P2SC-ROB-WR-155-20130311 Weekly report #155	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Mar 11 to Sun Mar 17, 2013 20 Mar 2013 Erik Pylyser Matthew West	Royal Observatory of Belgium PROBA2 Science Center
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1. Science

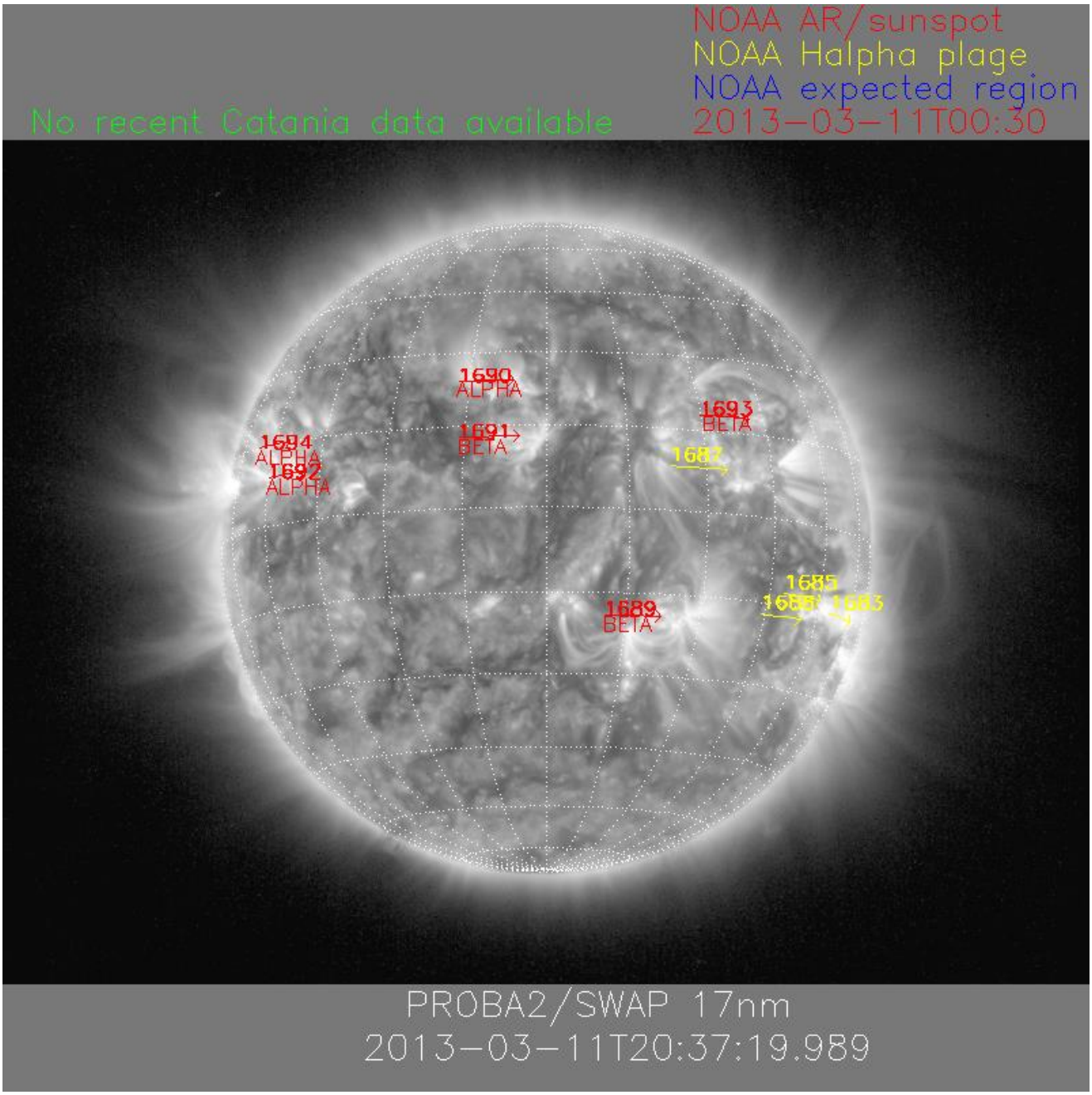
Solar & Space weather events

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

