P2SC-ROB-WR-103-20120312 Weekly report #103	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Mar 12 to Sun Mar 18, 2012 21 Mar 2012 Erik Pylyser David Berghmans	Royal Observatory of Belgium PROBA2 Science Center
To:	LYRA PI, marie.dominique@sidc.be SWAP Deputy PI, dan.seaton@sidc.be	http://proba2.sidc.be ++ 32 (0) 2 373 0 559
cc:	ROB DIR, ronald@oma.be ESA Redu, Etienne.Tilmans@esa.int ESA D/SRE, Joe.Zender@esa.int ESA D/TEC, Stefano.Santandrea@esa.int	

1. Science

Solar & Space weather events

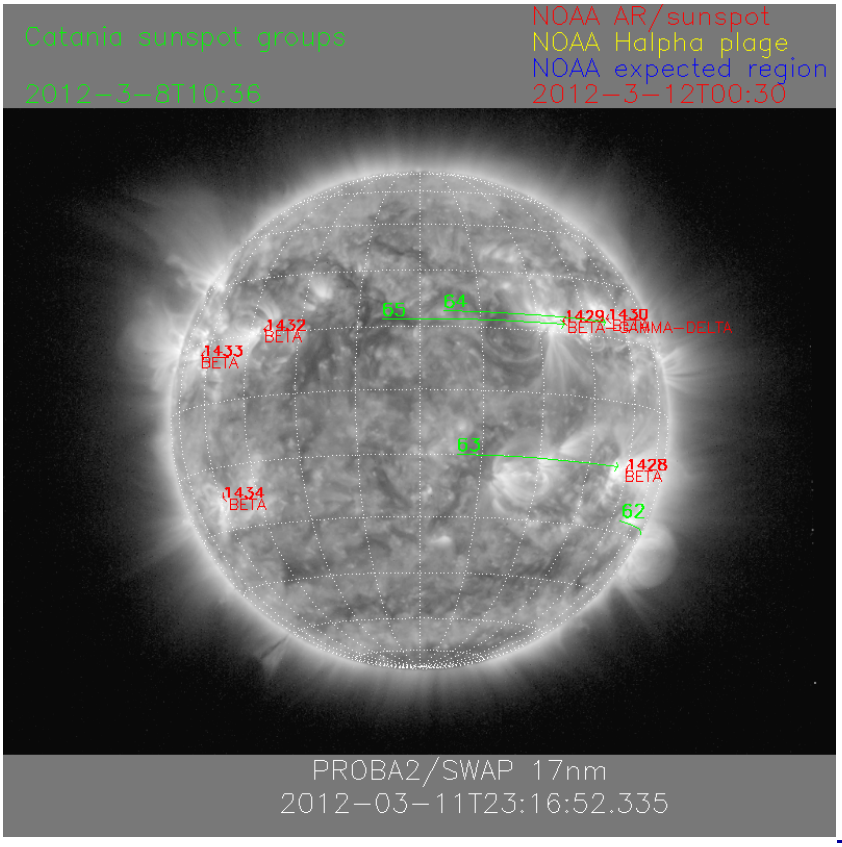
Overview

The level of solar activity this week[1]:

