P2SC-ROB-WR-099-20120213 Weekly report #099	**P2SC Weekly report**	
Period covered: Date: Written by: Released by:	Mon Feb 13 to Mon Feb 20, 2012 23 Feb 2012 Erik Pylyser David Berghmans	Royal Observatory of Belgium PROBA2 Science Center
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1. Science

Solar & Space weather events

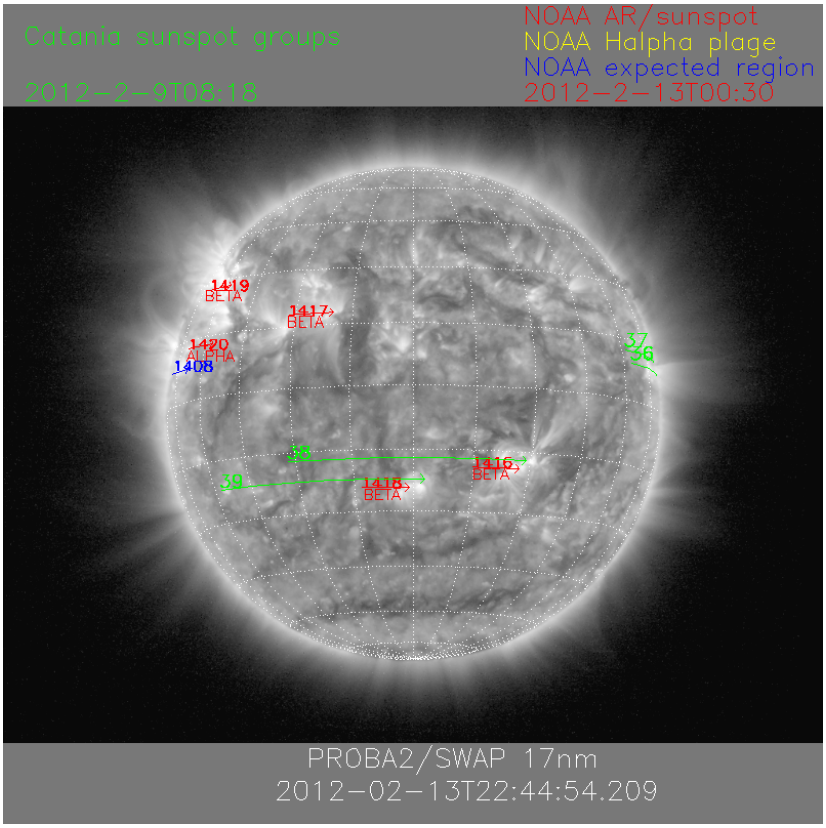
Overview

The level of solar activity this week:

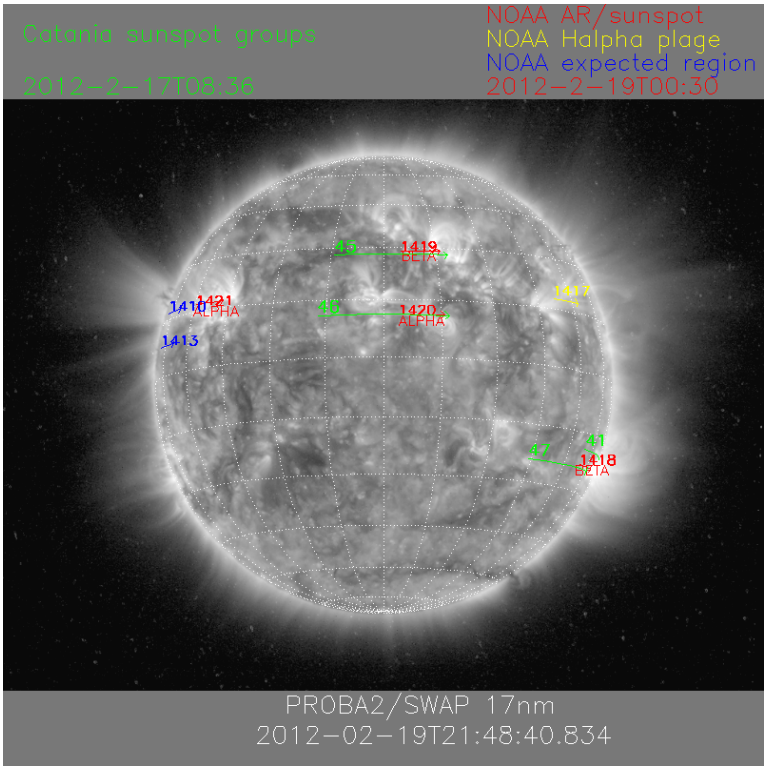
Monday 13 Jan	Tuesday 14 Jan	Wednesday 15 Feb	Thursday 16 Feb	Friday 17 Feb	Saturday 18 Feb	Sunday 19 Feb
very low	very low	very low	very low	very low	very low	low

See http://p2wiki.oma.be:8000/p2ops_wiki/wiki/P2SCWeeklyReport for a definition of the above-used solar activity standards.