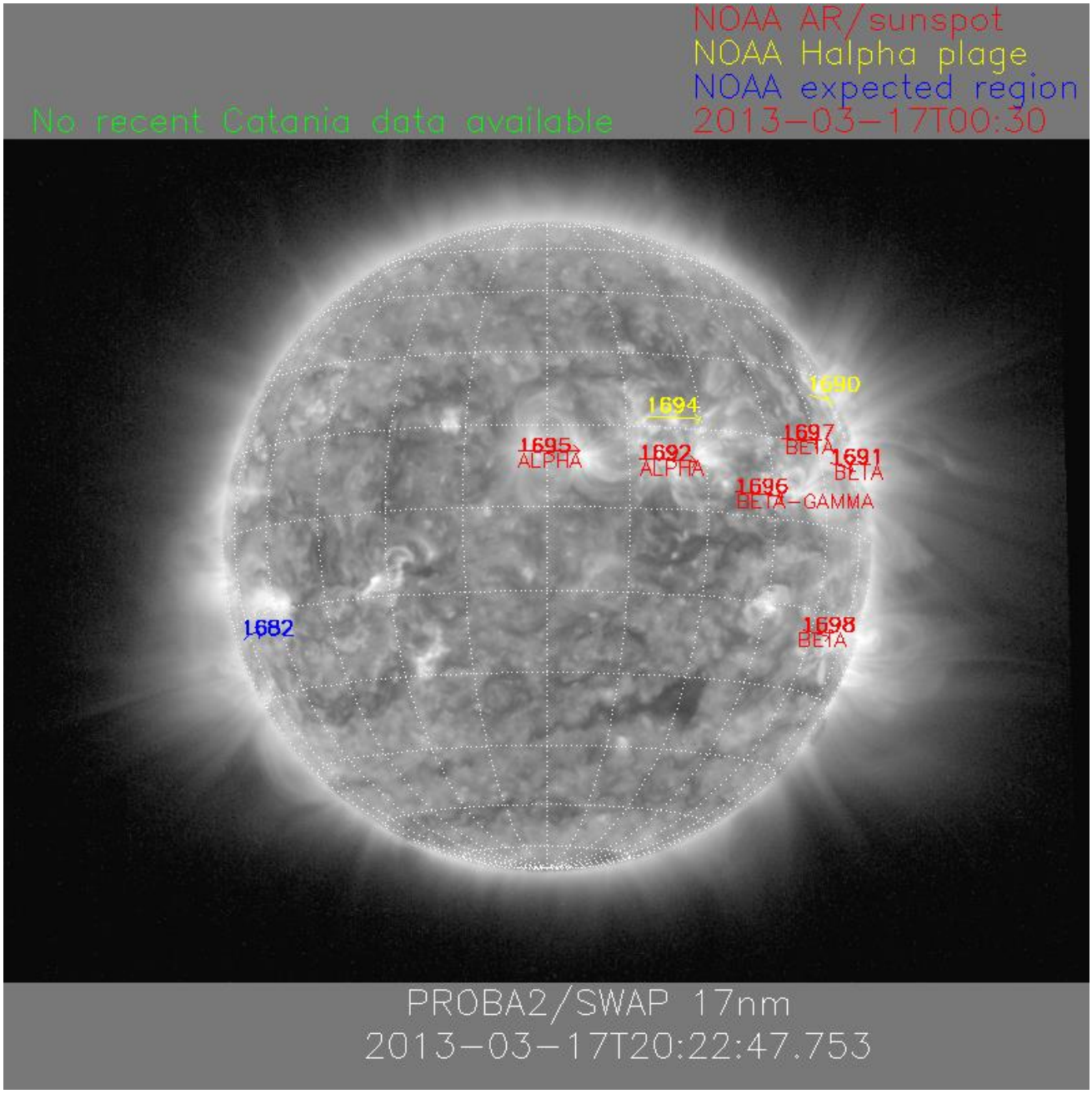
	Monday 11 Mar	Tuesday 12 Mar	Wednesday 13 Mar	Thursday 14 Mar	Friday 15 Mar	Saturday 16 Mar	Sunday 17 Mar
Activity	low	low	low	low	moderate	low	low
Flares	-	-	-	-	**M1.1 @ 05:46**	-	-

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

The SWAP images of March 11 and March 17 are shown below, with annotated active regions.



