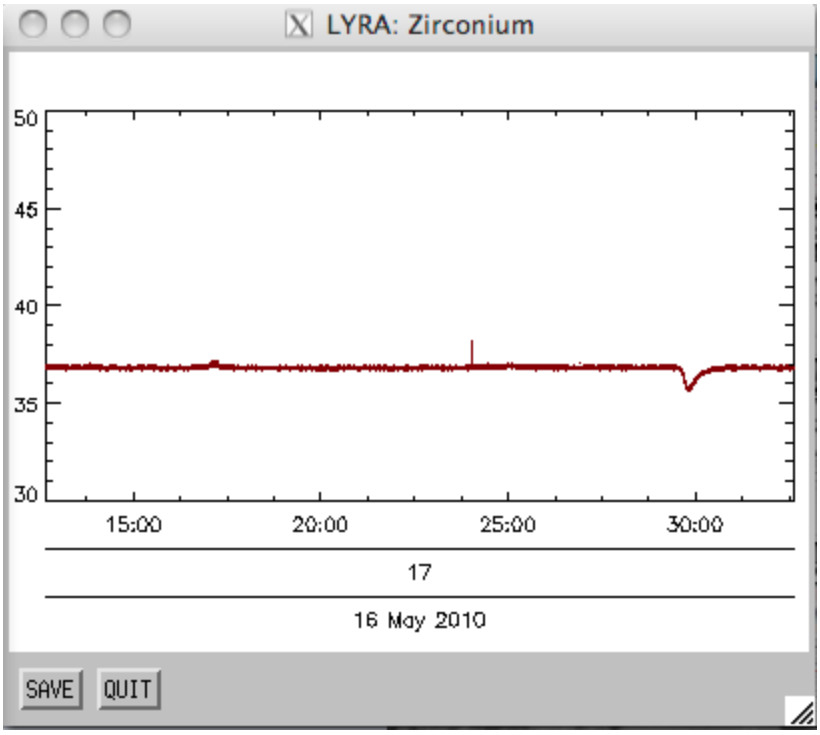
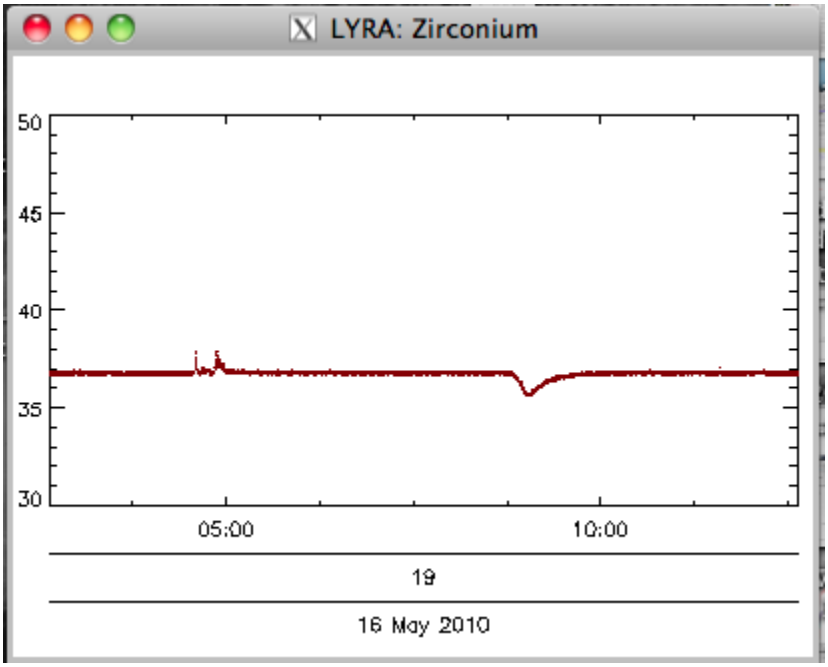
1. Science