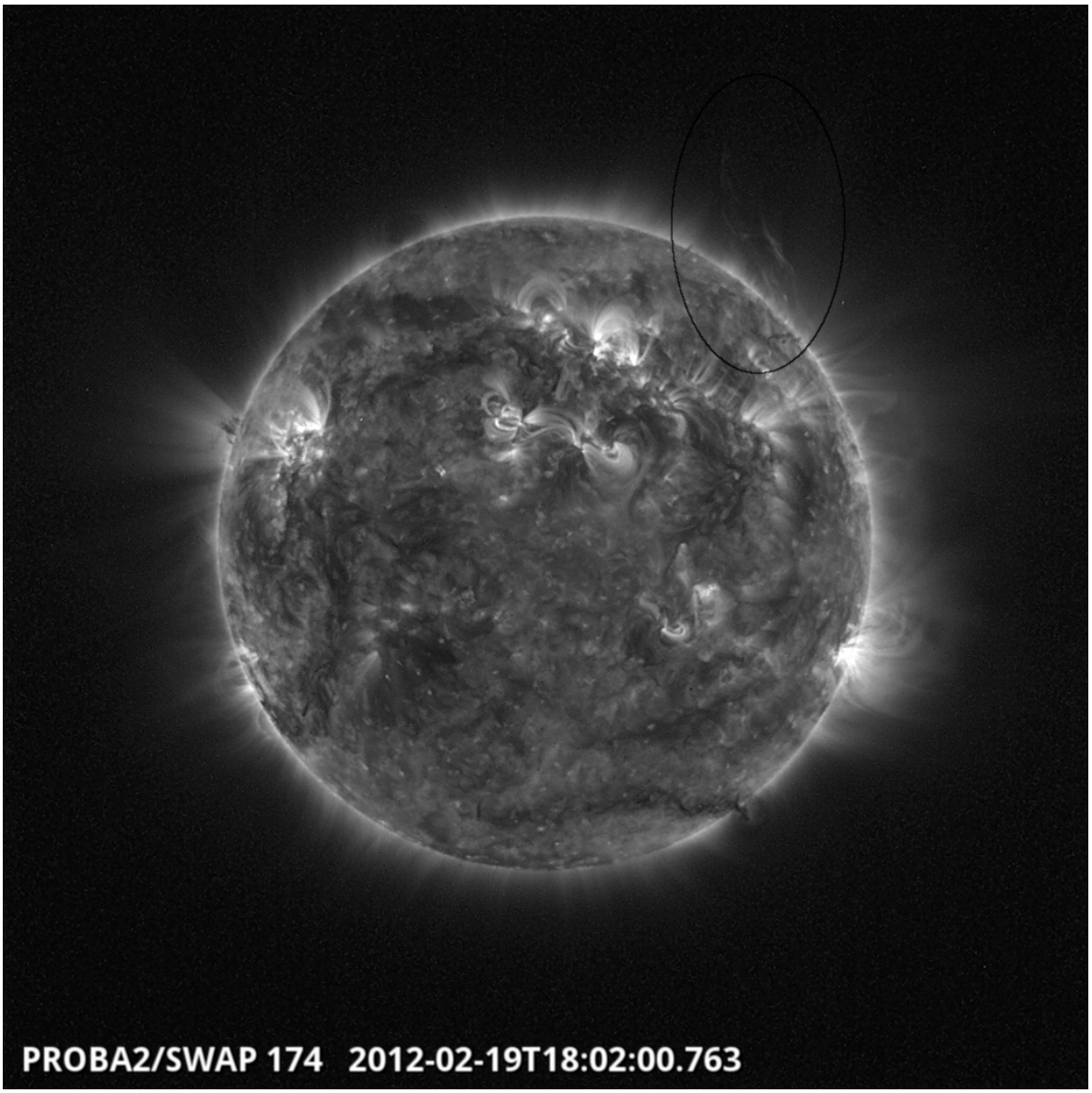
The SWAP images of Feb 13 and Feb 19 are shown below, with annotated active regions.