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



Solar Activity

Solar (flaring) activity was **low** during most of the week, except on Friday, when an M1.1 flare erupted at 05:46 UT.

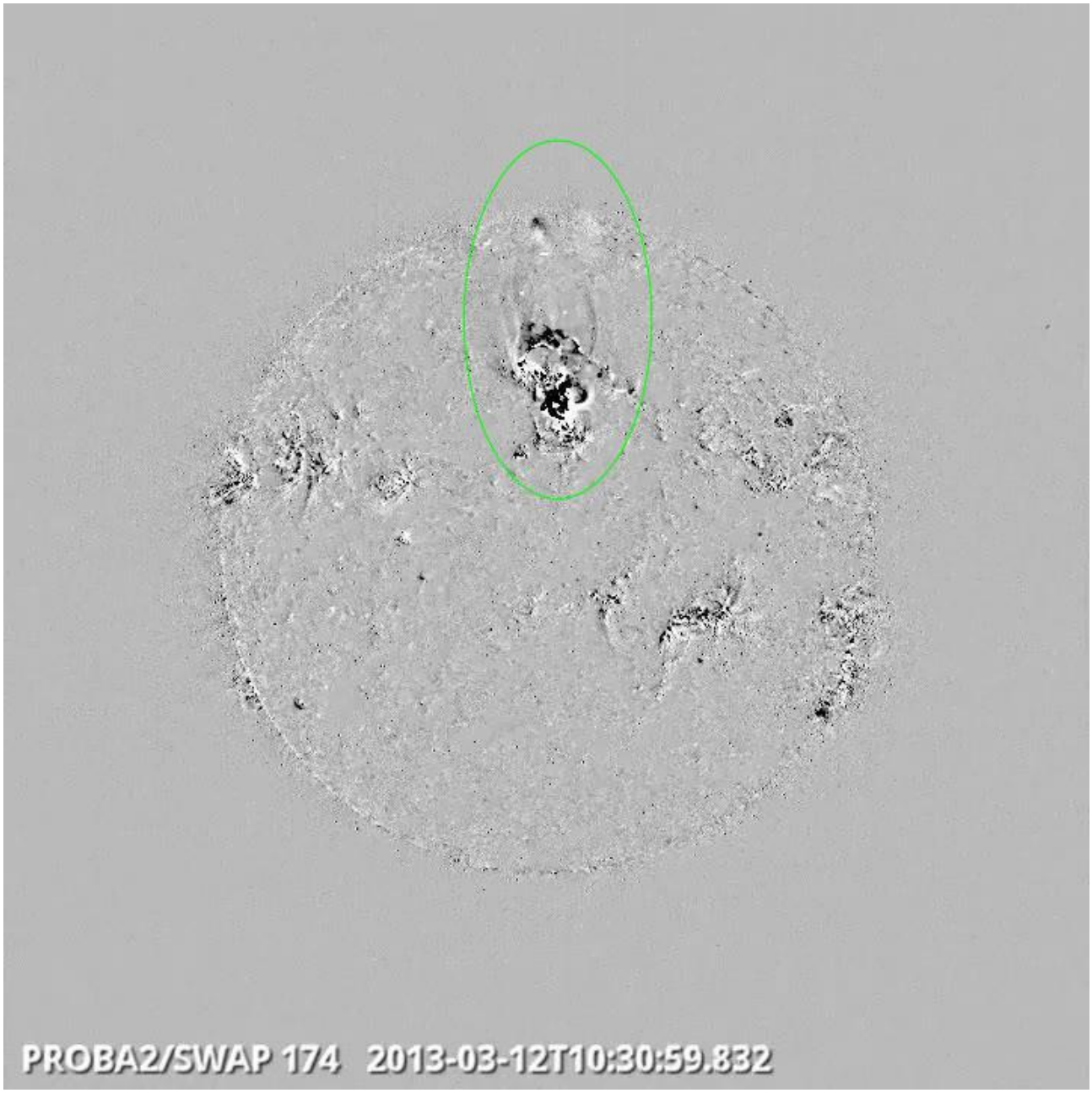
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: http://proba2.oma.be/ssa. This page also lists the recorded flaring events.

