P2SC-ROB-WR-157-20130325 Weekly report #157	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Mar 25 to Sun Mar 31, 2013 03 Apr 2013 Erik Pylyser Matthew West	Royal Observatory of Belgium PROBA2 Science Center
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1. Science

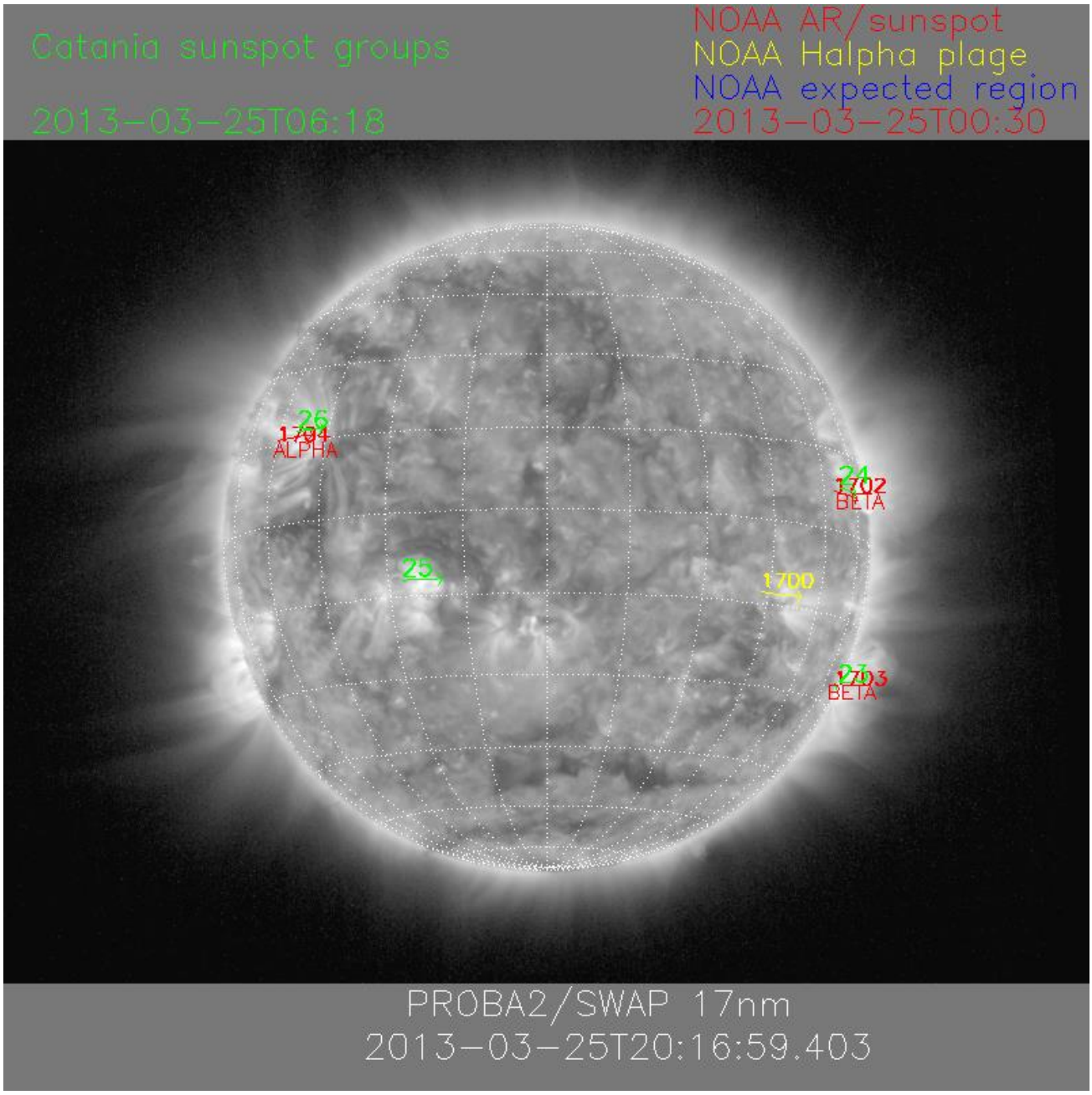
Solar & Space weather events

The level of solar activity[1] this week. Only M- and X-flares are mentioned, the most energetic one(s) are presented in **bold**:

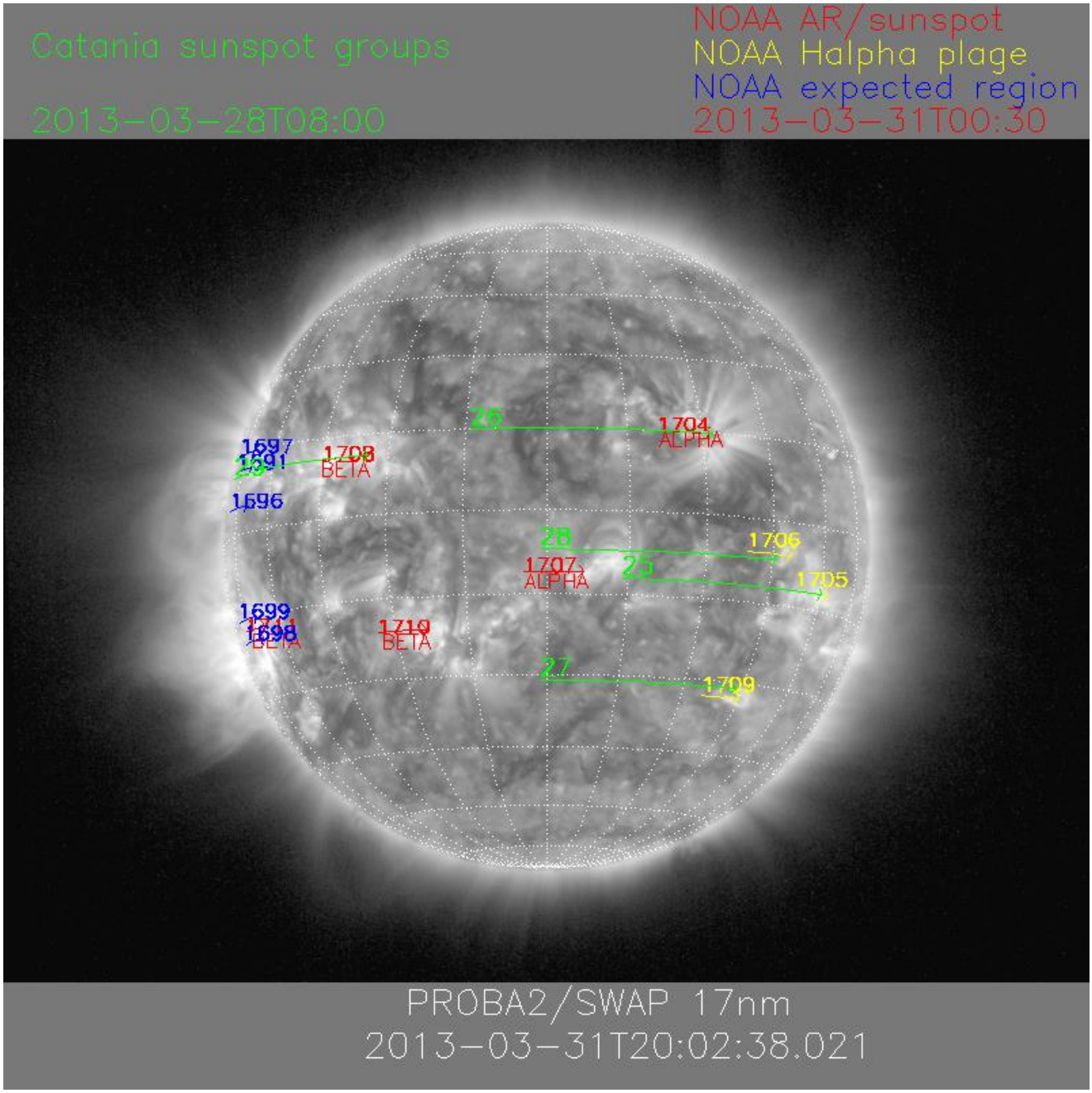
	Monday 25 Mar	Tuesday 26 Mar	Wednesday 27 Mar	Thursday 28 Mar	Friday 29 Mar	Saturday 30 Mar	Sunday 31 Mar
Activity	very low	very low	very low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