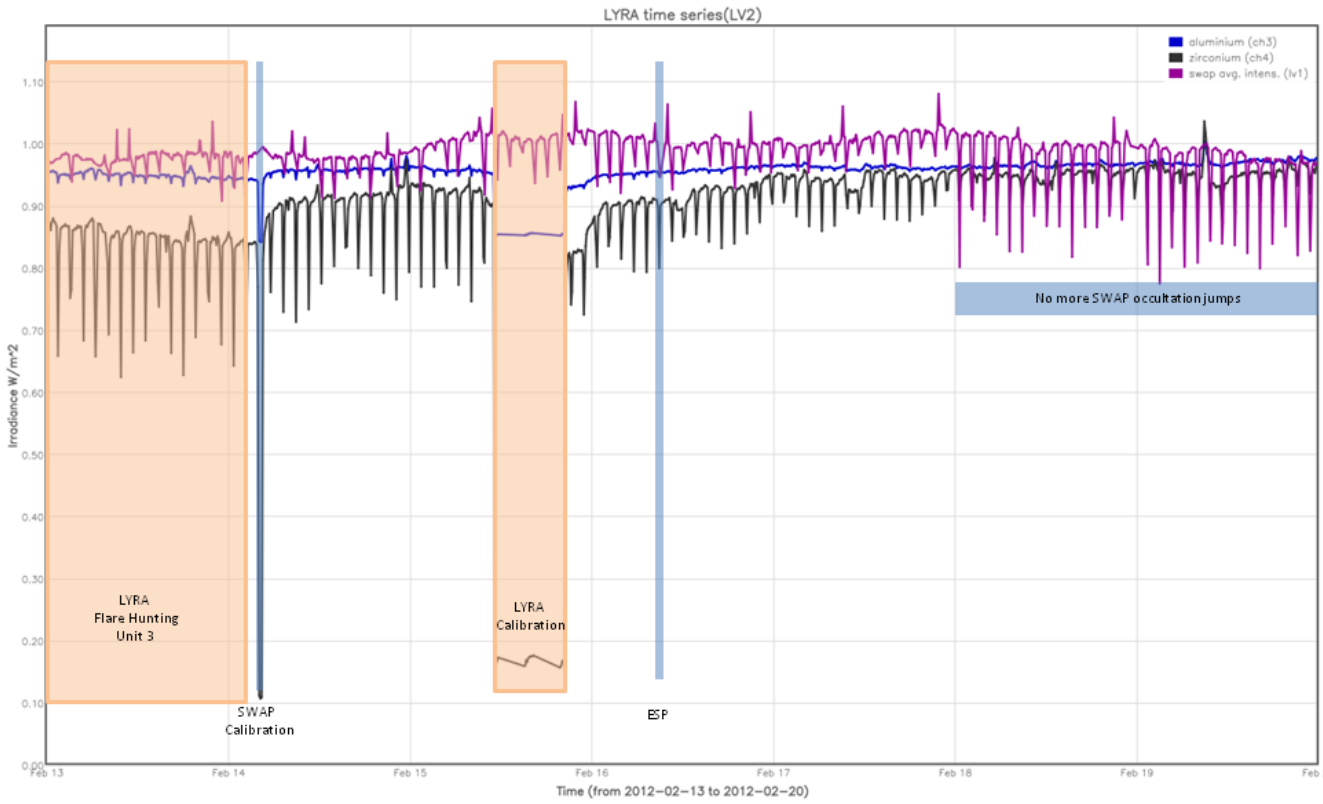
http://sidc.be/html/CmapPage.html



Filament eruptions, visible in SWAP, occurred on:
16/02: 14:30 UT - N/W limb
17/02: 00:12 UT - NW quadrant
19/02: 17:00 UT - NW limb, shown below:



Below is provided an overview of the weekly LYRA & SWAP data:



The blue shaded periods correspond, from left to right, to 1. a SWAP calibration on Tue, 3. the ESP campaign on Thu and 3. 'end of SWAP occultation jumping'.
The orange shaded periods correspond, from left to right, to a period where 1. Unit 3 was active for a flare hunting campaign and 2. LYRA calibration on Wed.

The occultation season is ending. SWAP occultation jumps have been ended since 18/02/2012.