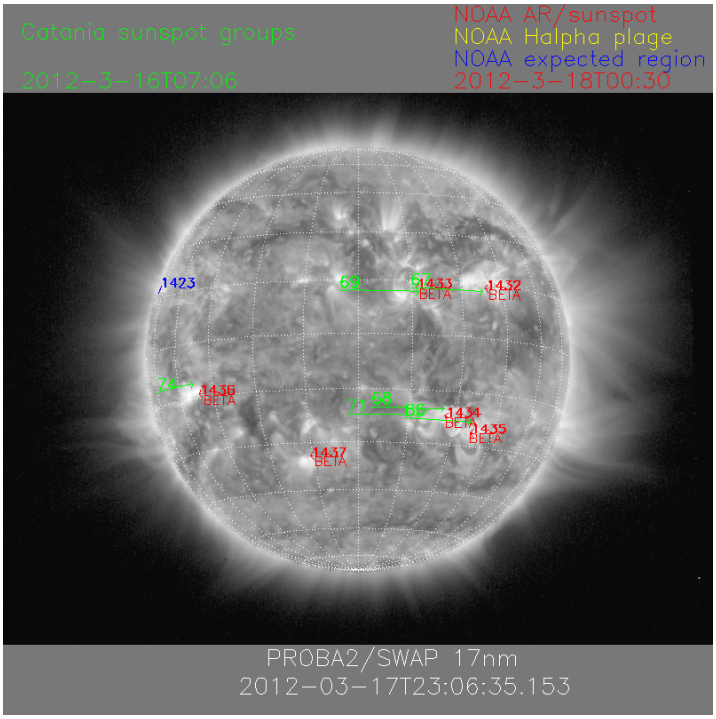
Monday 12 Mar	Tuesday 13 Mar	Wednesday 14 Mar	Thursday 15 Mar	Friday 16 Mar	Saturday 17 Mar	Sunday 18 Mar
low	moderate	moderate	moderate	low	moderate	low

[1] See appendix.

The SWAP images of Mar 12 and Mar 17 (23:06 UT) are shown below, with annotated active regions.



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



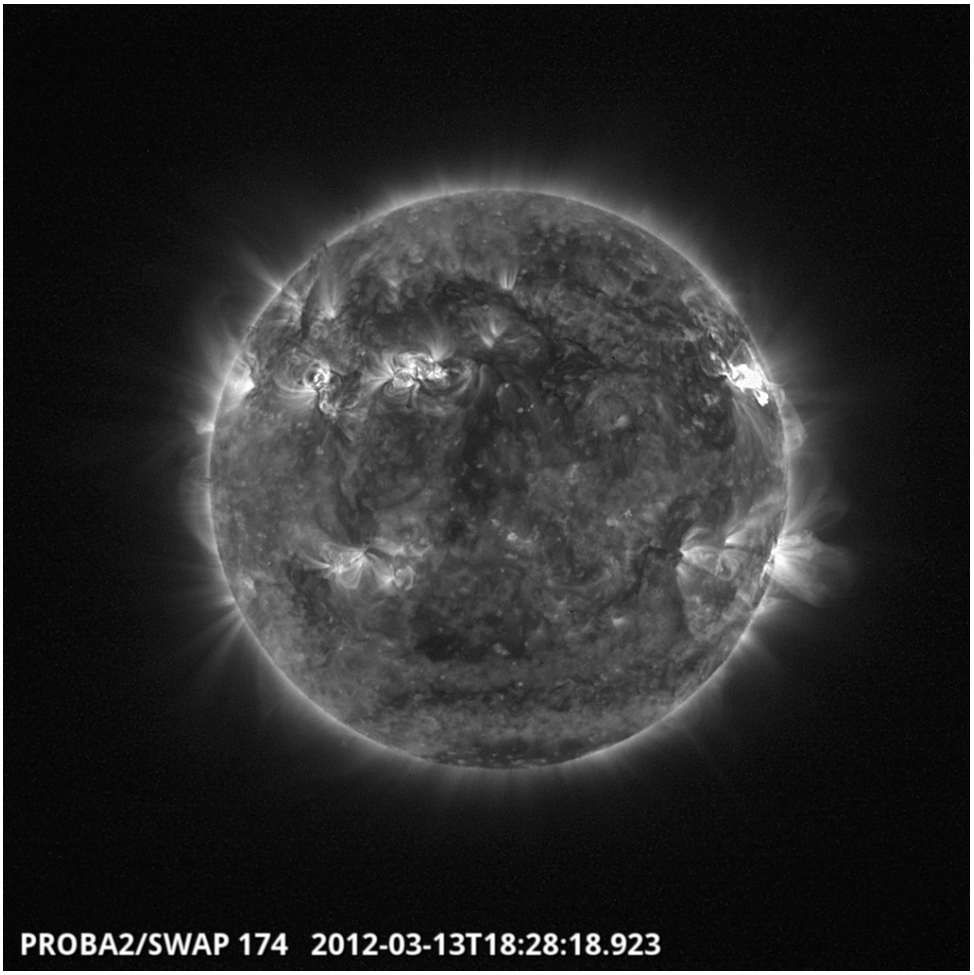
The following table lists the occurrences of M- and X-flares, this week:

Monday 12 Mar	Tuesday 13 Mar	Wednesday 14 Mar	Thursday 15Mar	Friday 16 Mar	Saturday 17 Mar	Sunday 18 Mar
-	M7.9 at 17:12[2]	M2.8 at 15:08	M1.8 at 07:52	-	M1.3 at 20:32	-

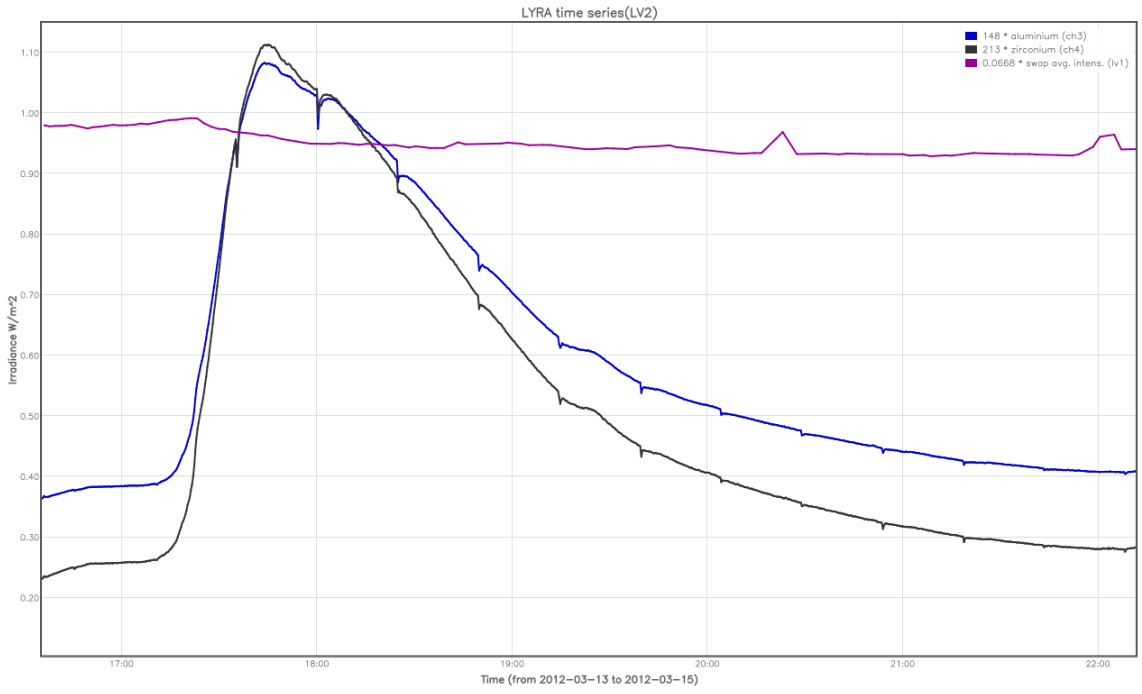
On the pages hereafter are presented the SWAP images and LYRA curves related to the most energetic flares of this week, i.e.
- M7.9 from Tue 13 (AR 11429)
- M2.8 from Wed 14 (AR 11432)
- M1.8 from Thu 15 (AR 11432)

