


P2SC-ROB-WR-196 - 20131223 Weekly report #196	P2SC Weekly report	
Period covered: Date:	Mon Dec 23 to Sun Dec 29, 2013 01 Jan 2014	Royal Observatory of Belgium -
Written by: Approved by:	Robbe Vansintjan Matthew West	PROBA2 Science Center
To:	LYRA PI, marie.dominique@sidc.be SWAP PI, dseaton@sidc.be	http://proba2.sidc.be ++ 32 (0) 2 3730559
cc:	ROB DIR, ronald@oma.be ESA Redu, Etienne.Tilmans@esa.int ESA D/SRE, Joe.Zender@esa.int ESA D/TEC, Juha-Pekka.Luntama@esa.int	

1. Science

Solar & Space weather events

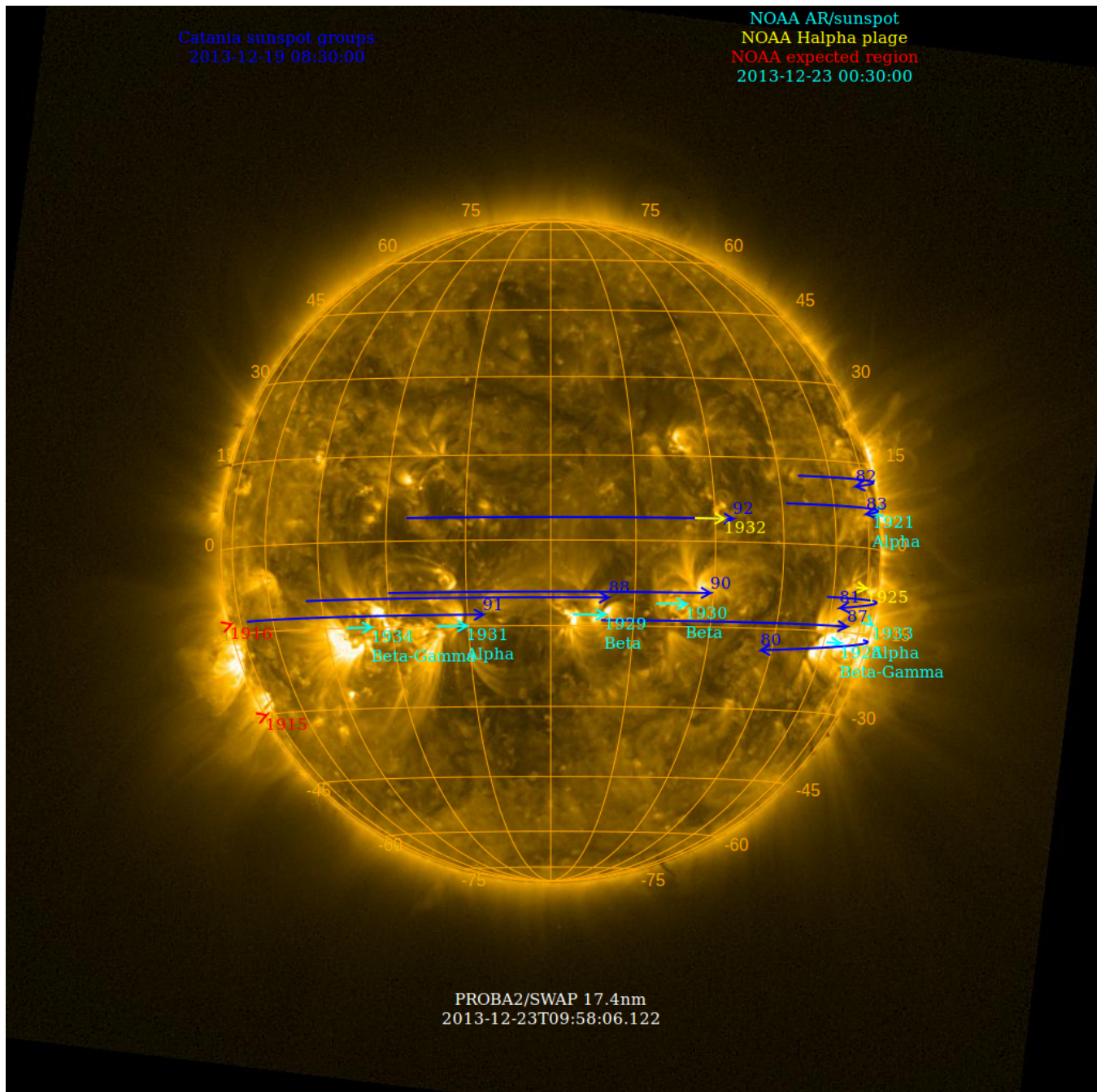
The level of solar activity¹ fluctuated between **low** and **moderate** this week.