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

The SWAP images of March 25 and March 31 are shown below, with annotated active regions.



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



Solar Activity

Solar (flaring) activity was **very low** during the whole week. Only B-flares were recorded.

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 (SWAP174/AIA304 combination; HelioViewer.org).

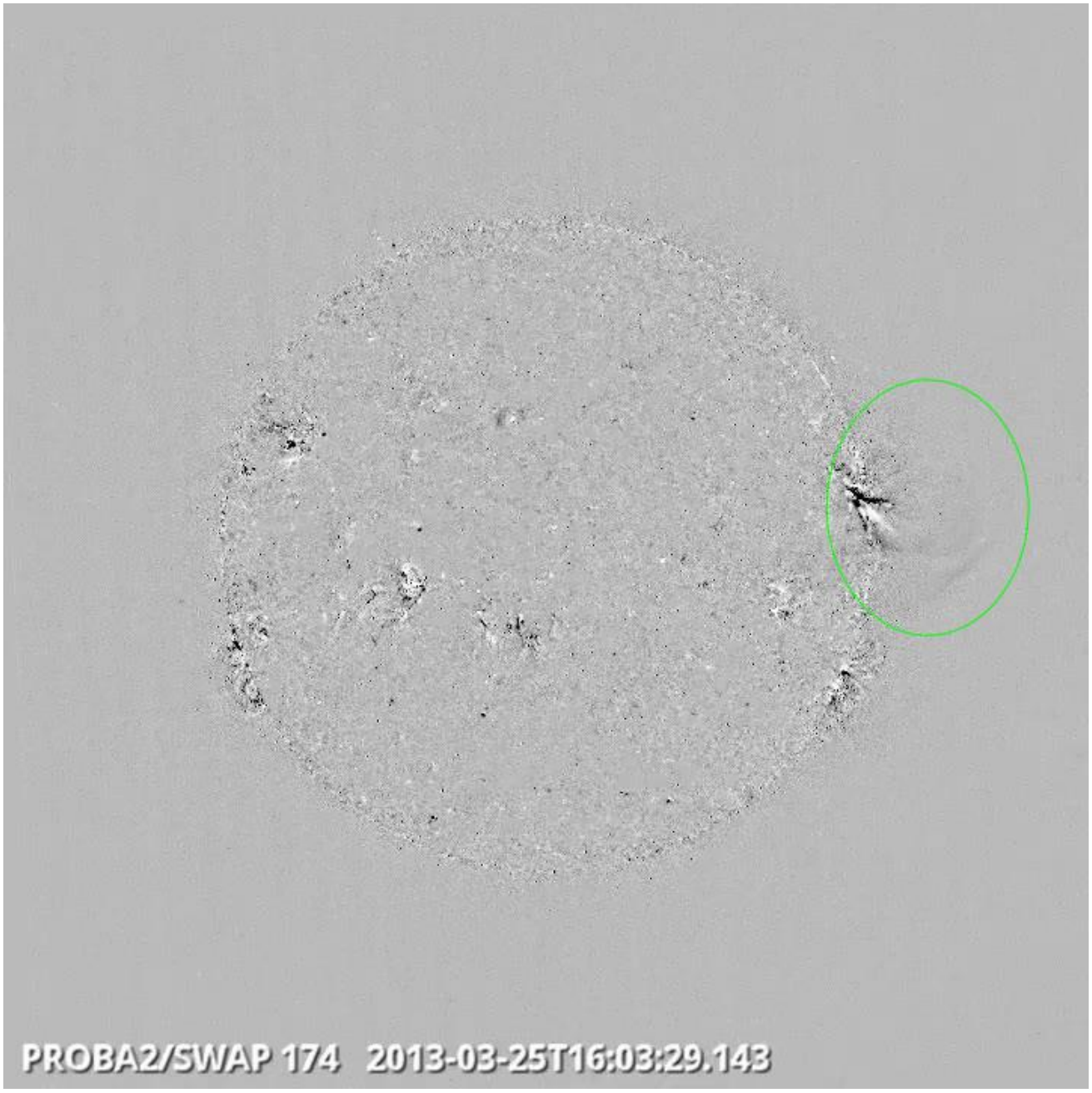
Details about some of the events in this movie can be found further below (limited to SWAP imaging).

