P2SC-ROB-WR-206- 20140303 Weekly report #206	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Mar 03 to Sun March 09, 2014 12 Mar 2014 Erik Pylyser Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

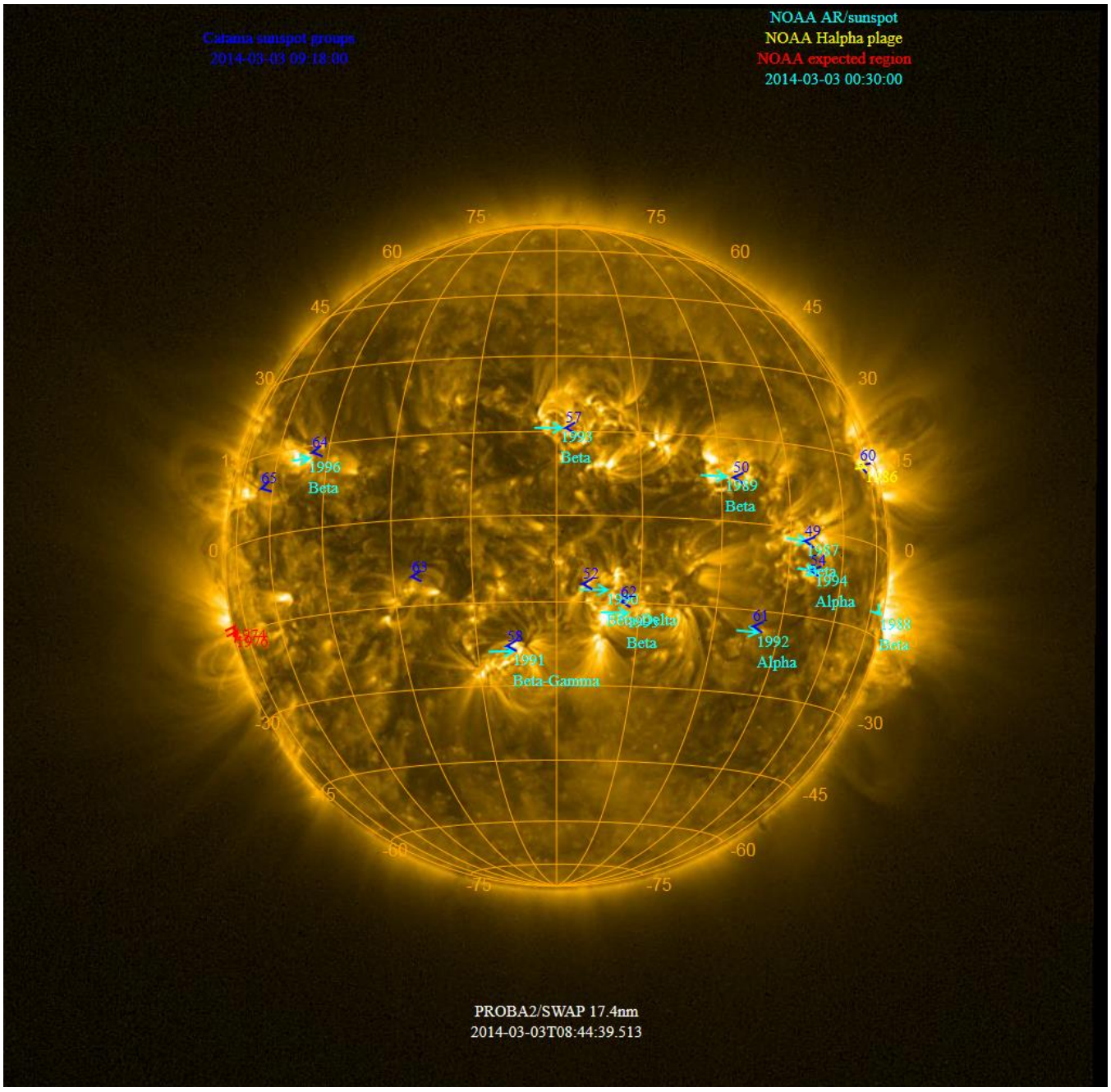
The level of solar activity[1] was **low** to **moderate** this week.

