P2SC-ROB-WR-041-20101220 Weekly report #41	**P2SC Weekly report**	
Period covered: Date: Written by: Released by:	Mon Dec 20 2010 to Sun Jan 2 2011 Mon Jan 10 2011 D. Berghmans A. De Groof	Royal Observatory of Belgium PROBA2 Science Center
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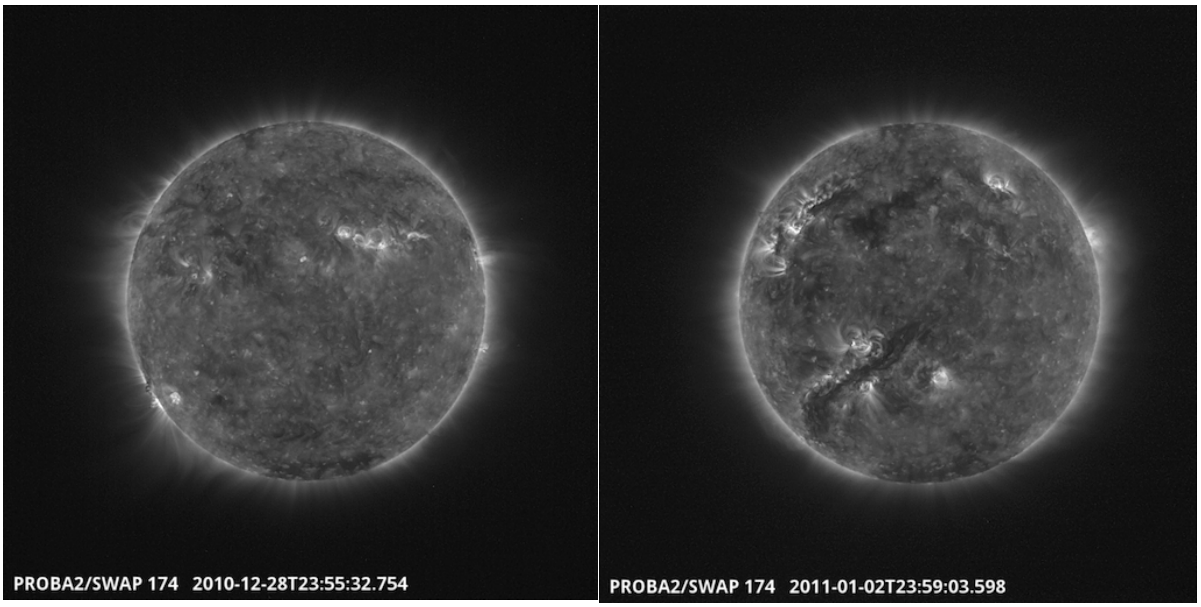
! Note that this report exceptionally covers the 2 subsequent weeks of the Christmas holidays.