Several interesting events occurred, some of which are presented below.

Monday 25th:

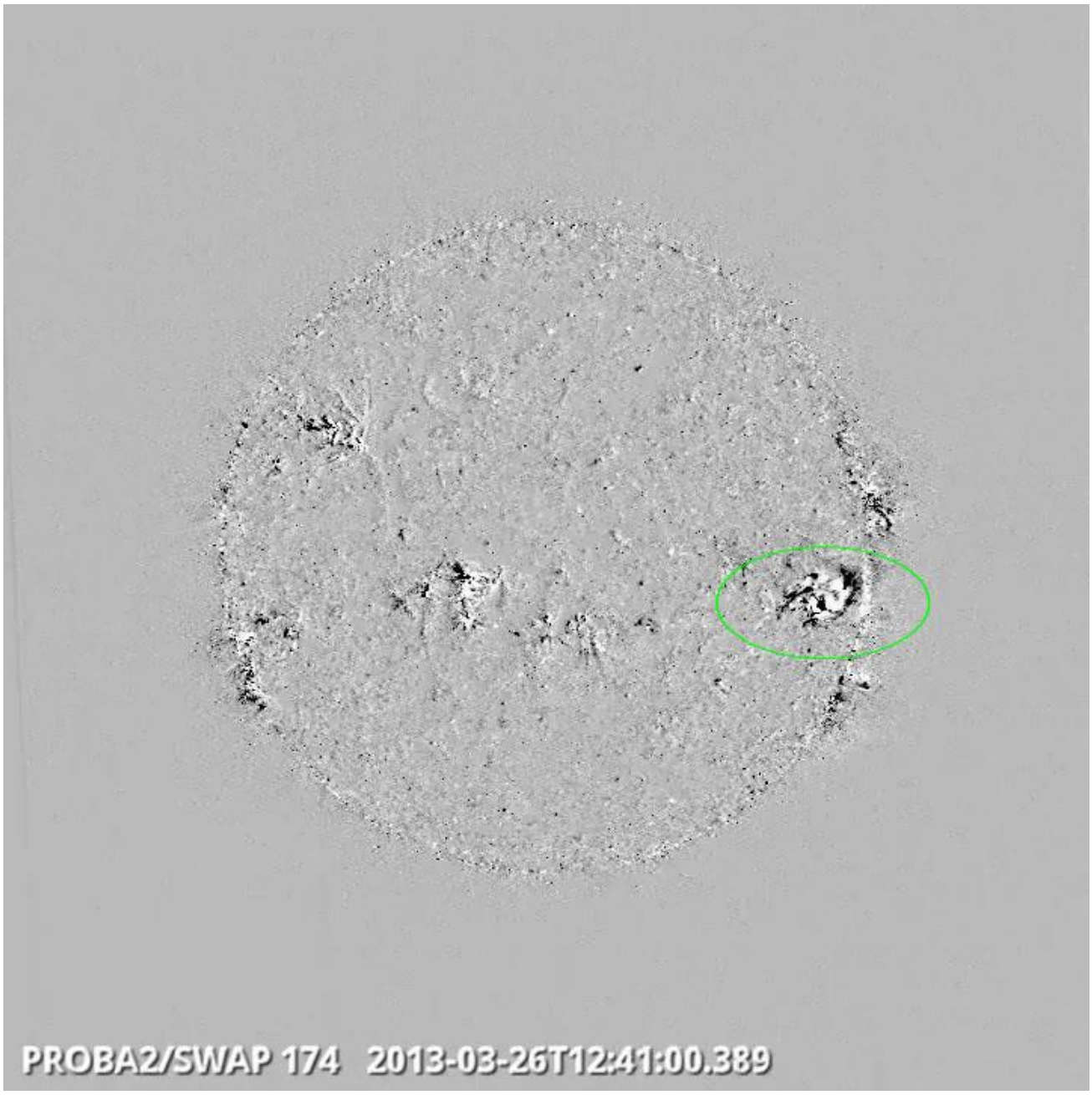
Eruption near the south west limb @ 00:25 - SWAP difference image