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

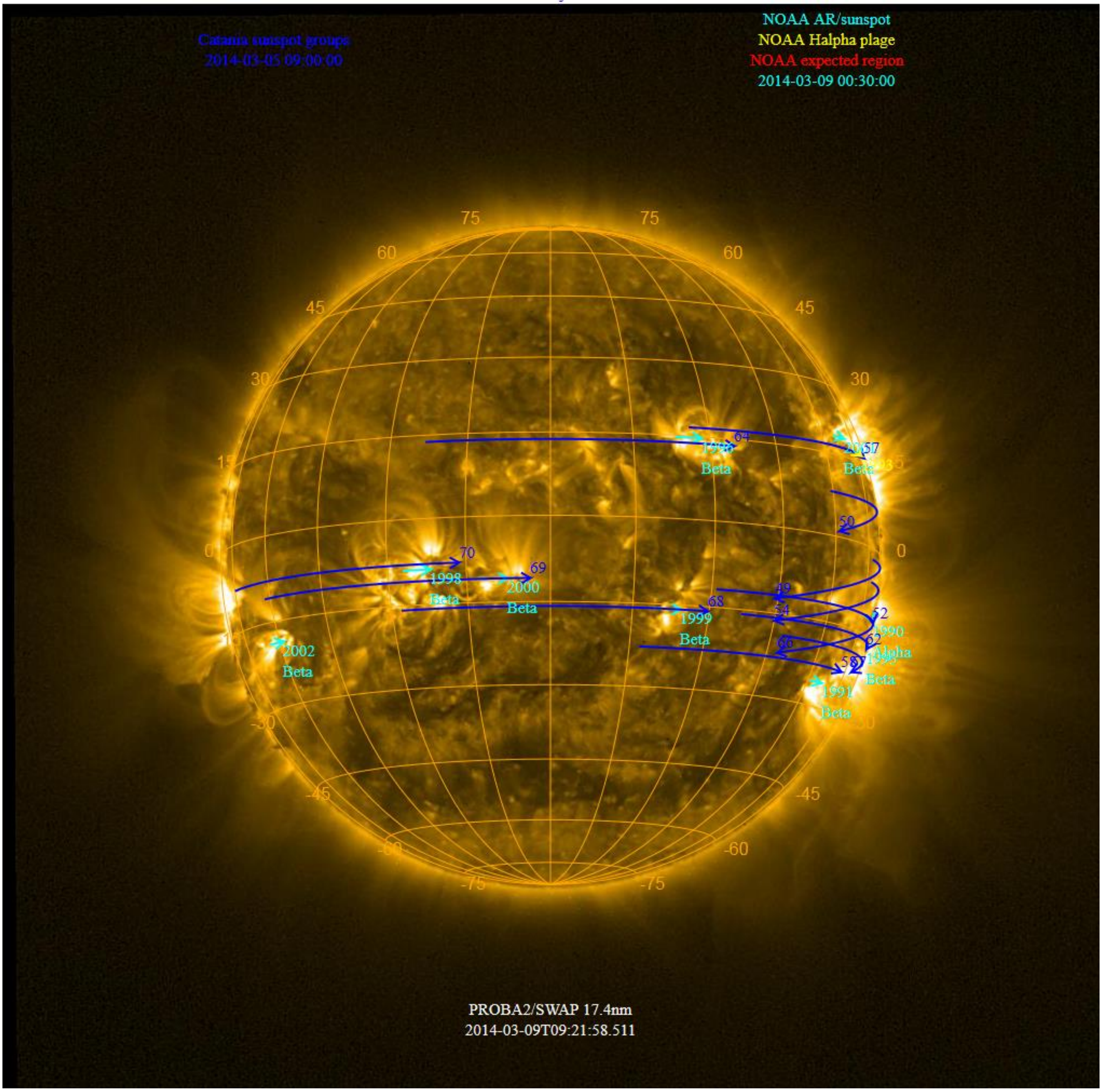
	Monday 03 Mar	Tuesday 04 Mar	Wednesday 05 Mar	Thursday 06 Mar	Friday 07 Mar	Saturday 08 Mar	Sunday 09 Mar
Activity	moderate	low	moderate	low	low	moderate	moderate
Flares	**M1.2 @ 15:54**	-	**M3.0 @ 02:06**	-	-	**M1.4 @ 23:26**	**M1.0 @ 13:52** **M1.0 @ 20:13**

[1] See appendix. All timings are given in UT.

The SWAP images of Mar 03 and Mar 09 are shown below, with annotated active regions.