Only M- and X-flares are mentioned, the most energetic one(s) per day are presented in **bold**:

	Monday 23 Dec	Tuesday 24 Dec	Wednesday 25 Dec	Thursday 26 Dec	Friday 27 Dec	Saturday 28 Dec	Sunday 29 Dec
Activity	moderate	low	low	low	low	low	moderate
Flares	M1.6@09:06 M1.3@00:03	-	-	-	-	-	M3.1@07:56

¹ See appendix. All timings are given in UT.

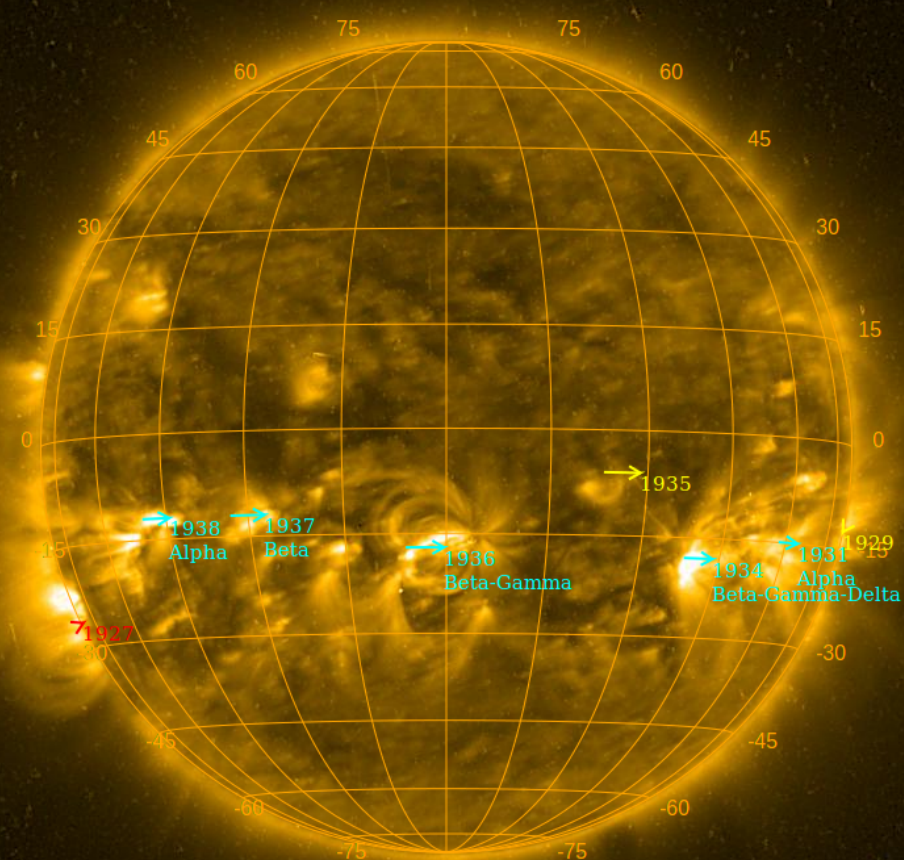
The SWAP images of Dec 23 and Dec 29 are shown below, with annotated active regions.



<http://sidc.be/soteria/soteria.php>

Catania sunspot groups
No observation

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2013-12-29 00:30:00



PROBA2/SWAP 17.4nm
2013-12-29T09:55:03.075

Solar Activity

Solar flare activity fluctuated between low and moderate during the week.

