


P2SC-ROB-WR-283 - 20150824 Weekly report #283	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Aug 24 to Sun Aug 30, 2015 04 Sept 2015 Katrien Bonte Dan Seaton	Royal Observatory of Belgium - 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

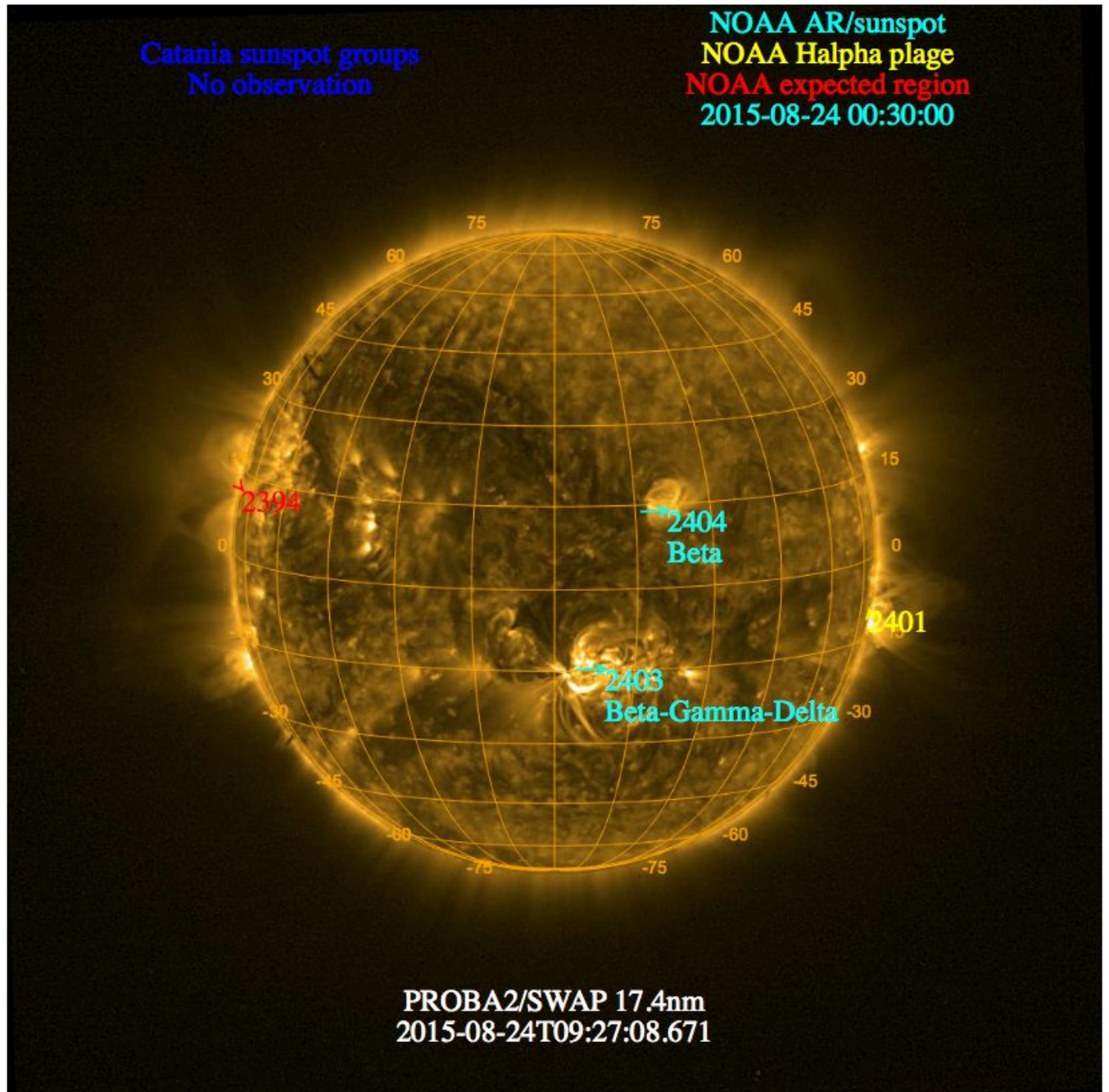
The level of solar activity¹ fluctuated between **low** and **moderate** this week.