1. Science

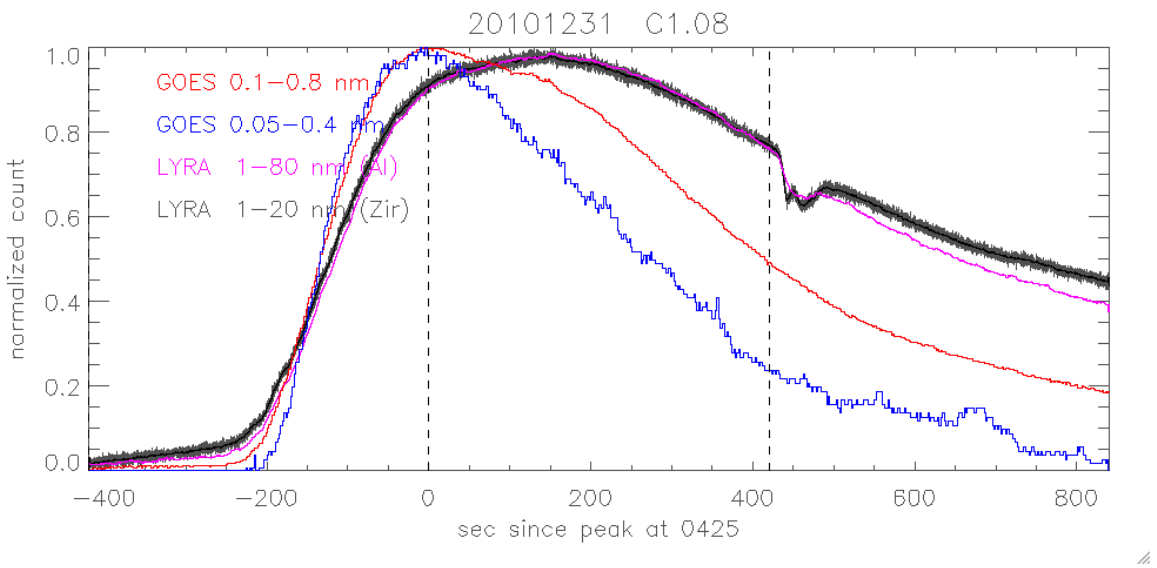
Solar & Space weather events

Solar activity was very quiet during the period, especially during the first week. In the second week (from Dec 27 onwards), the background GOES X-ray started to rise due to the appearance of active regions at the Solar North East limb.

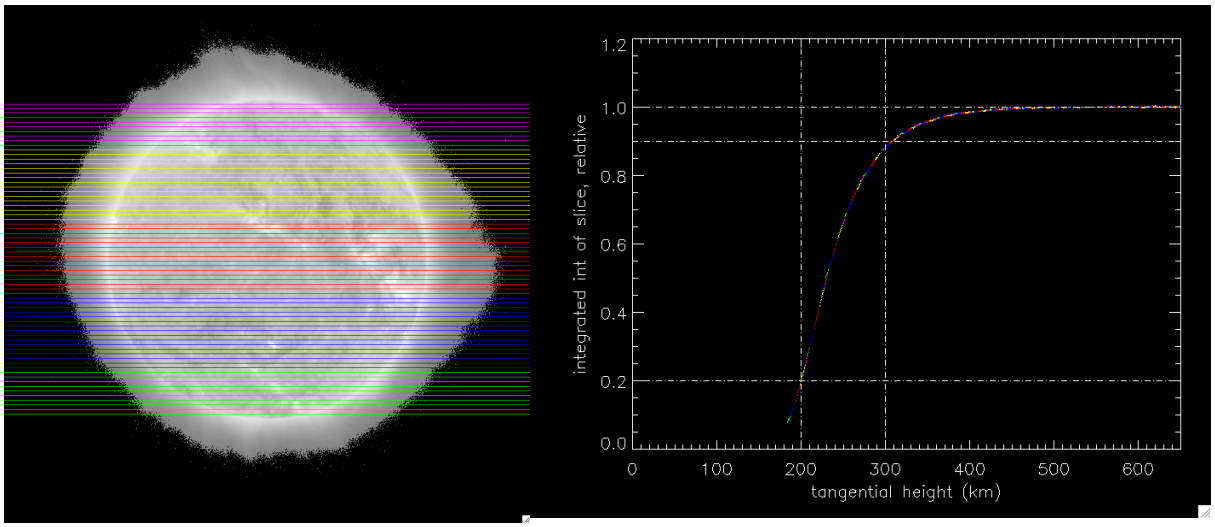


In the image on the left, on the South-East limb (bottom left) one sees a large loop-system. A few days later (image on the right) one sees that this corresponds to a giant filament.

From Dec 29 onwards, some larger B-flares occurred. On Dec 31 morning, the biggest flare of the period was observed (C1, see below).



SWAP ran high cadence occultation campaigns on Dec 22 and Dec 23. Preliminary results for the Dec 22 campaign are shown below. The colors in the left and right panel correspond to different cross-cuts of the sun that undergo occultation at different observation times. This effect is successfully removed in the panel on the right.



Scientific campaigns

- SWAP mosaic campaigns (Dec 20, Dec 21) to study the extended corona
- several LYRA occultation campaigns, some supported by high cadence SWAP images (Dec 22 08:25-08:39, Dec 23 09:13-09:27)
- SWAP darks for calibration purposes

Outreach, papers, presentations, etc.