Eruption on the north east limb @ 01:47 - SWAP difference image



Eruption on the west limb @ 16:03 - SWAP difference image

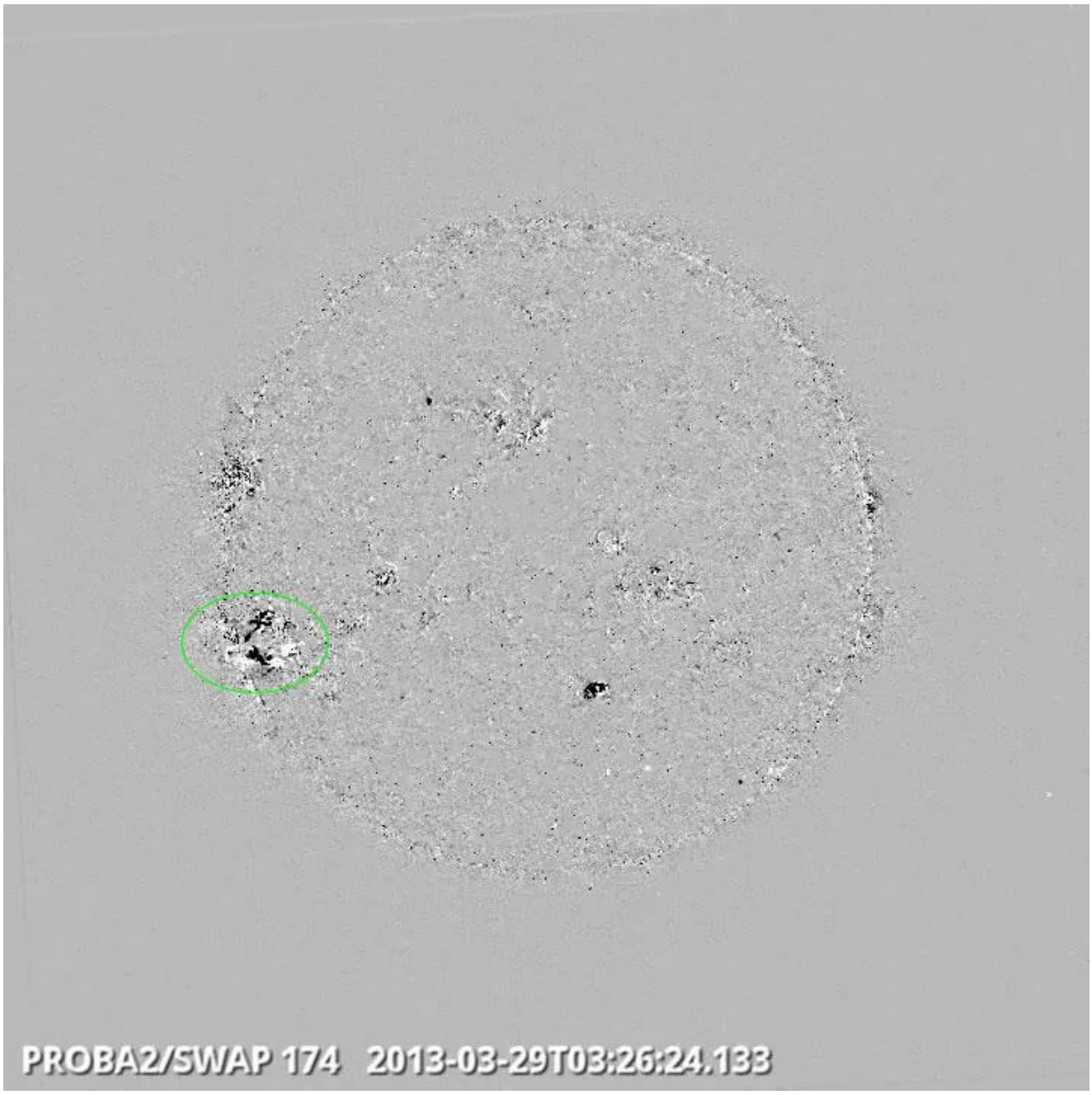
Tuesday 26th:



Filament eruption near the west limb @ 12:41 - SWAP difference image

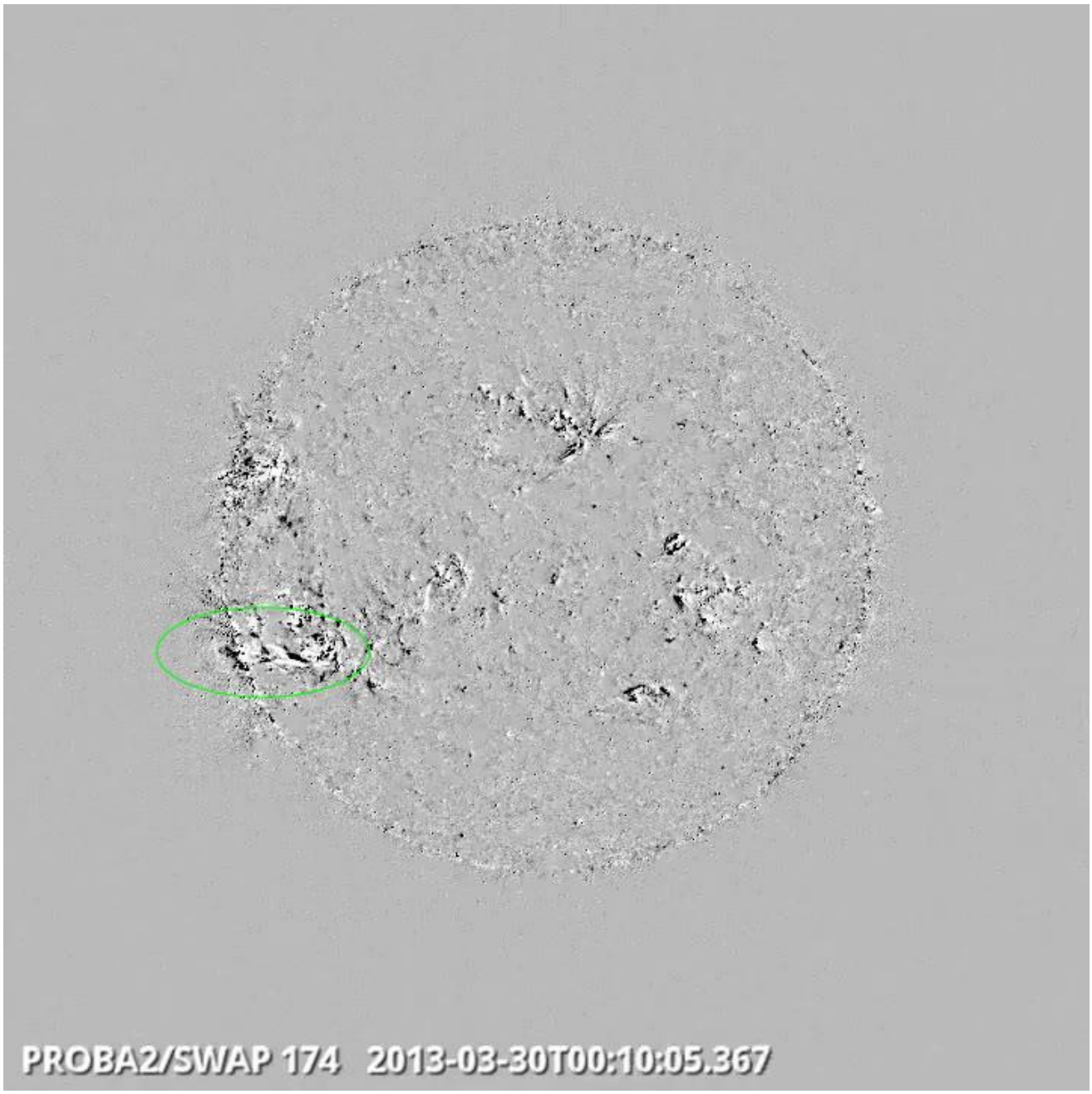
Click here for a SWAP difference movie of this event.