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


Catania sunspot groups
2014-03-05 09:00:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2014-03-09 00:30:00
70
1998
Beta
69
2000
Beta
2002
Beta
68
1999
Beta
64
Beta
50
49
54
66
52
1990
1991
Beta
PROBA2/SWAP 17.4nm
2014-03-09T09:21:58.511

Solar Activity

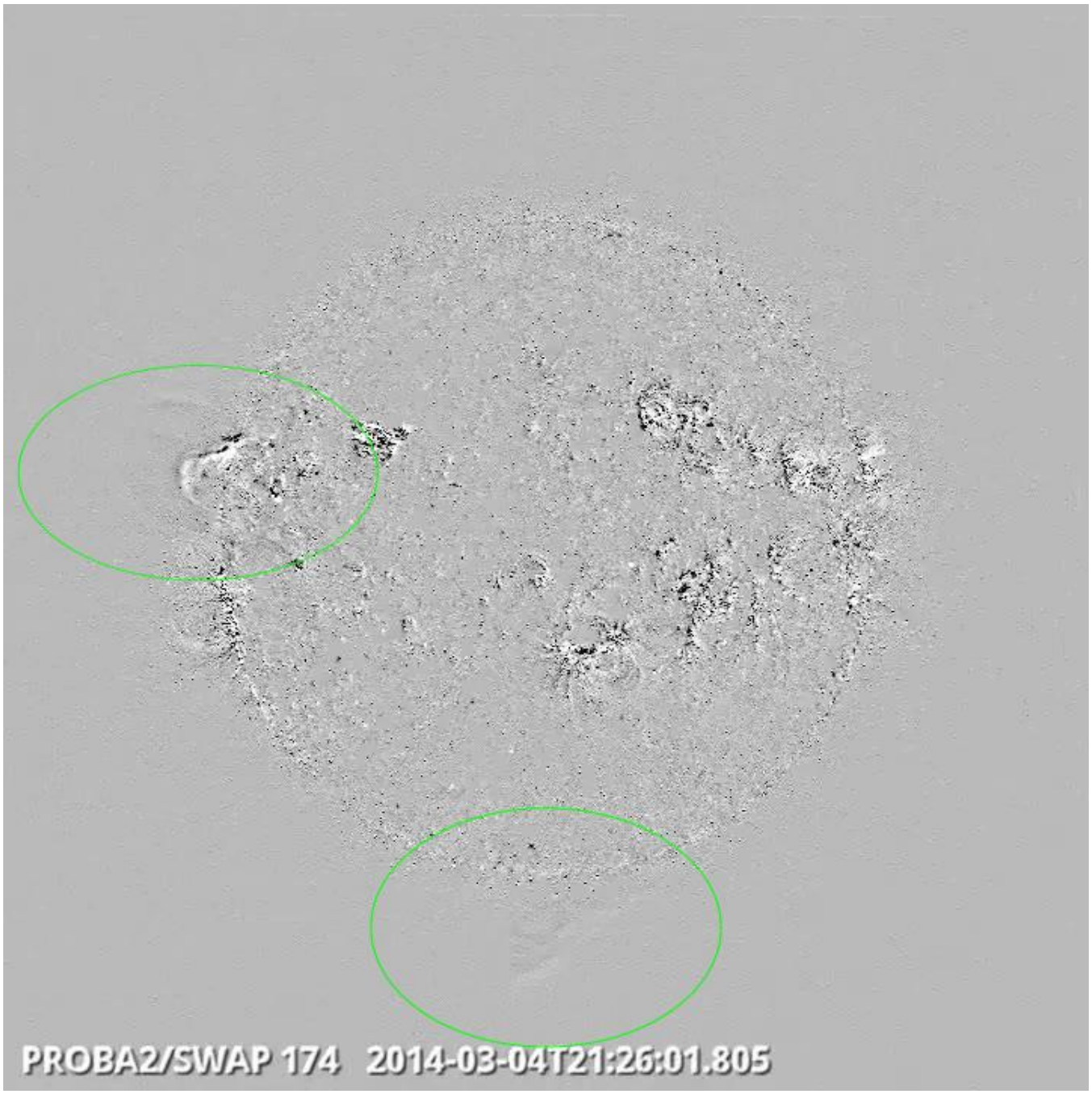
Solar activity was moderate at the beginning and the end of the week, with an intermediate period of low activity. 5 lower level M-flares were observed, the strongest was an M3.0 level flare.

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 206).