None (Christmas holidays)

To be explored

The SWAP occultation curve is strikingly different from a curve taken by a similar instrument (TESIS) observing at the same wavelength during solar maximum.

2. LYRA instrument status

Calibration
LREP02 was executed on Dec 20.

IOS & operations
From Dec 20 onwards till the end of the reporting period, LYRA was commanded through LYRA IOS 000125 containing:

- Dec 20: occultation campaign with unit 3, LREP02, back-up mode (unit 2&3, unit 2&1)
- Dec 21, 22, 23, 24: occultation campaigns with unit 3, with manual command support

All 4 channels of LYRA showed abnormal values between Dec 28 23:13 and Dec 29 04:46. The reason is that the instrument did not switched back to unit 2 after acquisition of 0V VFC calibration voltage (although it was commanded: data are labeled unit 2). The problem was spontaneously solved at the next VFC calibration.

An ASIC reload (automatically scheduled onboard every 100 orbits) took place on Dec 25, at 17:27 and on Jan 1st, on 13:37.

To be explored
Guest Investigator Gael Cessateur presented a first report of the LYRA occultation campaigns. Details of this interesting work are now being analyzed further.

3. SWAP instrument status

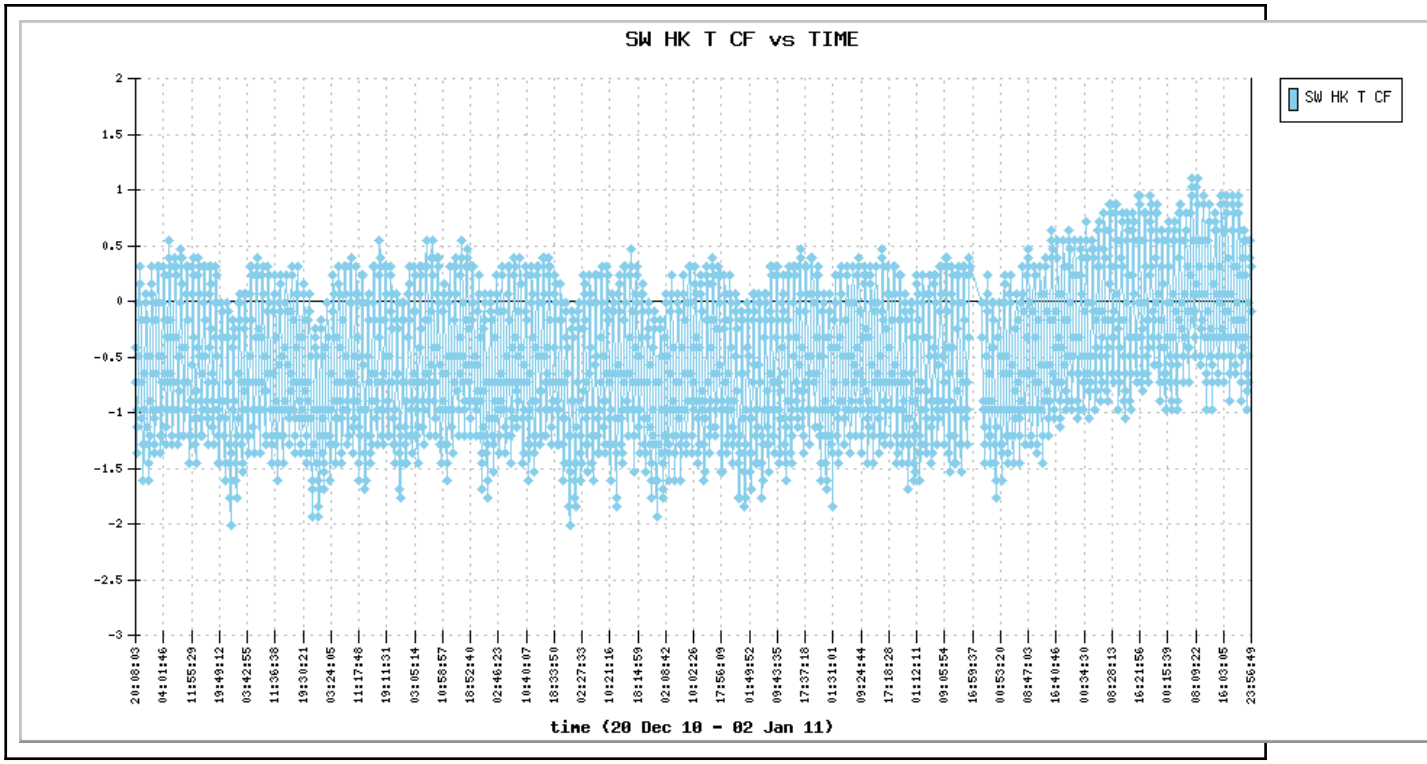
MCPM errors
The number of MCPM recoverable remained stable at 211. The number of unrecoverable errors is still at 0.