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

	Monday 24 Aug	Tuesday 25 Aug	Wednesday 26 Aug	Thursday 27 Aug	Friday 28 Aug	Saturday 29 Aug	Sunday 30 Aug
Activity	moderate	low	low	moderate	moderate	low	moderate
Flares	M5.6@07h33 M1.0@17h46	-	-	M2.9@05h44	M2.2@13h16 M2.1@19h03	-	M1.4@03u30

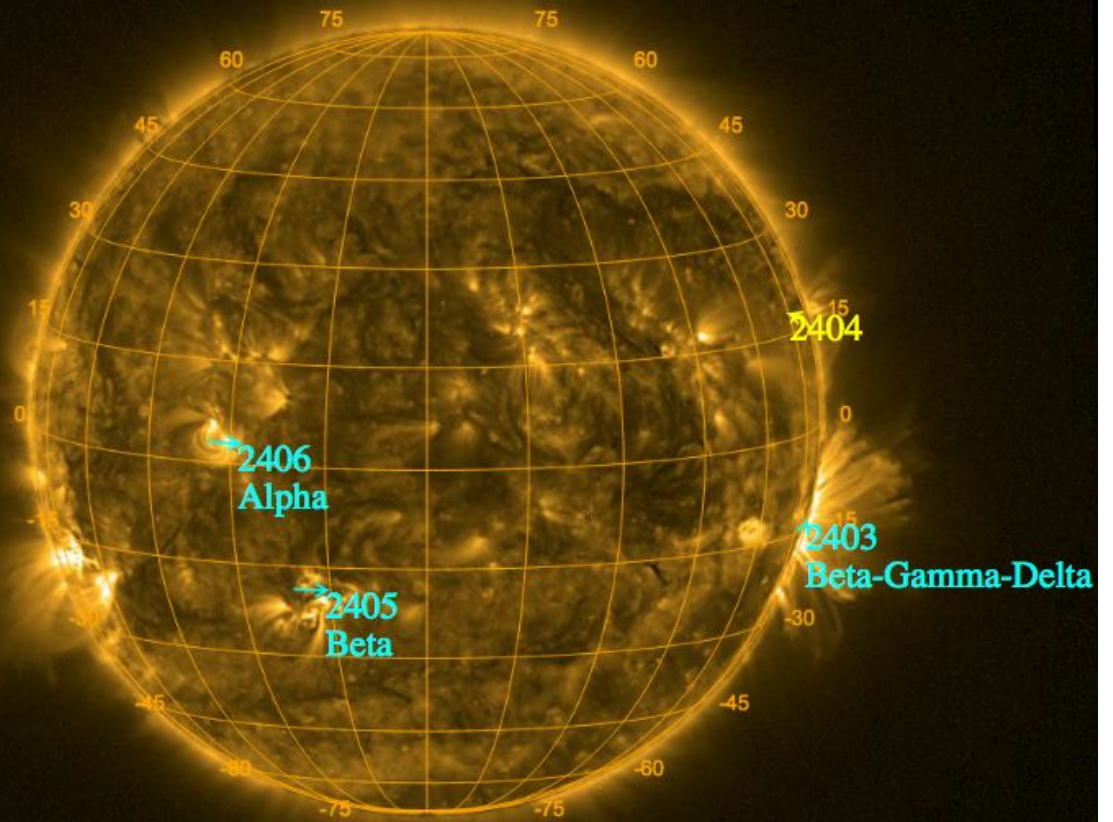
¹ See appendix. All timings are given in UT.

The SWAP images of Aug 24 and Aug 30 are shown below, with annotated active regions.



