


P2SC-ROB-WR-208-20140317 Weekly report #208	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Mar 17 to Sun March 23, 2014 26 Mar 2014 Erik Pylyser Matthew West	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

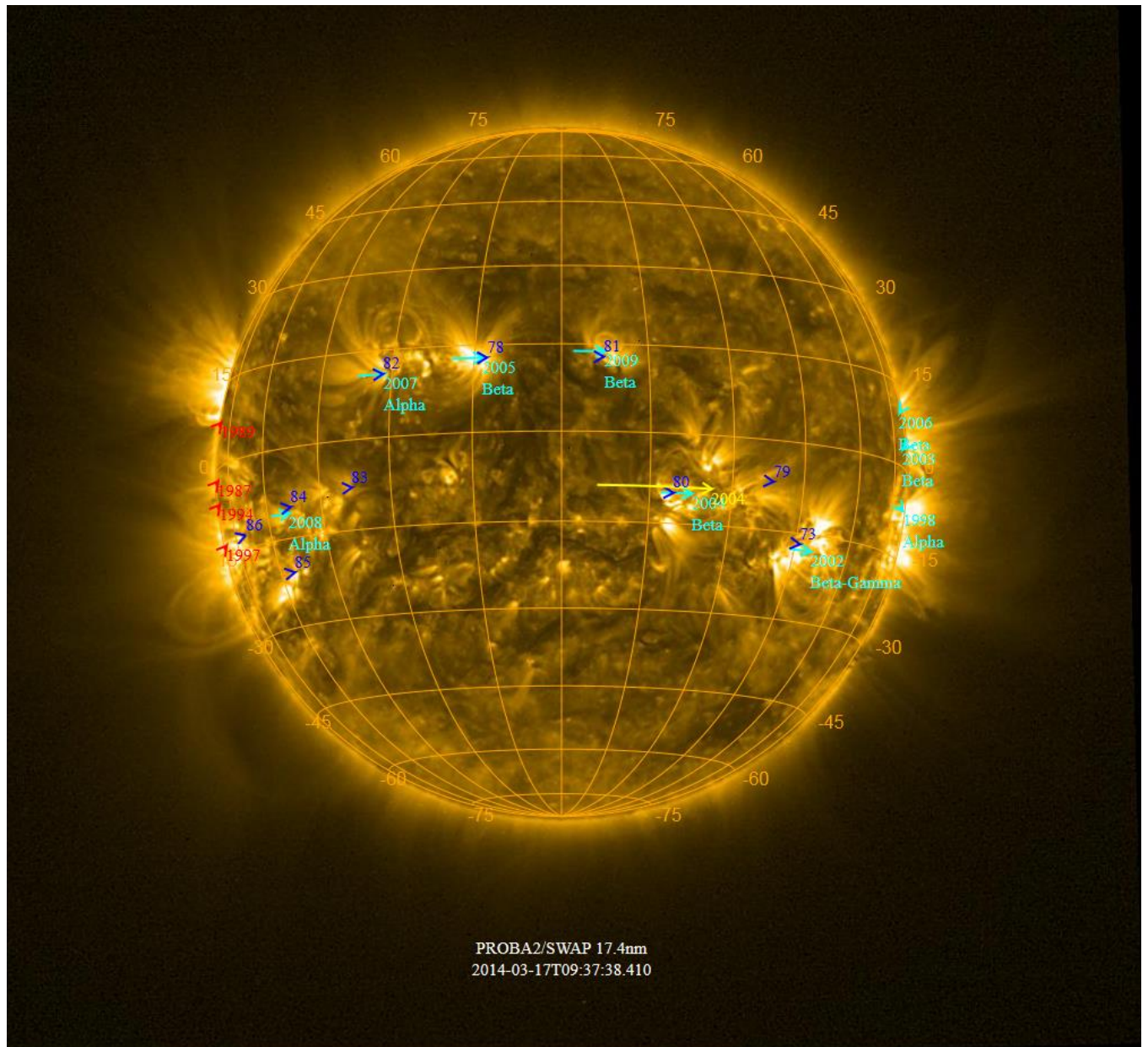
The level of solar activity¹ was **low** to **moderate** this week.

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

	Monday 17 Mar	Tuesday 18 Mar	Wednesday 19 Mar	Thursday 20 Mar	Friday 21 Mar	Saturday 22 Mar	Sunday 23 Mar
Activity	low	low	low	moderate	low	moderate	low
Flares	-	-	-	M1.7 @ 03:42	-	M1.1 @ 06:58	-

¹ See appendix. All timings are given in UT.