IOS & operations

- IOS000220: Mosaic campaign of Dec 20
- IOS000221: was overwritten by IOS000222
- IOS000221: SWAP occultation campaigns (high cadence imaging) on December 22 & 23, in support of LYRA occultation campaign
- IOS000224 was overwritten by IOS000225
- IOS000225: SWAP campaigns for Dec 25 until Dec 29 midnight: uncompressed darks during the eclipses of Dec 25 5:30 and 23:40UT
- IOS000226 ran from Dec 30 till Jan 3: nominal acquisitions with eclipse jumping - cadence 80s

SWAP detector and IIU temperature

The reporting period (end Dec) was, as we expected, the coldest period of the year. For most of the period, the SWAP Cold Finger Temperature fluctuated between -1.5C and 0.5C. Since Dec 31 we see a rise to a hotter regime.



4. PROBA2 Science Center Status

Anik De Groof was operator from Dec 20 till Dec 23 2010. David Berghmans was operator for the remainder of the period till Jan 2 2011.

SWAP daily movies were created automatically.

The following tools were updated on the operational server:

Software name	Update	Date	Comment
LY-QLV	3854	2010-12-20	ly_qlv.conf: PREC=3 changed to PREC=6 (bgiorda)

5. Data reception & discussions with MOC

Passes LYRA_AD_3294 missing.
Data coverage HK The coverage of the received HK data was complete during the period except a data gap on Dec 30 afternoon. This HK data gap in afternoon causes problems with SWBSDG: No sufficiently recent Detector Temp. in level-0 header, aborting prep for file:

swap_lv0_20101230_1637??.fits till swap_lv0_20101230_1924??.fits
Data coverage SWAP MCPM image download was blocked shortly after pass 3317 (end 2010-12-25T03:58) and only fixed in pass 3348 (2010-12-28T13:02). Many of the images that were taken in this time period were overwritten onboard. As a consequence, solar monitoring was interrupted from 2010-12-25T05:27 till 2010-12-27T13:08. Thanks to the cyclic priority numbering onboard 1 out of 3 images were saved in the last 24 hours of the MCPM blockage. Also the few dark images taken on Dec 25 were not overwritten, because they had a higher priority. Statistics for complete week: *Total number of images between 2010 Dec 20 0UT and 2011 Jan 03 0UT: 8358* *Highest cadence in this period: 19 seconds* *Average cadence in this period: 144.61 seconds* *Number of image gaps larger than 300 seconds: 223* *Number of image gaps larger than 1700 seconds: 161 (typically eclipse interruptions)* *Number of image gaps larger than 1900 seconds: 6* *Gap of 5983 seconds, just before image BINSWAP201012250527 in BINSWAP_3348* *Gap of 63965 seconds, just before image BINSWAP201012252339 in BINSWAP_3348* *Gap of 133462 seconds, just before image BINSWAP201012271308 in BINSWAP_3348* *Gap of 4698 seconds, just before image BINSWAP201012271451 in BINSWAP_3349* *Gap of 2049 seconds, just before image BINSWAP2010123100550 in BINSWAP_3372* *Gap of 1968 seconds, just before image BINSWAP201012310231 in BINSWAP_3371*
Data coverage LYRA The coverage of the received LYRA data was complete during the period and was only interrupted during ● Dec 20 09:00 till Dec 20 20:56, corresponding to the period of the LYRA calibration campaign. ● Dec 29 23:13 till Dec 30 04:46, corresponding to the period of the VFC calibration voltage blockage (see above).

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
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