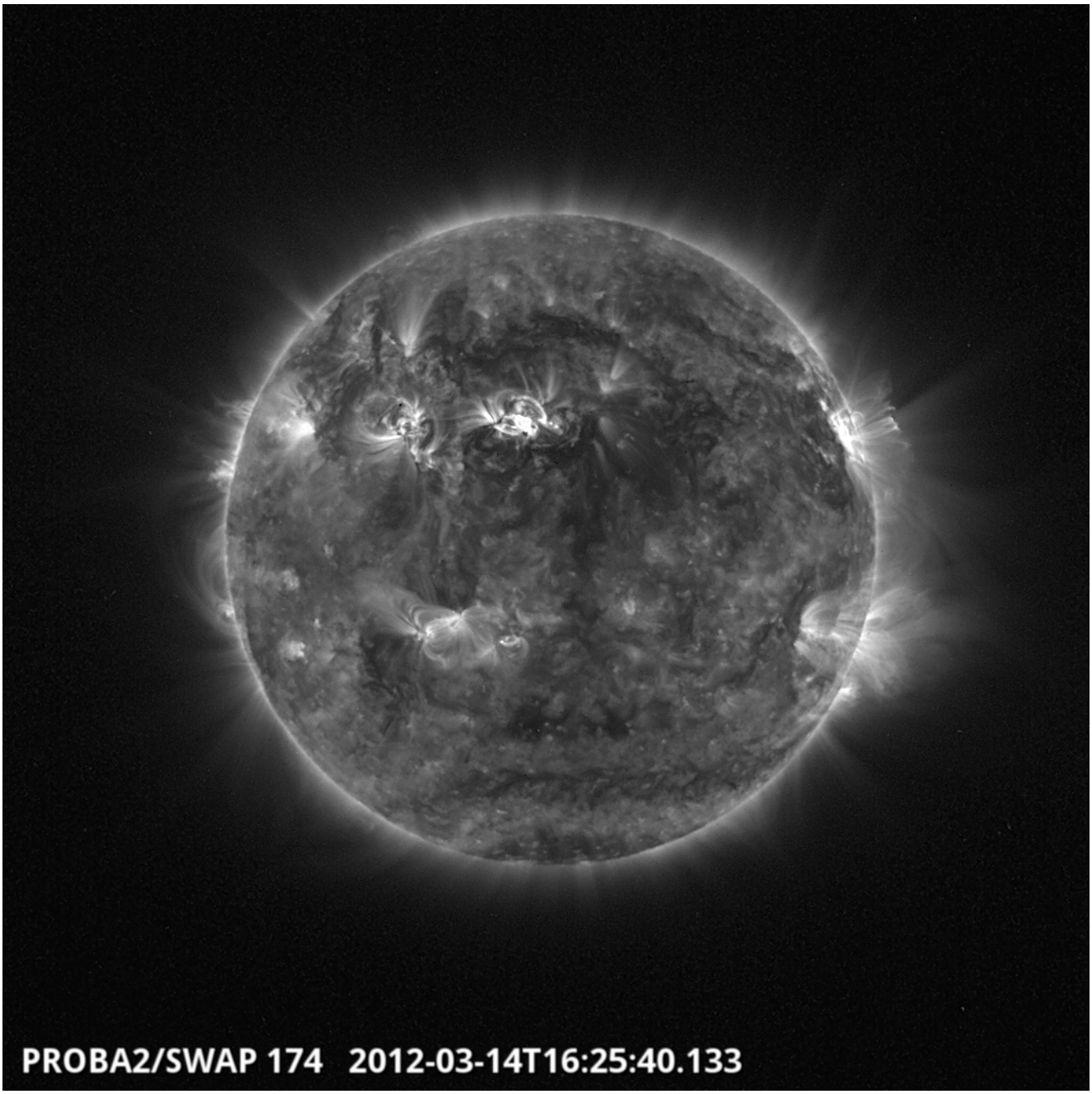
The following curves are visible on the LYRA time series:
- black: Zirconium Channel LYRA Unit 2
- blue: Aluminium Channel of LYRA Unit 2
- purple: SWAVINT (solar intensity derived from 'integrated' SWAP images)

[2] All timings in this report are expressed in Universal Time (UT).