Scientific campaigns

The following LYRA and SWAP specific scientific campaigns are on-going:
- daily LYRA occultation ingress & egress (planned around 10:00 every day), with unit 3,
- bi-weekly, on Monday, a LYRA occultation ingress & egress with unit 1, after the unit 3 occultation of that Monday.

From Sun 12th Feb (17:30) until Tue 14th Feb (04:00), a special LYRA Unit 3 hunting campaign was executed.

Outreach, papers, presentations, etc.

- On Fri 17th Feb, a seminar was held at ROB by Grzegorz Michalek (Guest Investigator). He talked about ‘Narrow CME’s’ and used SWAP images for his seminar.

- "The LYRA instrument onboard PROBA2: description and in-flight performance" - Submitted
M. Dominique, J.-F. Hochedez, W. Schmutz, I.E. Dammasch, A.I. Shapiro, M. Kretzschmar, A.N. Zhukov, D. Gillotay, Y. Stockman, A. BenMoussa

- Part of the Science section of this report was published in the weekly STCE bulletin.

2. LYRA instrument status

Calibration

LYRA calibration was performed on Wednesday, this week.

IOS & operations

Monday 13 Jan	Tuesday 14 Jan	Wednesday 15 Feb	Thursday 16 Feb	Friday 17 Feb	Saturday 18 Feb	Sunday 19 Feb
Nominal acquisition + occultation LYIOS00221	Nominal acquisition + occultation LYIOS00221	Nominal acquisition + occultations + calibration LYIOS00221	Nominal acquisition + occultation LYIOS00221	Nominal acquisition + occultation LYIOS00221	Nominal acquisition + occultation LYIOS00222	Nominal acquisition + occultation LYIOS00222

For the whole week, the daily occultation campaign continued.

A dedicated flare hunting campaign was started on Sunday 12th, 17:30 until Tuesday 14th, 04:00. Unit 3 was activated during that period.

LYRA detector temperature

The LYRA detector 2 temperature (nominal unit) fluctuated between 52.5 degrees (peak during Unit 3 flare hunting) and 49.6 degrees.

To be explored
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3. SWAP instrument status