Date	Start	End	Peak	GOES	Position	LYRA	SWAP
2010/05/10	10:59:00	11:15:00	11:06:00	B1.4	N40W86	weak (AL,ZI)	
2010/05/11	08:39:00	08:47:00	08:47:00	B1.1	S19W19	(AL,ZI)	not seen
2010/05/11	19:33:00	20:42:00	20:16:00	B1.5	N28W76	short (AL,ZI)	not seen
2010/05/12	02:08:00	02:22:00	02:18:00	B1.5	N27W63	shallow (AL,ZI)	observed
2010/05/13	03:49:00	03:55:00	03:55:00	B2.8	S20W44	(AL,ZI)	onset of flare observed, then disturbed by LAR
2010/05/16	17:24:00	17:25:00	very small event seen on LYRA that needs further analysis				



2010/05/16 19:05:00 19:05:00 very small event seen on LYRA that needs further analysis



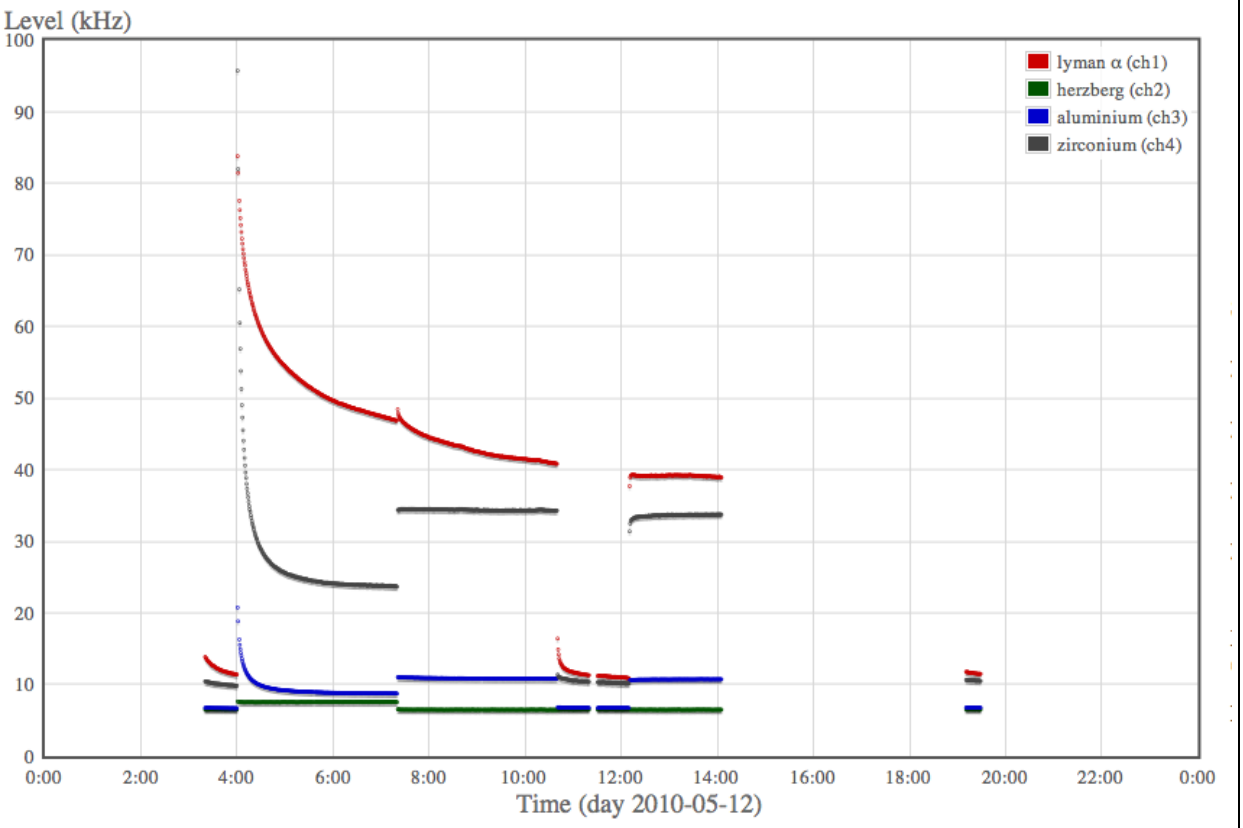
2. LYRA instrument status

The LYRA instrument functioned normally during the period.