Friday 29th



Eruption from AR 11710, near the east limb, @ 03:26 - SWAP difference image

Saturday 30th



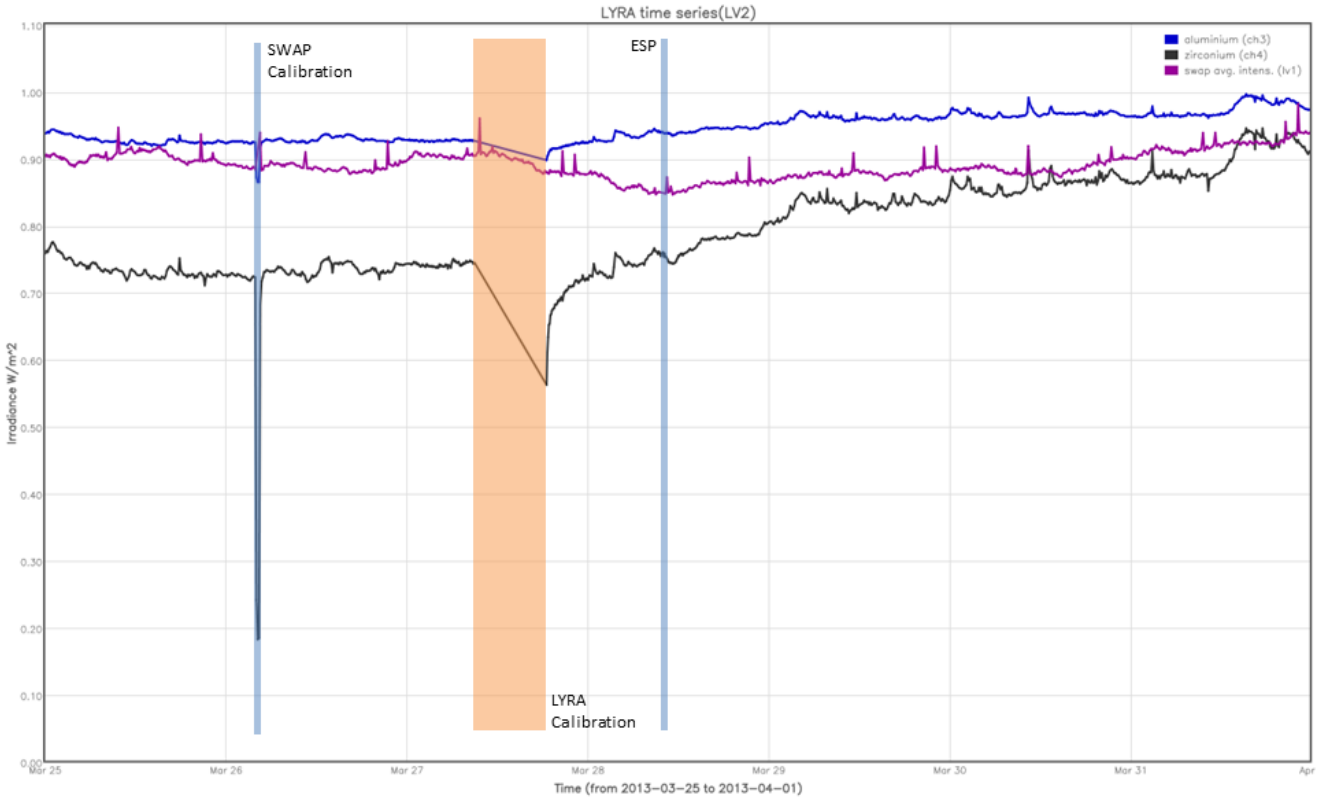
Eruption from AR 11710, east quadrant, @ 00:10 - SWAP difference image