Catania sunspot groups
No observation

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2015-08-30 00:30:00



PROBA2/SWAP 17.4nm
2015-08-30T09:29:57.653

Solar Activity

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

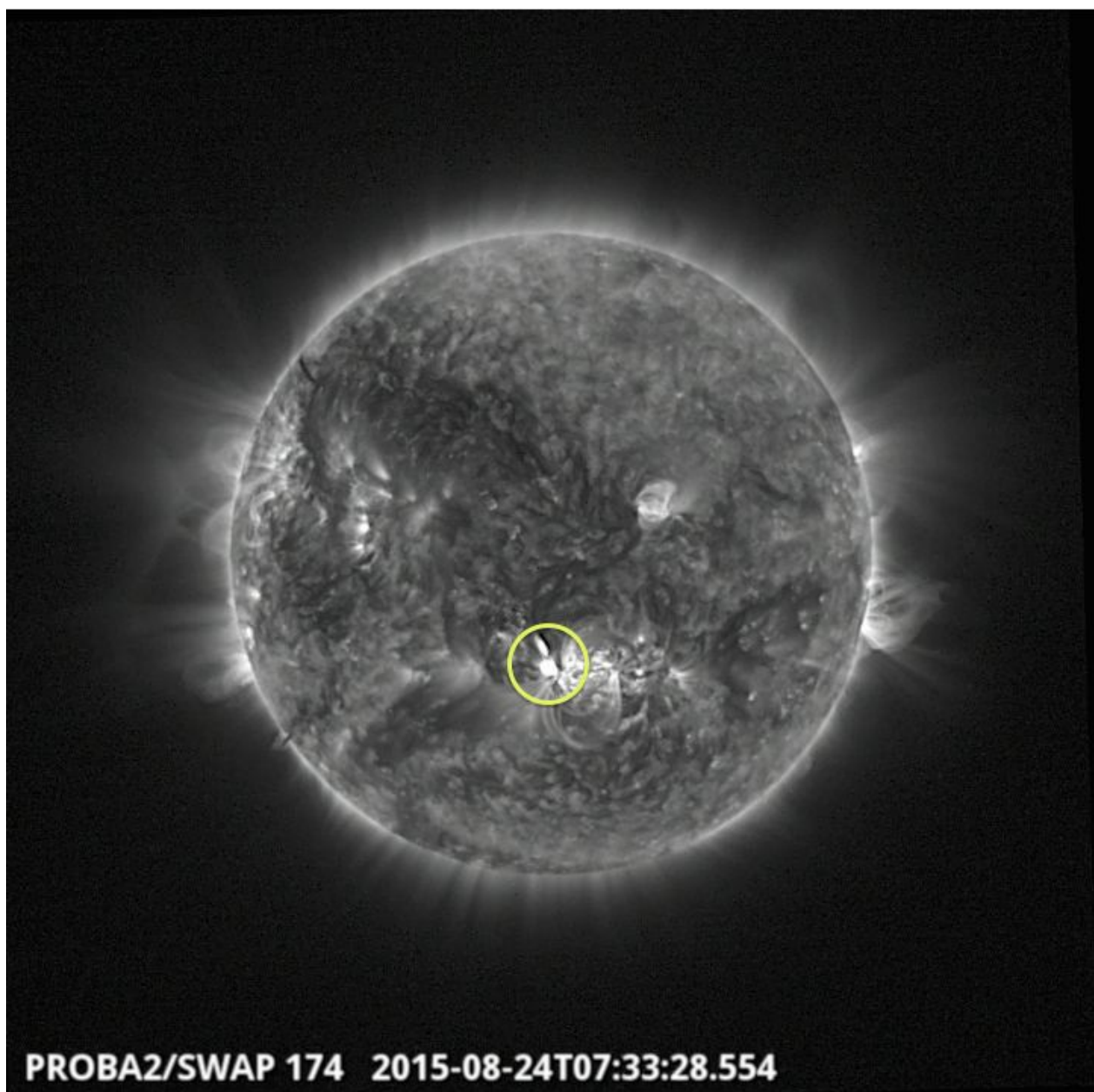
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: <http://proba2.oma.be/ssa>

This page also lists the recorded flaring events.