2010-05-10 1sec cadence on unit2 until 15:00, then 50sec cadence
2010-05-11 50msec cadence on unit2
2010-05-12 50msec cadence on unit2 until 03:00:00

2010-05-12 LYRA calibration run between 03:00UT and 19:45UT.
The commands were modified from the previous calibration runs such that each acquisition sequence took the length of 2 orbits instead of 1 orbit. This due to the fact that 1 orbit is not enough for the detector to settle.

Data gap from 14:00 to 19:00.



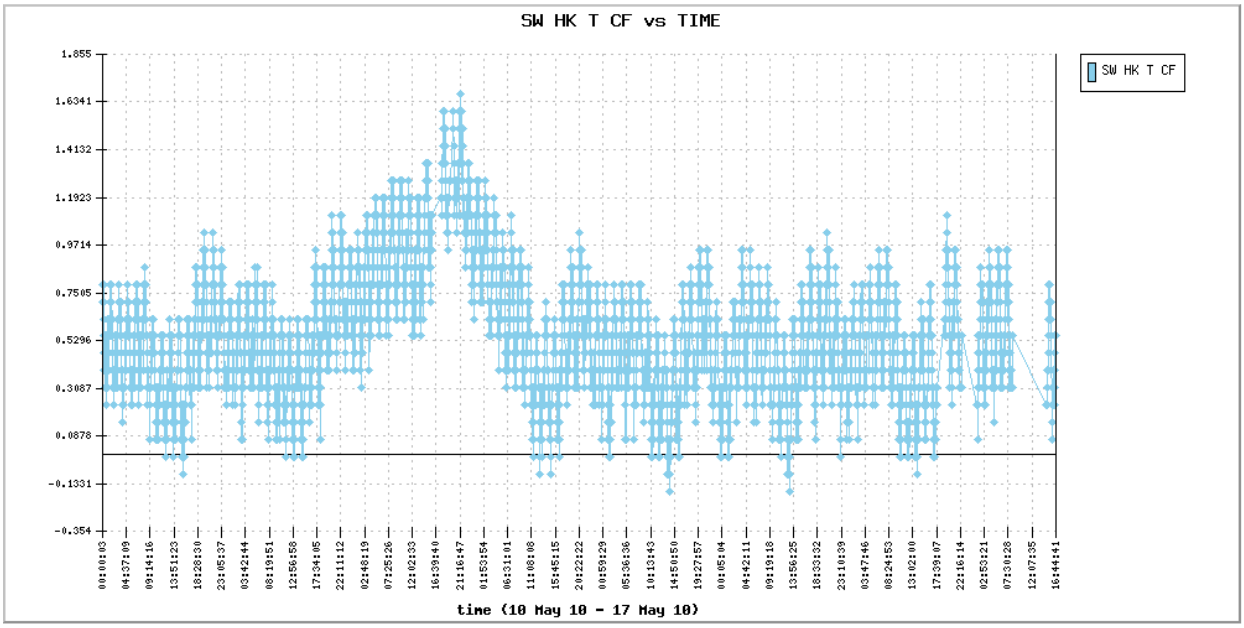
2010-05-12 50msec cadence on unit2 from 19:45
2010-05-13 50msec cadence on unit2

2010-05-14 50msec cadence on unit2
2010-05-15 50msec cadence on unit2
2010-05-16 50msec cadence on unit2

3. SWAP instrument status

The SWAP instrument functioned normally during the period.
The 'MCPM NB RECOV ER' increased from 151 to 152. The 'MCPM NB UNRECOV ER' remained fixed at 0.

The detector temperature ('SW HK T CF') increased slightly towards a peak in the evening of the 12 May.