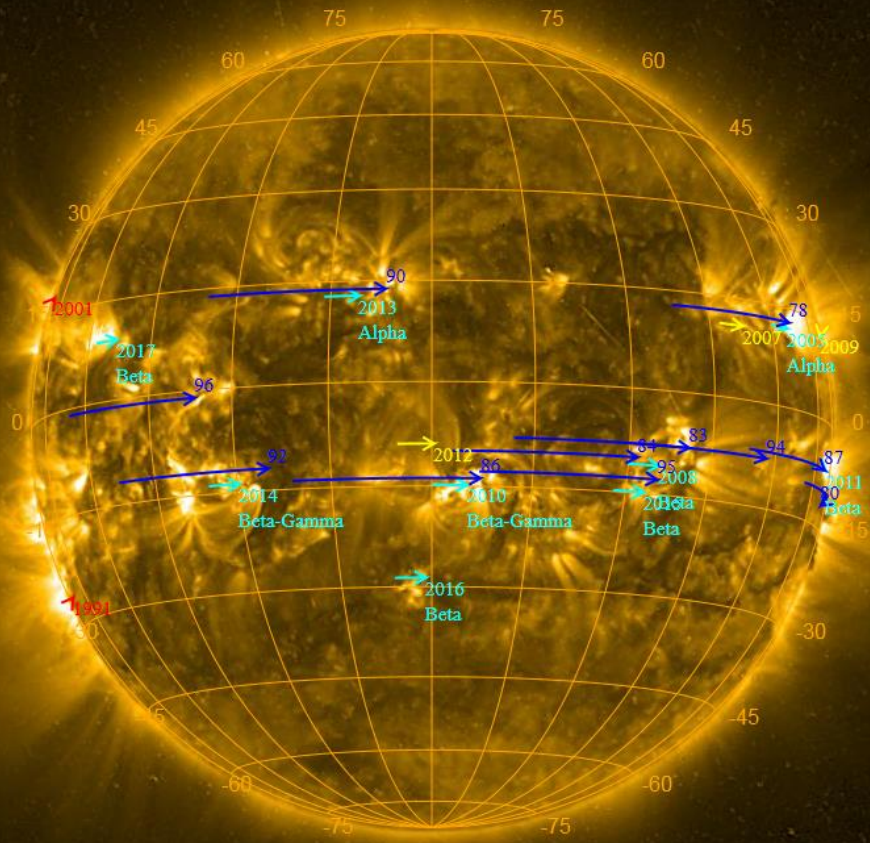
The SWAP images of Mar 17 and Mar 23 are shown below, with annotated active regions.



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

Cadorna sunspot groups
2014-03-21 10:30:00

NOAA AR/sunspot
NOAA Alpha plage
NOAA expected region
2014-03-23 00:30:00



PROBA2/SWAP 17.4nm
2014-03-23T09:16:47.162

Solar Activity

Solar activity alternated between low and moderate, two M1-level flares being recorded on Thursday and Saturday.

In order to view the activity of this week in more detail, we suggest going 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 208).