Sunday 31th

Eruption on the West limb, @ 11:03 - SWAP difference image

During the whole week, AR 11704, which appeared on the East limb at the beginning of the week, causes its trailing filament to brighten regularly.

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 (solar intensity derived from ‘integrated’ SWAP images)



The blue shaded periods correspond to, from left to right:
- SWAP calibration on Tuesday
- ESP experiment on Thursday

The orange shaded periods correspond to, from left to right:
- LYRA calibration on Wednesday

The red shaded period corresponds to:
- None

Outreach, papers, presentations, etc.

- The scientific part of the contents of the “Solar Activity” section above is published in this week’s STCE Bulletin (see http://www.stce.be/newsletter/newsletter.php)

Please also 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.

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

LYRA calibration on Wednesday

IOS & operations

Monday 25 Mar	Tuesday 26 Mar	Wednesday 27 Mar	Thursday 28 Mar	Friday 29 Mar	Saturday 30 Mar	Sunday 31 Mar
Nominal acquisition + daily U3 LYIOS00318	Nominal acquisition + daily U3 LYIOS00318	Nominal acquisition + daily U3 + calibration LYIOS00318	Nominal acquisition + daily U3 LYIOS00319	Nominal acquisition + daily U3 LYIOS00319	Nominal acquisition + daily U3 LYIOS00319	Nominal acquisition + daily U3 LYIOS00319

The following science campaigns were performed by LYRA:
- daily U3 observations campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 47.7 to 48.6 degrees C, taking into account the daily U3 activation periods; the latter result in a temperature increase of about 0.6 degrees C.

During calibration, temperature lowered to 46.2 degrees C.

To be explored
- None

3. SWAP instrument status

Calibration

SWAP calibration on Tuesday

MCPM errors

The number of MCPM recoverable errors increased from 7161 to 7224.

The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 25 Mar	Tuesday 26 Mar	Wednesday 27 Mar	Thursday 28 Mar	Friday 29 Mar	Saturday 30 Mar	Sunday 31 Mar
Nominal acquisition IOS00460 552 images	Nominal acquisition + calibration IOS00460 539 images	Nominal acquisition IOS00460 663 images	Nominal acquisition + ESP IOS00460 607 images	Nominal acquisition IOS00460 655 images	Nominal acquisition IOS00460 517 images	Nominal acquisition IOS00460 549 images

Special operations for SWAP, this week:
- ESP jump on Thursday

SWAP detector temperature

The SWAP Cold Finger Temperature, globally varied between -0.17 and -0.98 degrees C.

To be explored

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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 10582 to 10641) was nominal, except for:
- None

Data coverage HK

All HK data files (LYRA_AD) have been received, except for:
- None

On March 28th, between 09:21 and 10:22, a small TM gap occurred (REDU investigation is on-going).

Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received, except for:
- None

Total number of images between 2013 Mar 25 0UT and 2013 Apr 01 0UT: 4156
Highest cadence in this period: 30 seconds
Average cadence in this period: 145.52 seconds
Number of image gaps larger than 300 seconds: 2
Largest data gap: 36.50 minutes

The large gap is due to the ESP experiment on Thursday.

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received, except for:
- 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
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)
(+ extreme?)