In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: <http://proba2.oma.be/ssa>

This page also lists the recorded flaring events.

A weekly SWAP overview movie can be found [here](#) (SWAP week 196).

Details about some of this week's events, can be found further below.

Monday Dec 23:



Eruption on the East Limb @ 00:06 - SWAP difference image

Find a movie of the events [here](#) (SWAP difference movie)



PROBA2/SWAP 174 2013-12-23T08:22:55.031

Eruption on the North West Limb @ 08:22 - SWAP difference image

Find a movie of the event [here](#) (SWAP difference movie)

Find a movie of the event [here](#) (SWAP movie)

Thursday Dec 26:



Eruption on South East Limb @ 02:29 - SWAP difference image
Find a movie of the event [here](#) (SWAP difference movie)

Saturday Dec 28:



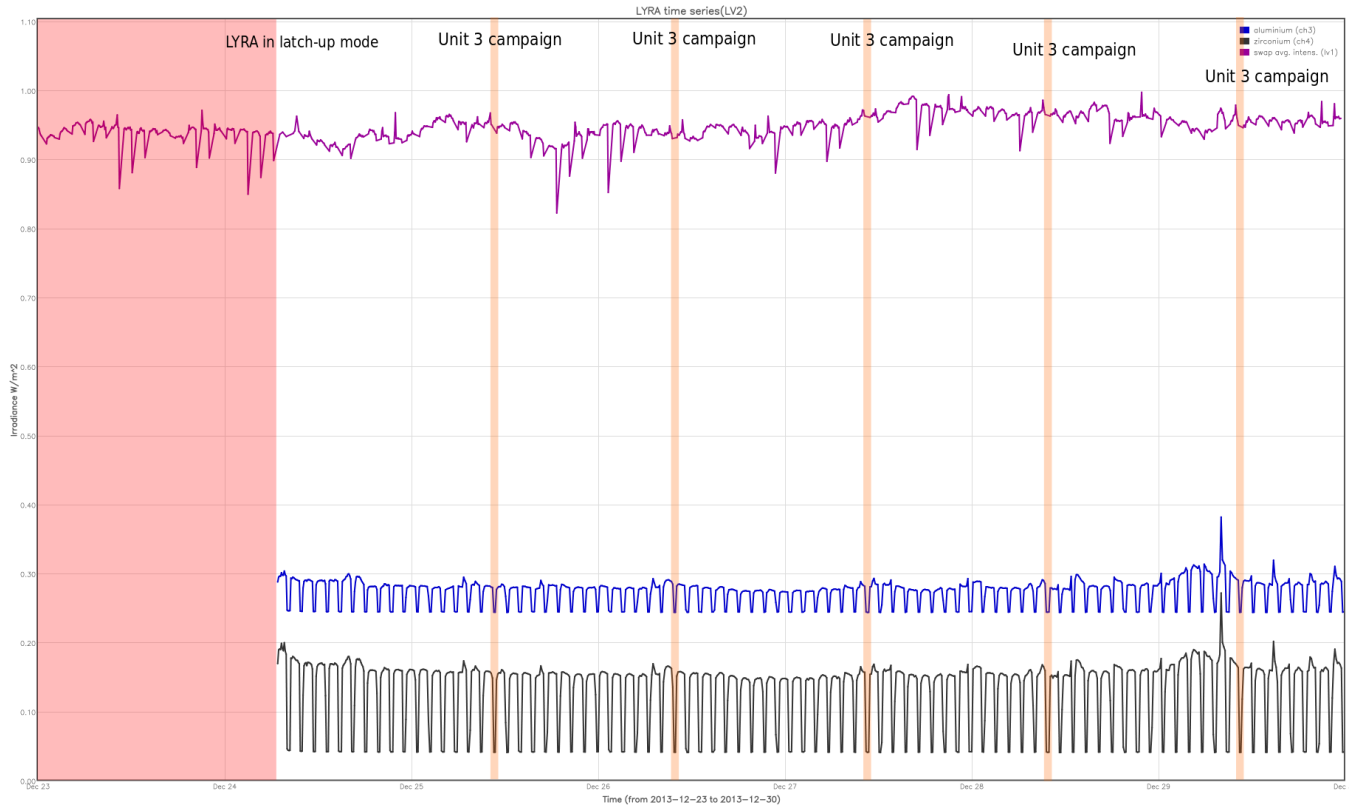
Eruption on South East Limb @ 17:34 - SWAP difference image