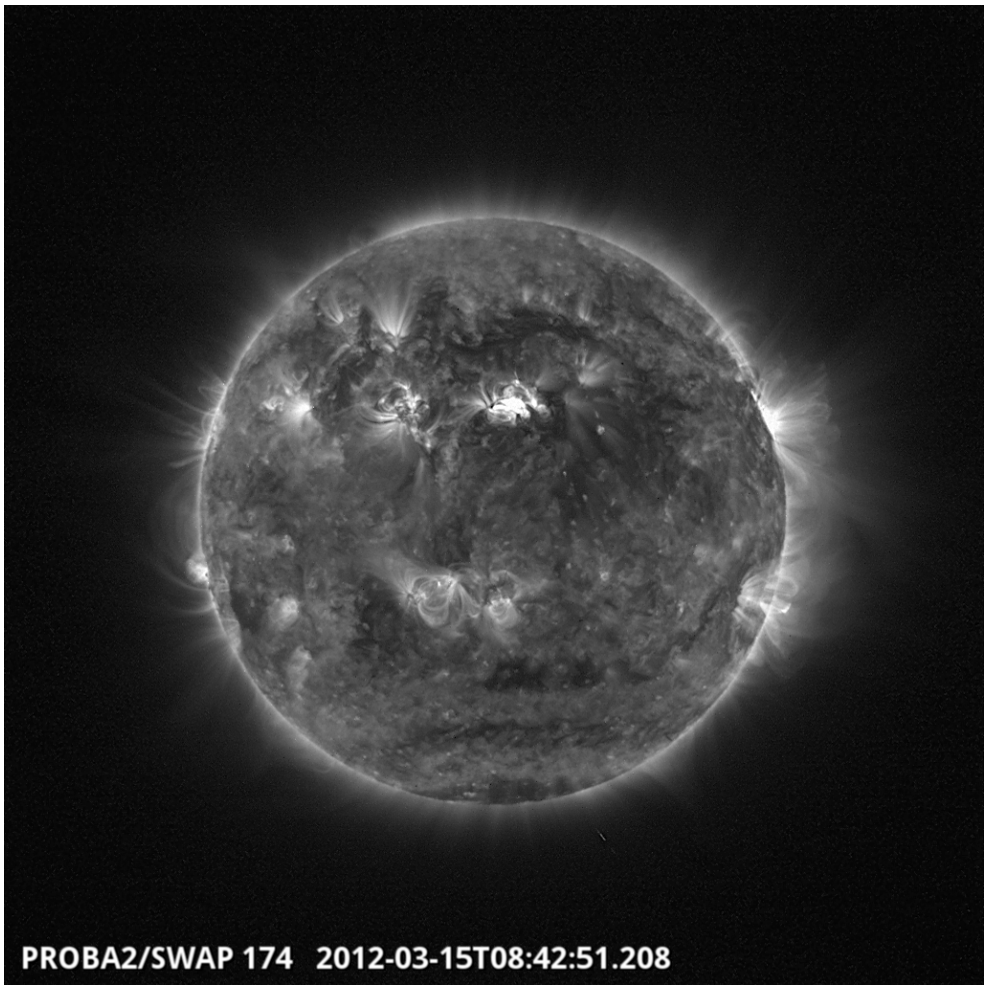
M7.9 Flare on Tue March 13; 17:12 (west limb)