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

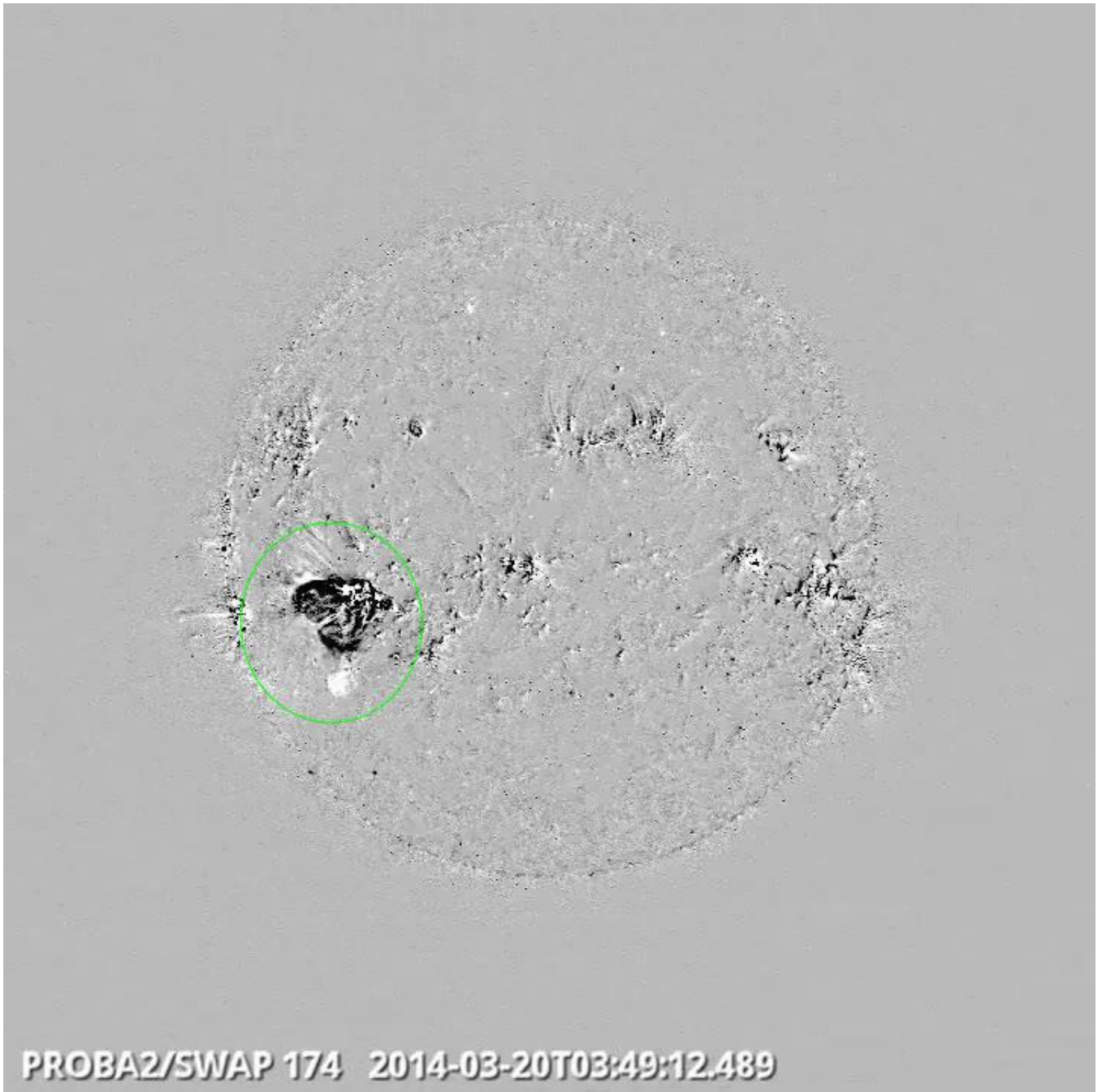
Monday Mar 17



Small eruption, South East Quadrant, ejecting material into an overlaying arch @ 12:15 - SWAP difference image

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

Thursday Mar 20:



M1.7 Flare eruption, South East Quadrant @ 03:49 - SWAP difference image

Friday Mar 21:



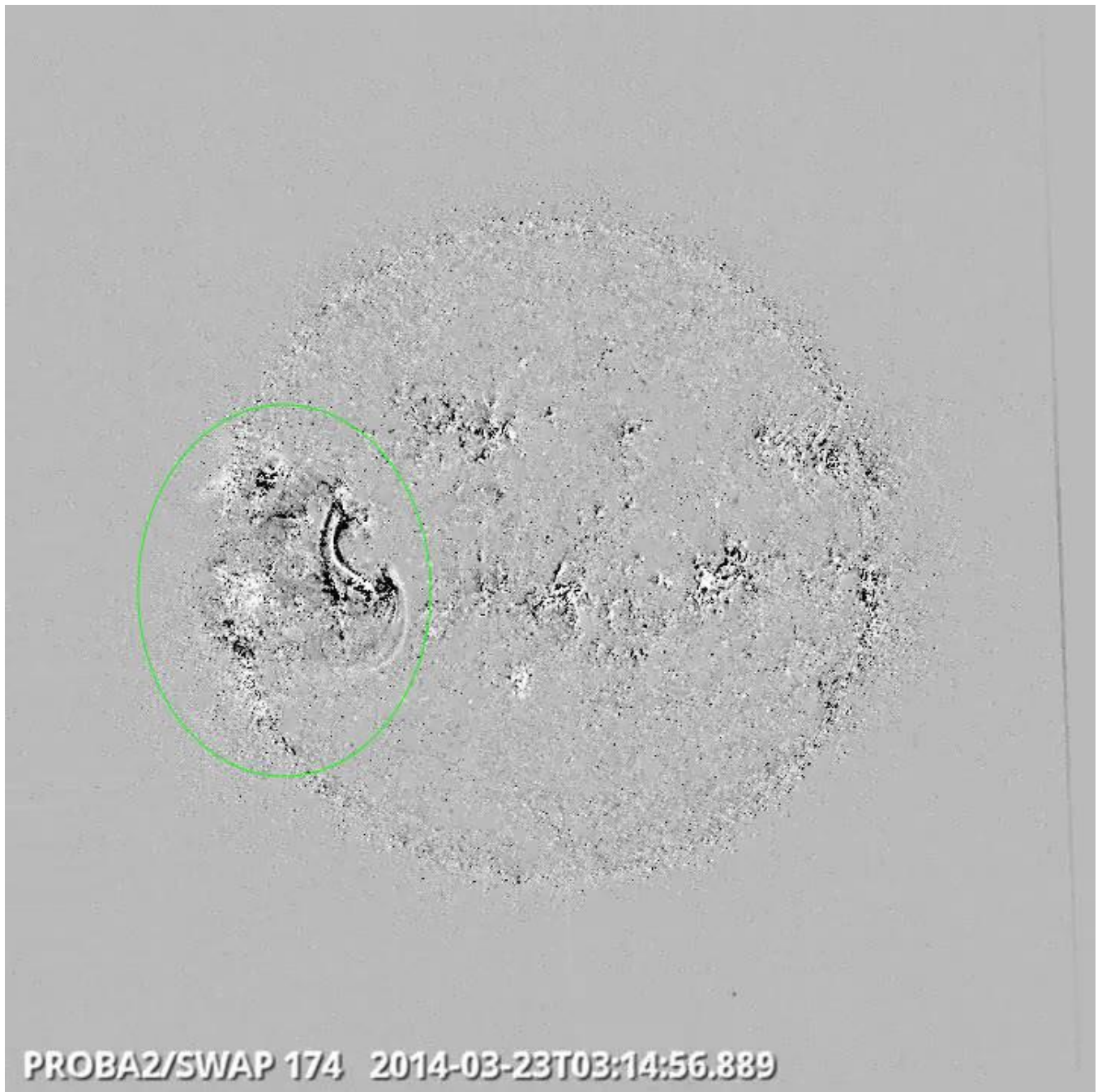
C2.7 Flare eruption, North East Quadrant @ 10:26 - SWAP difference image

Saturday Mar 22:



M1.7 Flare eruption, South East Quadrant @ 03:49 - SWAP difference image

Sunday Mar 23:

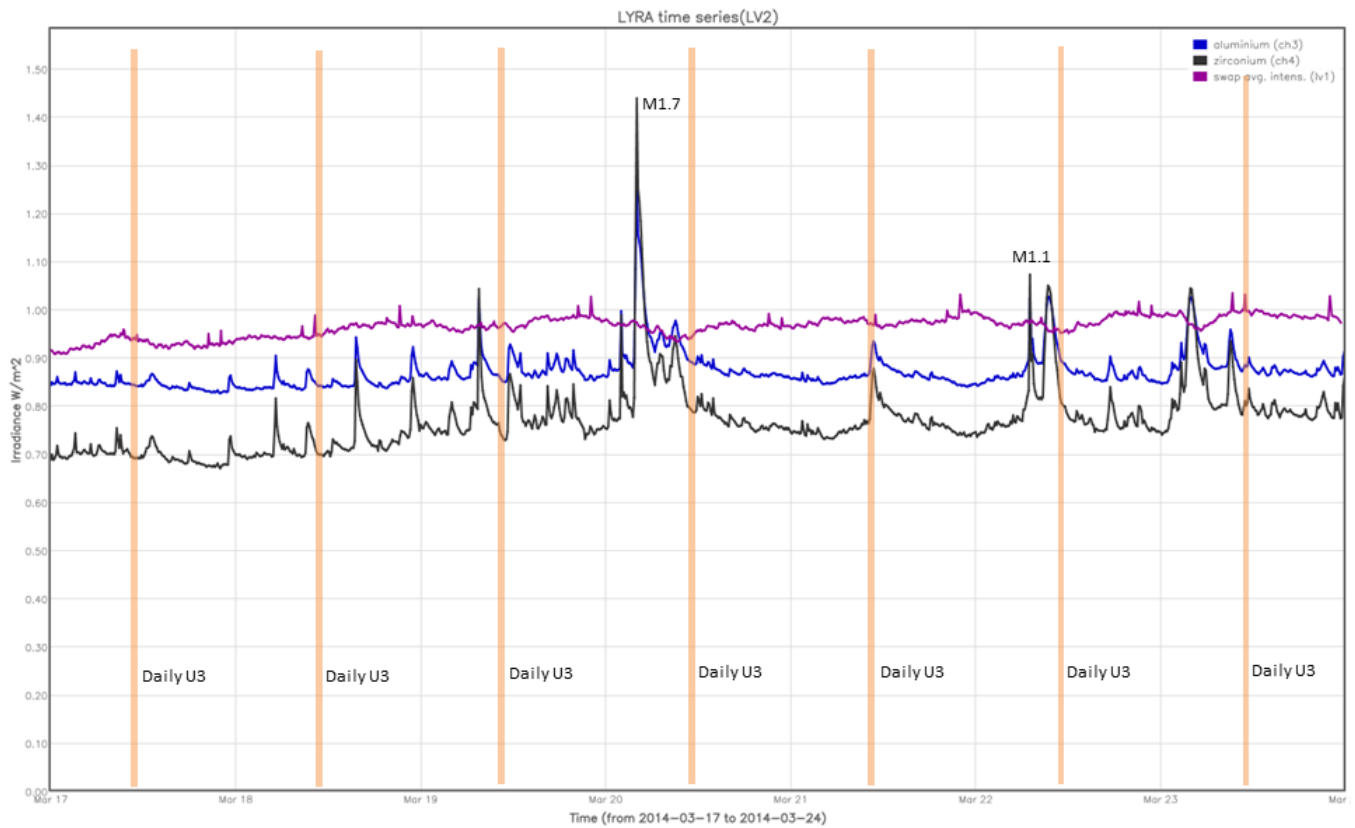


C5.0 Flare eruption, Eastern Hemisphere @ 03:14 - SWAP difference image

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

The following curves are visible:

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



The (LYRA related) orange shaded periods correspond to, from left to right (see section 2):

- Daily LYRA unit 3 campaign (7 consecutive days)

The (SWAP related) blue shaded periods correspond to, from left to right (see section 3):

- None

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>).

Guest Investigator Program

- Christian Bethge has joined the P2SC team, for a 3 weeks stay. His study subject is 'Combining SWAP and CoMP to study coronal pseudostreamers and their influence on solar wind speeds'.

Other Visitors

- None

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 17 Mar	Tuesday 18 Mar	Wednesday 19 Mar	Thursday 20 Mar	Friday 21 Mar	Saturday 22 Mar	Sunday 23 Mar
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00384	LYIOS00384	LYIOS00384	LYIOS00384	LYIOS00384	LYIOS00384	LYIOS00384

The following science campaigns were performed by LYRA:

- daily U3 observation campaign

LYRA detector temperature

LYRA detector 2 temperature globally decreased from 49.8 °C to 48.8 °C, taking into account the daily U3 activation temperature peaks.

To be explored

- None

3. SWAP instrument status

Calibration

No calibration this week.

MCPM errors

The number of MCPM recoverable errors increased from 17056 to 17164.

The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 17 Mar	Tuesday 18 Mar	Wednesday 19 Mar	Thursday 20 Mar	Friday 21 Mar	Saturday 22 Mar	Sunday 23 Mar
Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition +	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00507 573 images	IOS00507 664 images	IOS00507 664 images	IOS00507 599 images	IOS00507 650 images	IOS00507 548 images	IOS00507 589 images

Special operations for SWAP, this week:

- None

SWAP detector temperature

The SWAP Cold Finger Temperature varied between 0.78 °C and -0.08 °C.

To be explored

- None

4. PROBA2 Science Center Status

The main operator is Erik Pylyser

The following changes were made to the P2SC:

DCVC

- None

5. Data reception & discussions with MOC

Passes

The delivery of the passes for this week (passes 13649 to 13708) was nominal.

Data coverage HK

All HK data files (LYRA_AD) have been received.

Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received.

Total number of images between 2014 Mar 17 OUT and 2014 Mar 24 OUT: 4350

Highest cadence in this period: 130 seconds

Average cadence in this period: 139.00 seconds

Number of image gaps larger than 300 seconds: 2

Largest data gap: 6.50 minutes

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received.

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)