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

Tuesday Mar 04:

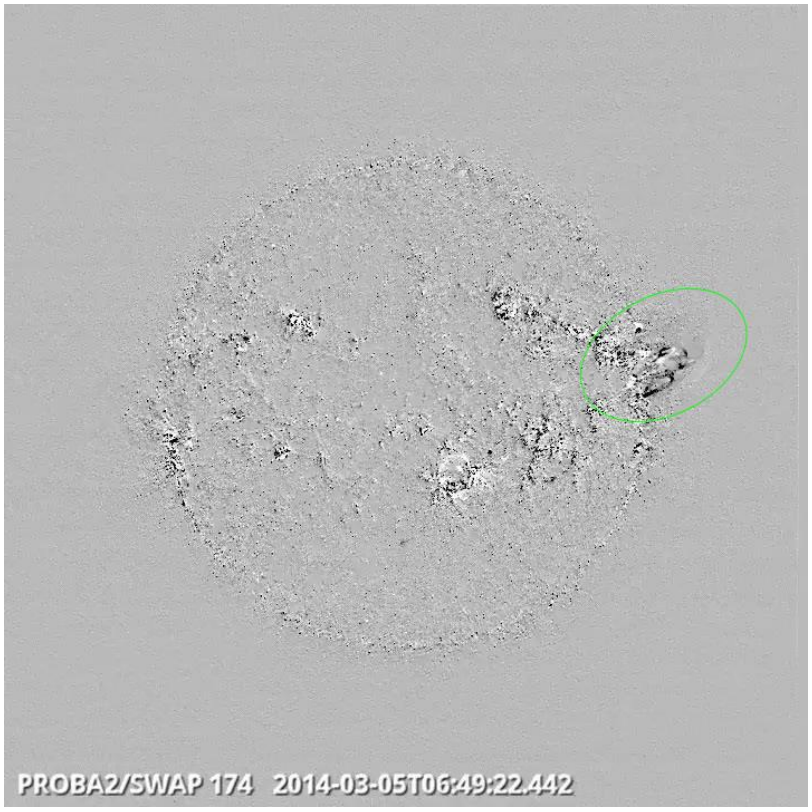


Double Prominence Eruption, North West and South Limb @ 21:26 - SWAP difference image

Find a movie of the event **here** (SWAP difference movie)

Wednesday Mar 05:

Eruption on the North West Limb @ 04:35 - SWAP difference image



Eruption on the North West Limb @ 06:49 - SWAP difference image

Both eruptions from the same region can be seen in this movie **here** (SWAP difference movie)

A wave appearing over the North limb, following a backside Northern eruption @ 14:15 - SWAP difference image

Find a movie of the event **here** (SWAP difference movie)

Thursday Mar 06:

Flare Eruption on the East limb @ 09:45 - SWAP difference image

Saturday Mar 08:

Eruption on the South East Limb @ 18:01 - SWAP difference image

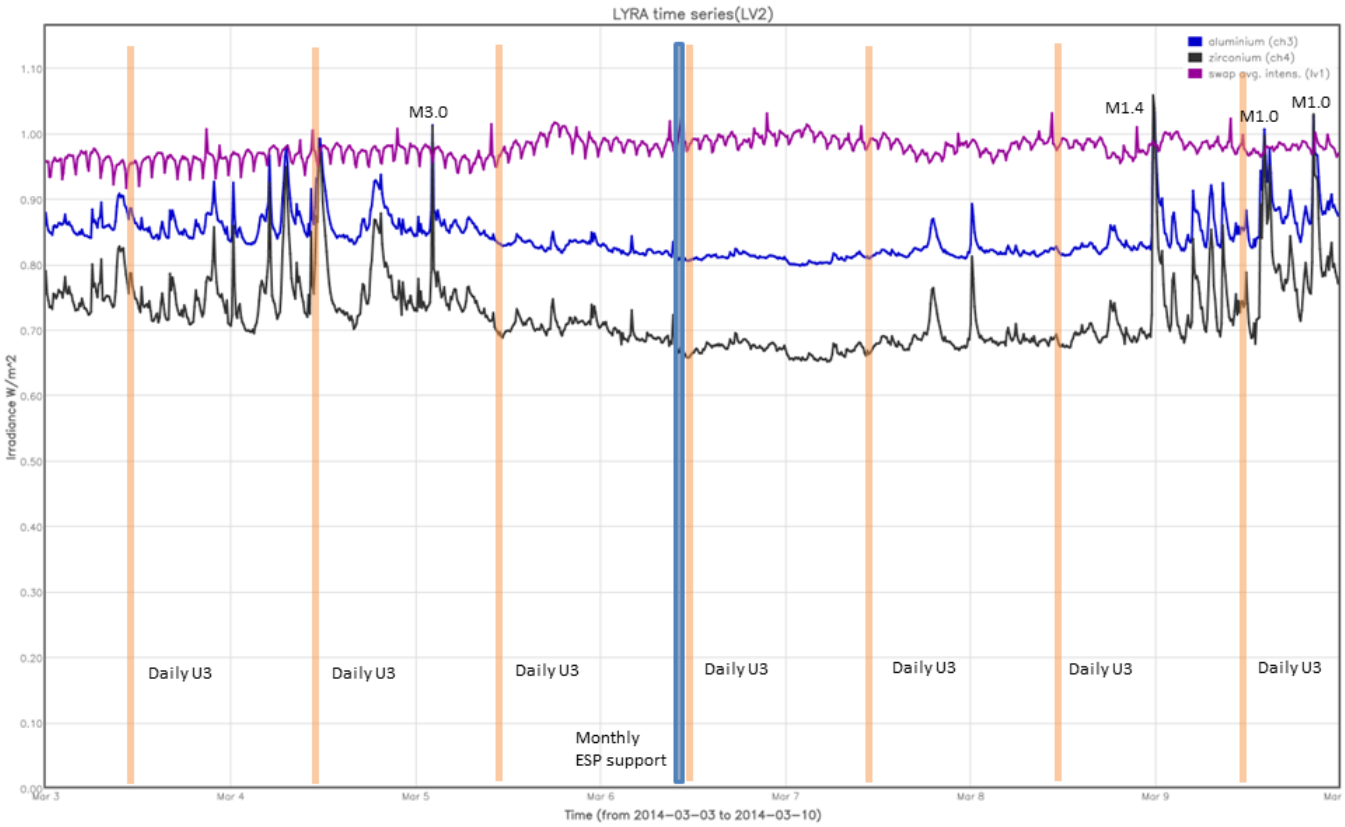
Find a movie of the event **here** (SWAP difference movie)