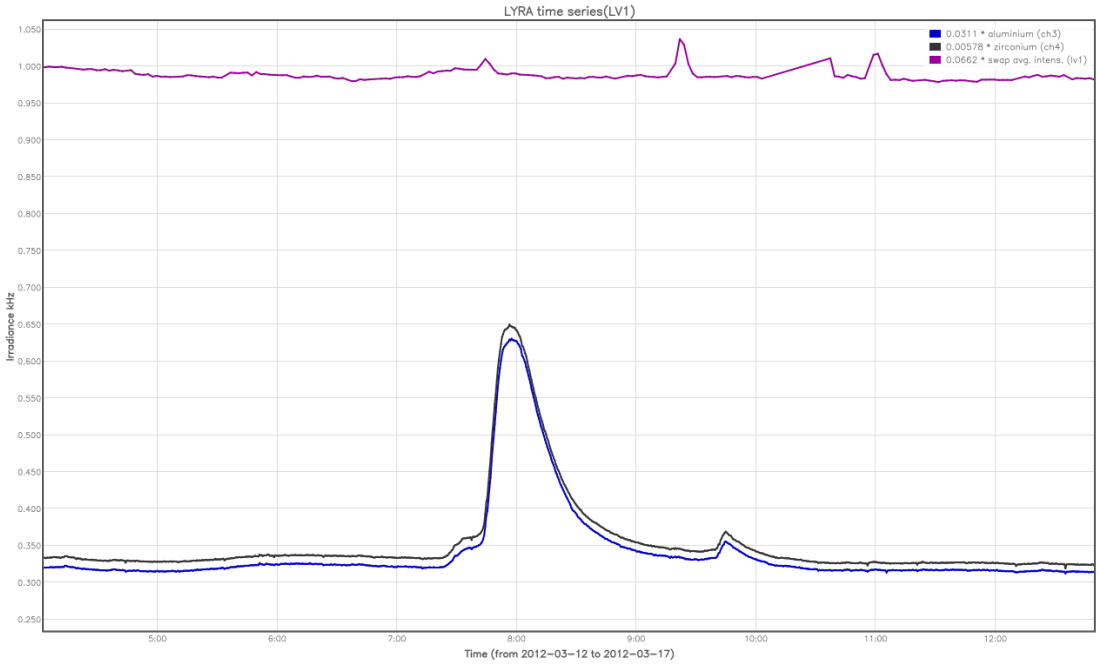


M2.8 Flare on Wed March 14; 15:08 (just left of meridian)

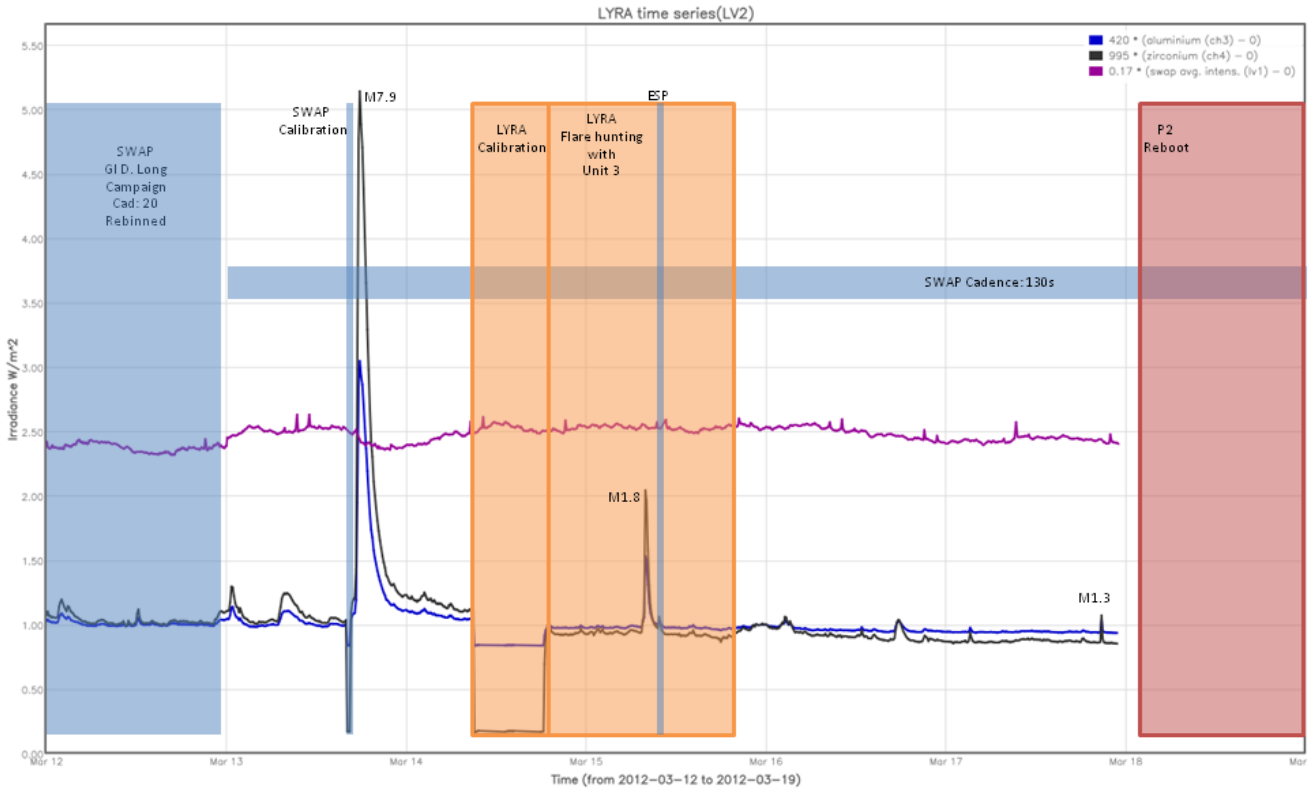
LYRA was in calibration mode at this time.