Find a movie of the event [here](#) (SWAP difference movie)

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

The following curves are visible:

- black: Zirconium Channel LYRA Unit 2
- blue: Aluminium Channel of LYRA Unit 2
- purple: SWAVINT (SWAP Average Intensity; integrated solar intensity per SWAP image pixel)



The orange shaded periods correspond to, from left to right:

- LYRA Unit 3 occultation campaign, five times.

The red shaded period corresponds to:

- LYRA latch-up mode recovery.

Outreach, papers, presentations, etc.

Please consult <http://proba2.oma.be/science/publications> for a list of interesting articles using SWAP & LYRA data, as well as a link to the complete article list.

The science section of this weekly report is also published in the weekly STCE newsletter (<http://www.stce.be/newsletter/newsletter.php>).

- The “PRHo-Ho-HoBA2 Holiday Countdown” calendar on the proba2 website.

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 23 Dec	Tuesday 24 Dec	Wednesday 25 Dec	Thursday 26 Dec	Friday 27 Dec	Saturday 28 Dec	Sunday 29 Dec
instrument switched to recovery latchup mode	Nominal acquisition	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00359	LYIOS00362	LYIOS00363	LYIOS00363	LYIOS00363	LYIOS00363	LYIOS00363

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 34.5 and 41.8 °C, taking into account the daily U3 activation periods and returning from latch-up mode to normal acquisition.

To be explored

- None

3. SWAP instrument status

Calibration

No calibration this week.

MCPM errors

The number of MCPM recoverable errors increased from 14818 to 14994.

The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 23 Dec	Tuesday 24 Dec	Wednesday 25 Dec	Thursday 26 Dec	Friday 27 Dec	Saturday 28 Dec	Sunday 29 Dec
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00492 552 images	IOS00493 509 images	IOS00493 551 images	IOS00493 560 images	IOS00493 550 images	IOS00493 562 images	IOS00493 548 images

Special operations for SWAP, this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -5.1 and -2.9 °C.

To be explored

- None

4. PROBA2 Science Center Status

The main operator is Koen Stegen.

The following changes were made to the P2SC:

- None.

5. Data reception & discussions with MOC

Passes

The delivery of the passes for this week (passes 12928 to 12987) was nominal, except for:

- 12939.

Data coverage HK

All HK data files (LYRA_AD) have been received.

Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received, except:

- 12939.

Total number of images between 2013 Dec 23 00:00 UT and 2013 Dec 30 00:00 UT: 3832

Highest cadence in this period: 110 seconds

Average cadence in this period: 157.37 seconds

Number of image gaps larger than 300 seconds: 119

Largest data gap: 31.02 minutes

The BBE5 blocked during pass 12939 at 2013-12-24 09:45:16. BINSWAP files dumped between 09:45:16 and 09:50:36 were lost.

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received, except:

- 12928, 12929, 12930, 12931, 12932, 12933, 12934, 12935, 12936, 12937, 12938

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
ESP	Experimental Solar Panel
FITS	Flexible Image Transport System
FOV	Field Of View FPA Focal Plane Assembly
FPGA	Field Programmable Gate Arrays
GPS	Global Positioning System
HK	Housekeeping
IOS	Instrument Operations Sheet
LED	Light Emitting Diode
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
OBSW	On board Software
PI	Principal Investigator
P2SC	PROBA2 Science Center
ROB	Royal Observatory of Belgium
SAA	South Atlantic Anomaly
SEU	Single Event Upset
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
VFC	Voltage to Frequency Converter

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)