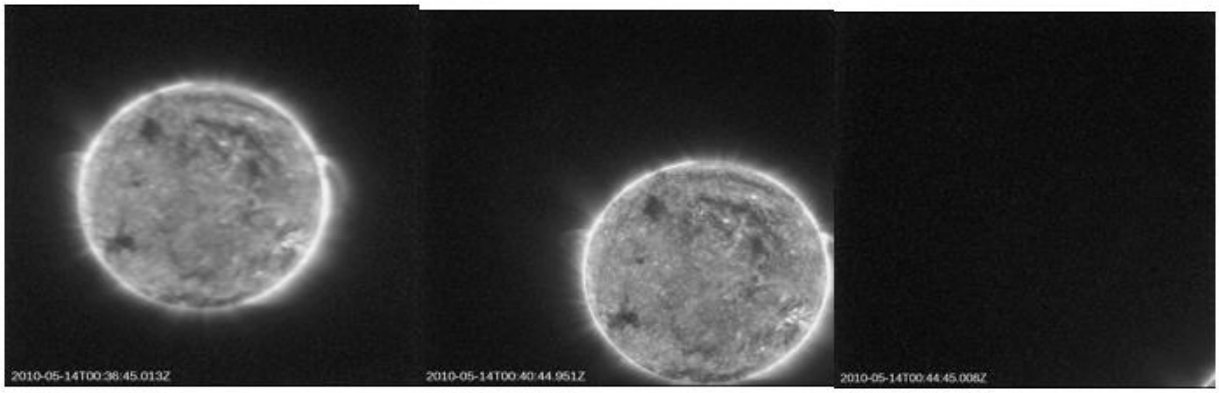
2010-05-11 (SWAP IOS_000110) LED Calibration Campaign
SWAP
00110
2010.05.10T16:31:23.000
2010.05.11T09:59:59.000
generated on 2010-05-10T16:31:23Z by ios.xsl version 1.1
2010.05.11T10:00:00.000 idle
2010.05.11T10:00:10.000 data_management off 10 off off 0 0 off 0 on float 128 8 off off 0 off
2010.05.11T10:00:20.000 acquisition_configuration correlated_double_sampling 3 0 0 1023 1023 59 1 led_a_on 60 30 12bits 0.0262 0.0262

2010.05.11T10:00:30.000 specific_acquisition
2010.05.11T10:05:15.000 acquisition_configuration correlated_double_sampling 3 0 0 1023 1023 59 1 led_b_on 60 30 12bits 0.0262 0.0262
2010.05.11T10:10:15.000 acquisition_configuration correlated_double_sampling 3 0 0 1023 1023 59 1 led_off 60 30 12bits 0.0262 0.0262
2010.05.11T10:15:15.000 acquisition_configuration correlated_double_sampling 10 0 0 1023 1023 59 1 led_off 30 30 12bits 0.0262 0.0262
2010.05.11T10:26:55.000 acquisition_configuration correlated_double_sampling 10 0 0 1023 1023 59 1 led_off 100 30 12bits 0.0 0.0
2010.05.11T10:47:10.000 data_management on 10 off fixed 10 3600 jpeg 0 on float 128 8 off off 255 off
2010.05.11T10:47:20.000 table_configuration 3
0 10 0 0 1023 1023 1 120 0.0 0.0 off 253
1 10 0 0 1023 1023 1 120 0.0 0.0 off 254
2 10 0 0 1023 1023 1 120 0.0 0.0 off 255
2010.05.11T10:47:30.000 table_acquisition 0 3

2010-05-12 (SWAP IOS_000113) Pointing Campaign from 20:29 to 22:10 with the aim to observe the Southern limb of the Sun with different integration periods (10sec and 40sec) and sufficient consecutive images to apply image stacking.

2010-05-13 (SWAP IOS_000113) nominal operations, 10sec integration time, 120 sec cadence, different priority via table commanding.

2010-05-14 (SWAP IOS_000114) Pointing Campaign from midnight to 01:00 with the aim to observe the North-East (upper-left) limb of the Sun with different integration periods (10sec and 40sec) and sufficient consecutive images to apply image stacking. Then nominal operations, 10sec integration time, 120sec cadence



2010-05-15 (SWAP IOS_000114) Pointing Campaign from midnight to 01:00 with the aim to observe the North-East (upper-left) limb of the Sun with different integration periods (10sec and 40sec) and sufficient consecutive images to apply image stacking. Then nominal operations, 10sec integration time, 120sec cadence
No structures were visible in the individual image frames. Stacking needs to be exercised in the future having more images taken with the same pointing.