M1.8 Flare on Thu March 15; 07:52 (just right of meridian)



An overview of the weekly LYRA & SWAP data is provided below:



The blue shaded periods correspond to, from left to right, the 24hr special GI (D. Long) campaign on Monday, the SWAP cadence evolution, SWAP calibration on Tuesday and ESP campaign on Thursday.

The orange shaded periods correspond, from left to right with the LYRA calibration and the LYRA U3 flare hunting campaign.

The red shaded period corresponds with the period following the PROBA2 satellite reboot, which occurred on Mar 18th, 00:43, during which no LYRA nor SWAP data was received.

Scientific campaigns

The following LYRA and SWAP specific scientific campaigns have been performed this week:
- On Monday 12th, a full day of SWAP off-point imaging was performed in support of Guest Investigator David Long. This campaign had the following specifics:
- duration: 24 hrs
- cadence: 20 s
- binning: 2x2

The general aim of the campaign is to catch an eruption close to a limb and which extends as far as possible from the solar surface. On Monday, the campaign aimed therefore at hunting for strong flares from the very active AR 11429.
The aim was to observe in parallel with Hinode. However, Hinode had to perform evasive manoeuvres on Sun 11th, such that it could not perform its planned observations, in parallel with SWAP.
SWAP will repeat this campaign when a new parallel observation campaign with Hinode and SWAP can be organized.

- LYRA performed a flare hunting campaign with Unit 3, from Wed 14th 18:35, for 24 hours.

- Daily LYRA campaign with Unit 3, opening the cover for 15 minutes, except for the flare hunting periods (see above) and Sun 18th.

Outreach, papers, presentations, etc.

- Claire L. Raftery; 'Temperature response of the 171A passband imagers on PROBA2, TRACE, SOHO, STEREO, and SDO'; Submitted - Topical Issue.
- Topical Issue in Solar Physics: submission deadline April 20
- PROBA2 Science Days: May 3 and May 4 (http://proba2.sidc.be/index.html/community/calendar/article/proba2-science-meeting-may-2012?menu=26)

2. LYRA instrument status

Calibration

Calibration on Wednesday, 16:30.