Sunday Mar 09:

Prominence Eruption on the South Limb@ 10:14 - 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 days in a row)

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

- ESP experiment support campaign on Thursday; no SWAP data between 10:06 and 10:38.

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).

New article:
"Study of Extreme-ultraviolet Emission and Properties of a Coronal Streamer from PROBA2/SWAP, Hinode/EIS and Mauna Loa Mk4 Observations"; Goryaev, F. et al.
(http://adsabs.harvard.edu/abs/2014ApJ...781..100G)

Guest Investigator Program

- None

Other Visitors

- None

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 03 Mar	Tuesday 04 Mar	Wednesday 05 Mar	Thursday 06 Mar	Friday 07 Mar	Saturday 08 Mar	Sunday 09 Mar
Nominal acquisition + daily U3 LYIOS00381	Nominal acquisition + daily U3 LYIOS00382	Nominal acquisition + daily U3 LYIOS00382	Nominal acquisition + daily U3 LYIOS00382	Nominal acquisition + daily U3 LYIOS00382	Nominal acquisition + daily U3 LYIOS00382	Nominal acquisition + daily U3 LYIOS00382

The following science campaigns were performed by LYRA:

- daily U3 observation campaign

LYRA detector temperature

LYRA detector 2 temperature globally decreased from 49.47 °C (middle of the week) and 50.74 °C (daily U3 campaign on Monday), taking into account the daily U3 activation periods.

To be explored

- None

3. SWAP instrument status

Calibration

No calibration this week.

MCPM errors

The number of MCPM recoverable errors increased from 16659 to 16885.
The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 03 Mar	Tuesday 04 Mar	Wednesday 05 Mar	Thursday 06 Mar	Friday 07 Mar	Saturday 08 Mar	Sunday 09 Mar
Nominal acquisition IOS00505 665 images	Nominal acquisition IOS00505 654 images	Nominal acquisition IOS00505 665 images	Nominal acquisition + ESP jump IOS00506 645 images	Nominal acquisition IOS00506 664 images	Nominal acquisition IOS00506 647 images	Nominal acquisition IOS00506 603 images

Special operations for SWAP, this week:

- SWAP imaging jump in support of ESP campaign on Thursday (data gap between 10:06 and 10:38 UT)

SWAP detector temperature

The SWAP Cold Finger Temperature varied between 1.74 °C and 0.70 °C.

To be explored

- None

4. PROBA2 Science Center Status

The main operator is Erik Pylyser

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 13530 to 13590) 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 03 0UT and 2014 Mar 10 0UT: 4554
Highest cadence in this period: 0 seconds
Average cadence in this period: 132.79 seconds
Number of image gaps larger than 300 seconds: 4
Largest data gap: 34.33 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)