2010-05-16 (SWAP IOS_000114)
Nominal operations, 10sec integration time, 120sec cadence

4. PROBA2 Science Center Status

Joe Zender was operator during this week.

In the LYRA pipeline, only the LY-TMR runs automatically. The LY-EDG, taking a lot of time to complete, is scheduled manually on a daily basis, when no overlap is expected with the after-pass activities.
All LYRA files were processed into L0 fits files. A data gap exists on 2010-05-12T16:00 for several hours. As LYRA was in calibration mode, the cal fits file has a gap.

5. Commanding, Data reception & discussions with MOC

Overview of the received data.

House keeping data

IOS Commanding

During this week, there were two situations in which errors were thrown at MOC on IOS.

a) IOS111 and IOS112

IOS111 was prepared to start just after an uplink pass n, but the preparation time took too long and the IOS was send in 12 minutes before the uplink pass started. The machinery at MOC, did not take the IOS into account for the pass planned.

Then, the IOS112 was prepared to start just after the pass n+1 and was send in time.

Before the pass n+1 started, the MOC took the IOS111 and declared it as failed, due to commands in the past. This was expected behaviour. But then it tool IOS112 and declared it as canceled. MOC explained that the IOS112 could have been linked to IOS111, and due to the failing of IOS111, the IOS112 was cancelled. This must be taken into account by the operators.

b) IOS115, IOS116, IOS117, IOS118

In the table configuration, the off-pointing was erroneously specified to a value greater than 3 degrees. The IOS was rejected and the report read as follows:

2010.05.15T16.51.01.000 | INFO | handle_ios started
2010.05.15T16.51.01.000 | INFO | logical name of the AP : Handling of new Instrument Operations Sheet
2010.05.15T16.51.01.000 | INFO | AP filename : handle_ios.tcl
2010.05.15T16.51.01.000 | INFO | version : $Rev: 63 $
2010.05.15T16.51.01.000 |

2010.05.15T16.51.01.000 | ACTIVITY | Get and check the file SWAP_Planning_00116_2010_05_15_16_48_40.txt
2010.05.15T16.51.01.000 | ERROR | Syntax error in line 7 : "0 10 0 0 1023 1023 1 40 -0.0392698 0.0392698 off 0"
2010.05.15T16.51.01.000 | ERROR | Syntax error in line 8 : "1 10 0 0 1023 1023 1 40 -0.0392698 0.0392698 off 0"

2010.05.15T16.51.01.000 | ERROR | Syntax error in line 9 : "2 10 0 0 1023 1023 1 40 -0.0392698 0.0392698 off 0"
2010.05.15T16.51.01.000 | ERROR | Syntax error in line 10 : "3 10 0 0 1023 1023 1 40 -0.0392698 0.0392698 off 0"
2010.05.15T16.51.01.000 | ERROR | Syntax error in line 11 : "4 10 0 0 1023 1023 1 40 -0.0392698 0.0392698 off 0"
2010.05.15T16.51.01.000 | ERROR | Syntax error in line 12 : "5 10 0 0 1023 1023 1 40 -0.0392698 0.0392698 off 0"

The real problem indeed was that the off-pointing value should have been -0.0039.

Science data

2010-05-11 pass 1232 was redelivered on 2010-05-12 and is still incomplete
2010-05-11 pass 1233 was redelivered on 2010-05-12 and is still incomplete
2010-05-11 pass 1234 was redelivered on 2010-05-12 and is complete now
2010-05-12 pass 1241 was not delivered originally and resent on 2010-05-17, complete now
2010-05-12 pass 1242 was not delivered originally and resent on 2010-05-17,
2010-05-12 pass 1243 was redelivered on 2010-05-17 with more HK data,

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
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 Yield 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
SWEDG	SWAP Engineering Data Generator (software module of P2SC)
SWTMR	SWAP Telemetry Reformatter (software module of P2SC)
TBC	To Be Confirmed
TBD	

TBW	To Be Defined
TPMU	To Be Written TC Telecommand
UTC	Thermal Plasma Measurement Unit
UV	Coordinated Universal Time
	Ultraviolet