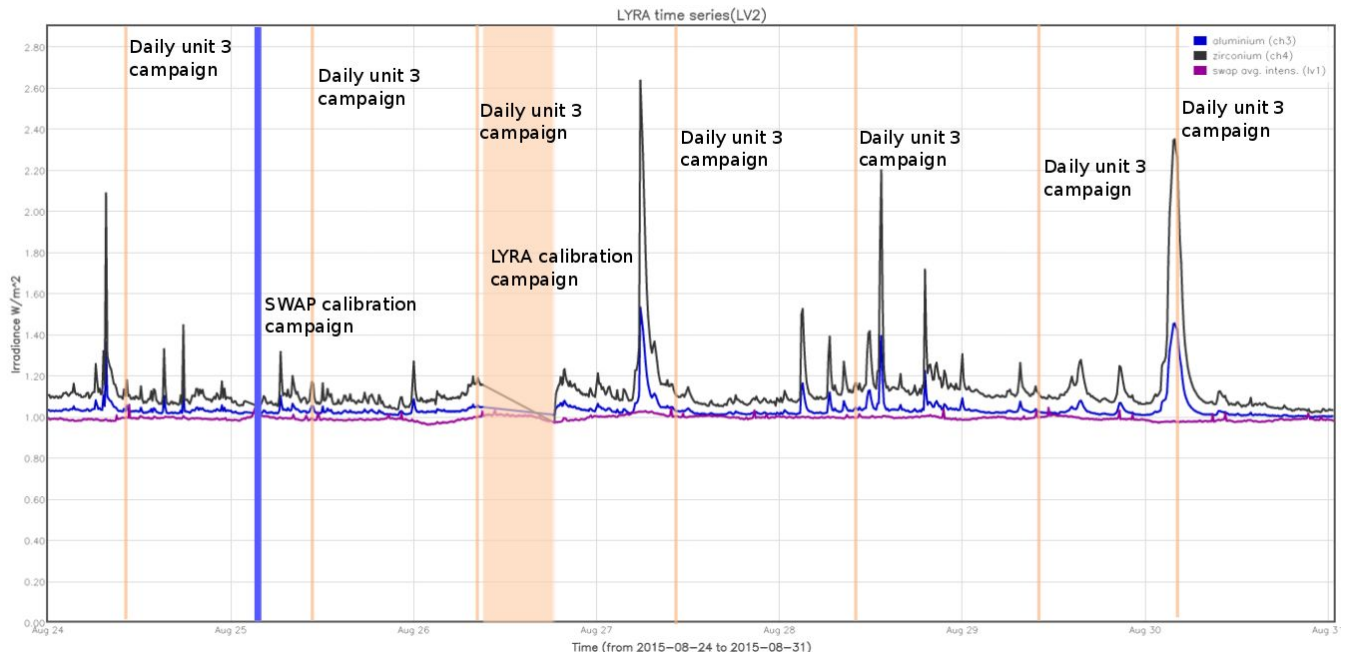
A weekly overview movie can be found [here](#) (SWAP week 283).

Throughout the week AR 2403 has been very active, producing several M-class flares, the largest being an M5.6 flare on 2015-08-24 around 07h33 UT. SWAP nicely observed a succession of events in that region, see the annotated image below, and the daily SWAP movie from 2015-08-24:

http://proba2.sidc.be/swap/data/mpg/movies/20150824_swap_movie.mp4



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 blue shaded periods correspond to, from left to right:

- SWAP bi-weekly calibration campaign on 2015-08-25

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

- LYRA daily U3 campaign on 2015-08-24
- LYRA daily U3 campaign on 2015-08-25
- LYRA long calibration on 2015-08-26
- LYRA daily U3 campaign on 2015-08-26
- LYRA daily U3 campaigns on 2015-08-27
- LYRA daily U3 campaigns on 2015-08-28
- LYRA daily U3 campaigns on 2015-08-29
- LYRA daily U3 campaigns on 2015-08-30

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>).

On 2015-08-25, during the ISSI workshop in Bern (Switzerland) on 'Global Non-Potential Magnetic Models of the Solar Corona', Laurel Rachmeler gave a presentation entitled 'Coronal Observations', featuring SWAP data.

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 24 Aug	Tuesday 25 Aug	Wednesday 26 Aug	Thursday 27 Aug	Friday 28 Aug	Saturday 29 Aug	Sunday 30 Aug
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00489	LYIOS00489	LYIOS00489	LYIOS00490	LYIOS00490	LYIOS00490	LYIOS00490

The following science campaigns were performed by LYRA:

- Daily unit 3 observation campaigns
- Long calibration campaign on 2015.08.26

LYRA detector temperature

LYRA detector 2 temperature globally varied between 46.21 and 48.72 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 134 to 135.

The number of MCPM unrecoverable errors remained 0.

IOS & operations

Monday 24 Aug	Tuesday 25 Aug	Wednesday 26 Aug	Thursday 27 Aug	Friday 28 Aug	Saturday 29 Aug	Sunday 30 Aug
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00592 599 images	IOS00592 583 images	IOS00592 651 images	IOS00593 676 images	IOS00593 696 images	IOS00593 630 images	IOS00593 601 images

Special operations for SWAP, this week:

- Bi-weekly calibration on 2015.08.25

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.29 and -0.49 °C.

4. PROBA2 Science Center Status

The main operator is Katrien Bonte.

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 18280 to 18341) was nominal, except for:

- None.

Data coverage HK

All HK data files (LYRA_AD) have been received, except:

- None.

Data coverage SWAP

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

- None.

Total number of images between 2015 Aug 24 0UT and 2015 Aug 31 0UT: 4436

Highest cadence in this period: 30 seconds

Average cadence in this period: 136.34 seconds

Number of image gaps larger than 300 seconds: 179

Largest data gap: 9.17 minutes

Data coverage LYRA

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

- None

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
SoFAST	Solar Feature Automated Search Tool
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)