IOS & operations

Monday 12 Mar	Tuesday 13 Mar	Wednesday 14 Mar	Thursday 15 Mar	Friday 16 Mar	Saturday 17 Mar	Sunday 18 Mar
Nominal acquisition LYIOS00230	Nominal acquisition LYIOS00230	Nominal acquisition + calibration + flare hunting U3 LYIOS00230 -> 231 -> 232	Nominal acquisition + flare hunting U3 LYIOS00232	Nominal acquisition LYIOS00232	Nominal acquisition LYIOS00232	P2 rebooted; LYRA OFF none

On Saturday 18th, 00:43, PROBA2 rebooted. LYRA was in nominal mode, with Unit 2 open. Due to the reboot, LYRA went in OFF mode, with Unit 2 cover open.
LYRA data was received until the beginning of pass 7341, at 23:00.

LYRA acquisition was re-initiated on Mon 19th, 20:38 (see next week's report #104).

No LYRA data was received for all passes from 7342 until 7350 included (all passes of Mar 18th)

LYRA detector temperature

LYRA detector 2 temperature fluctuated between 46.2 (during calibration) and 53 degrees (during flare hunting with Unit 3). During nominal acquisition, temperature fluctuated between 47.5 and 48.4 degrees Celsius.

To be explored
/

3. SWAP instrument status

Calibration

Calibration done on Tuesday, 03:00 UT.

MCPM errors
The number of MCPM recoverable errors increased from 2321 to 2371.
The number of MCPM unrecoverable errors is still 0.

IOS & operations

Monday 12 Mar	Tuesday 13 Mar	Wednesday 14 Mar	Thursday 15 Mar	Friday 16 Mar	Saturday 17 Mar	Sunday 18 Mar
Nominal acquisition 130s cadence + special campaign D. Long IOS00374 -> 375 2879 images	Nominal acquisition + calibration IOS00375 -> 376 562 images	Nominal acquisition IOS00376 663 images	Nominal acquisition IOS00376 627 images	Nominal acquisition IOS00376 662 images	Nominal acquisition IOS00376 428 images	P2 rebooted; SWAP OFF none 0 images

On Saturday 18th, 00:43, PROBA2 rebooted. SWAP was then in nominal acquisition mode. Due to the reboot, SWAP went in OFF mode.
SWAP data was received until 23:06.

SWAP nominal acquisition was re-initiated on Mon 19th 20:42 (see next week's report #104).

No SWAP data was received for all passes from 7342 until 7350 included (all passes of Mar 18th)

SWAP detector temperature
The SWAP Cold Finger Temperature fluctuated between max 0.39 and min - 0.49 degrees Celsius, under nominal operations.

To be explored
/

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 14/03/2012.

Updates to P2SC, this week:
- Complete Update of Repository: 13/03/2012: r4380
- New install of conf directory: 13/03/2012: global.ini r4364
- libp2sc: 13/03/2012: r4380
- libswap: 13/03/2012: r4376 (JP2)
- PPT: 13/03/2012: r4380 (HCI, WMM)
- support: 13/03/2012: r4380
- support/cinema: 13/03/2012: rebuilt (r4379)
- SWMPG: 13/03/2012: r4374 (JP2)
- SWTMR: 13/03/2012: r4366

5. Data reception & discussions with MOC

Passes

The delivery of the following passes for this week (passes 7290 to 7359) was nominal, except for:
- 7342 until 7350 included (all passes of Mar 18th): no BIN_LYRA/SWAP science files were received.

Data coverage HK

No HK data files were missing this week.

Data coverage SWAP

SWAP data is missing from Sun 18th 00:43 until Mon 19th 00:00 (Proba2 rebooted on Sun 18th)

Total number of images between 2012 Mar 12 0UT and 2012 Mar 19 0UT: 5932
Highest cadence in this period: 20 seconds
Average cadence in this period: 86.84 seconds
Number of image gaps larger than 300 seconds: 1
Largest data gap: 34.33 minutes

Data coverage LYRA

LYRA data is missing from Sun 18th 00:43 until Mon 19th 00:00 (Proba2 rebooted on Sun 18th)

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

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)

(+ extreme?)