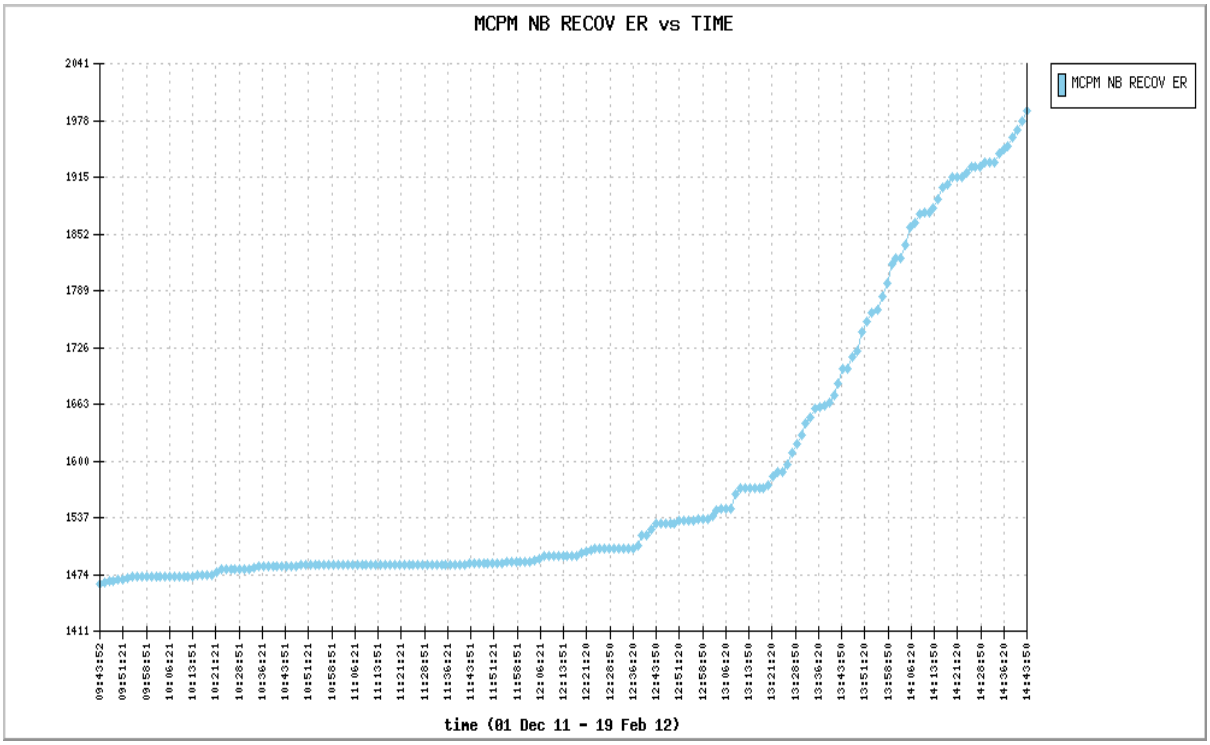
Calibration

SWAP calibration was performed on Tuesday.

MCPM errors

The number of MCPM recoverable errors increased from 1913 to 1995.
The number of MCPM unrecoverable errors is still 0.

The figure below shows the evolution of the MCPM recovery errors from 01/12/2011 until 20/02/2012.



This evolution is being analysed.

IOS & operations

Monday 13 Jan	Tuesday 14 Jan	Wednesday 15 Feb	Thursday 16 Feb	Friday 17 Feb	Saturday 18 Feb	Sunday 19 Feb
Nominal acquisition 80s cadence + occult. jumps IOS00366 583 images	Nominal acquisition + calibration + occult. jumps IOS00366 644 images	Nominal acquisition + + occult. jumps IOS00366 671 images	Nominal acquisition + + occult. jumps IOS00366 613 images	Nominal acquisition + + occult. jumps IOS00366 647 images	Nominal acquisition + occult. jumps IOS00367 656 images	Nominal acquisition + occult. jumps IOS00367 502 images

Occultation imaging jumps are commanded and performed during each orbit.

The new on-board image priority concept was prepared for testing. The first application of it on-board will occur early next week.

SWAP detector temperature
The SWAP Cold Finger Temperature diminished from 2.85 to 1.3 degrees Celsius, under nominal operations.

To be explored
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4. PROBA2 Science Center Status

The main operator is Koen Stegen; Erik Pylyser provides support, when needed.

The weekly 'P2SC Operations meeting' was held on 15/02/2012.

Updates to P2SC, this week:
- None.

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In support to scientific exploitation of the LYRA data, three IDL routines for downloading and reading the LYRA data have been written and disseminated through the PROBA2/LYRA package of the Solarsoft distribution.

*** DL_LYRADATA.pro:**
For example, this command "dl_lyradata,20100501,/LEVEL3, filename=filename" will download the level3 fitsfile for 1st May of 2010 in the working directory and return the name of the file in the *filename* variable

*** READ_LYRA.PRO:**
This routine will return for a specific day (yyyymmdd) the timeseries of the observation time and the 4 channels of LYRA. The data will be downloaded (through a call to dl_lyradata.pro) if requested. Additionnally, GOES Soft X-ray observations for the same day can be returned.

*** READ_LYRAMETADATA.PRO:**

This routine works like READ_LYRA but for the metadata of LYRA (pointing, temperature, cover status, ...)

All the information to use these routines are available within the source code.

5. Data reception & discussions with MOC

Passes

Due to an inconsistent pass-plan update, the data downlinked during pass 7044 was not captured on ground at the planned time.

The delivery of the following passes for this week (passes 6980 till 7040) was nominal, except for:

Pass 7044:

- BINSWAP_7044 not received; data for this pass is lost.
- BINLYRA_7044 data embedded in BINLYRA_7045.
- LYRA_AD_7044 received on Wed 15th.

Data coverage HK

All data was received. The HK data for pass 7044 (Mon 13th - 07:57-08:06) were received on Wed 15th.

Data coverage SWAP

Due to a ground station downlink pass planning inconsistency/problem, SWAP images expected during pass 7044 were downlinked while no ground station was ready/available for receiving them (Monday 13th - 07:57-08:06). As a result, these SWAP images were lost.

Total number of images between 2012 Feb 13 0UT and 2012 Feb 20 0UT: 4316
Highest cadence in this period: 30 seconds
Average cadence in this period: 140.11 seconds
Number of image gaps larger than 300 seconds: 73
Largest data gap: 32.67 minutes

Data coverage LYRA

The LYRA data were complete. The LYRA science data of pass 7044 were embedded in BINLYRA_7045.

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
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
TC	Telecommand

UTC	Coordinated Universal Time
UV	Ultraviolet