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).

During the week, several interesting events occurred, some of which are presented below.

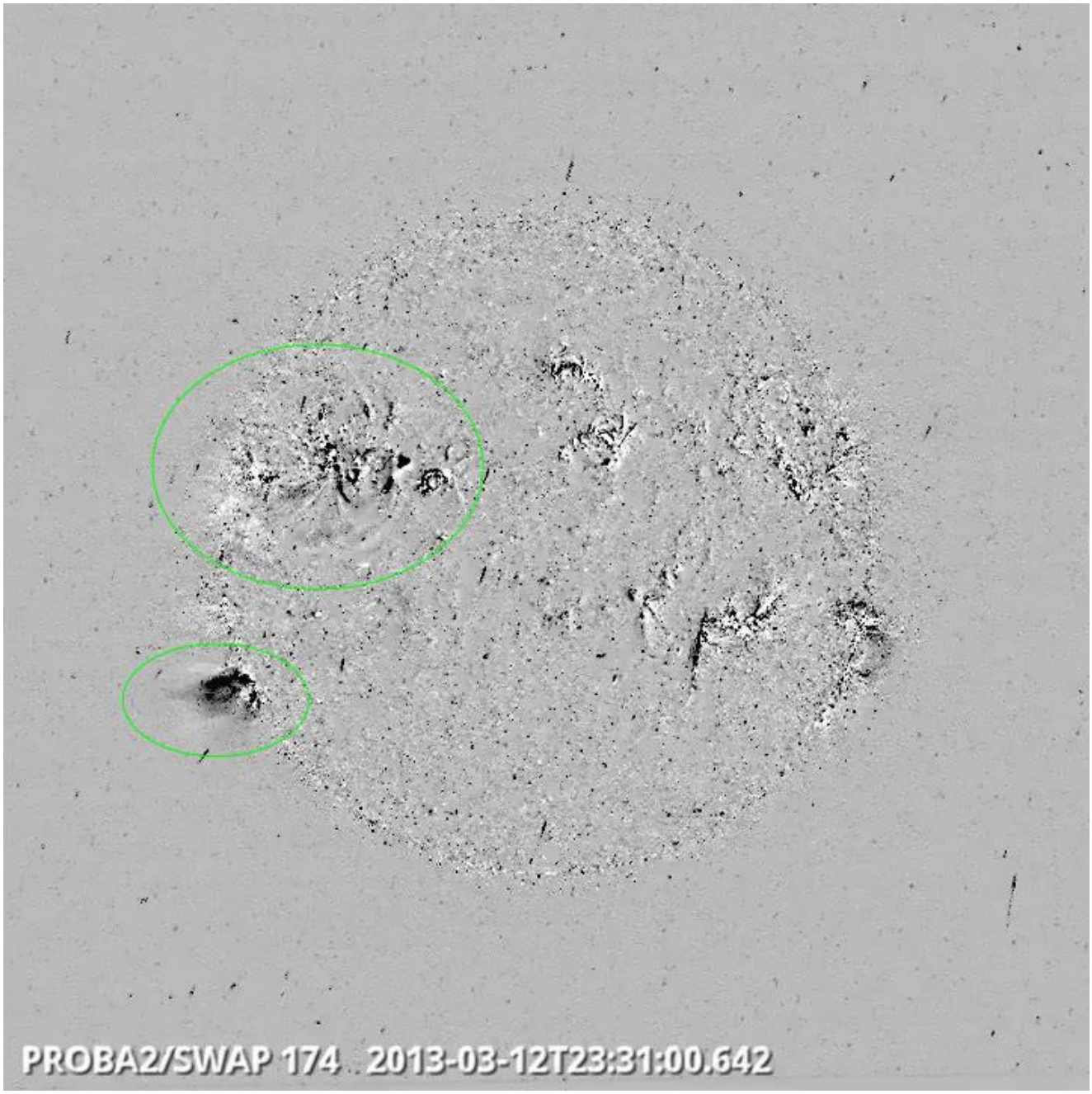
Tuesday 12th:

Eruption on the South West limb @ 09:47 - SWAP difference image



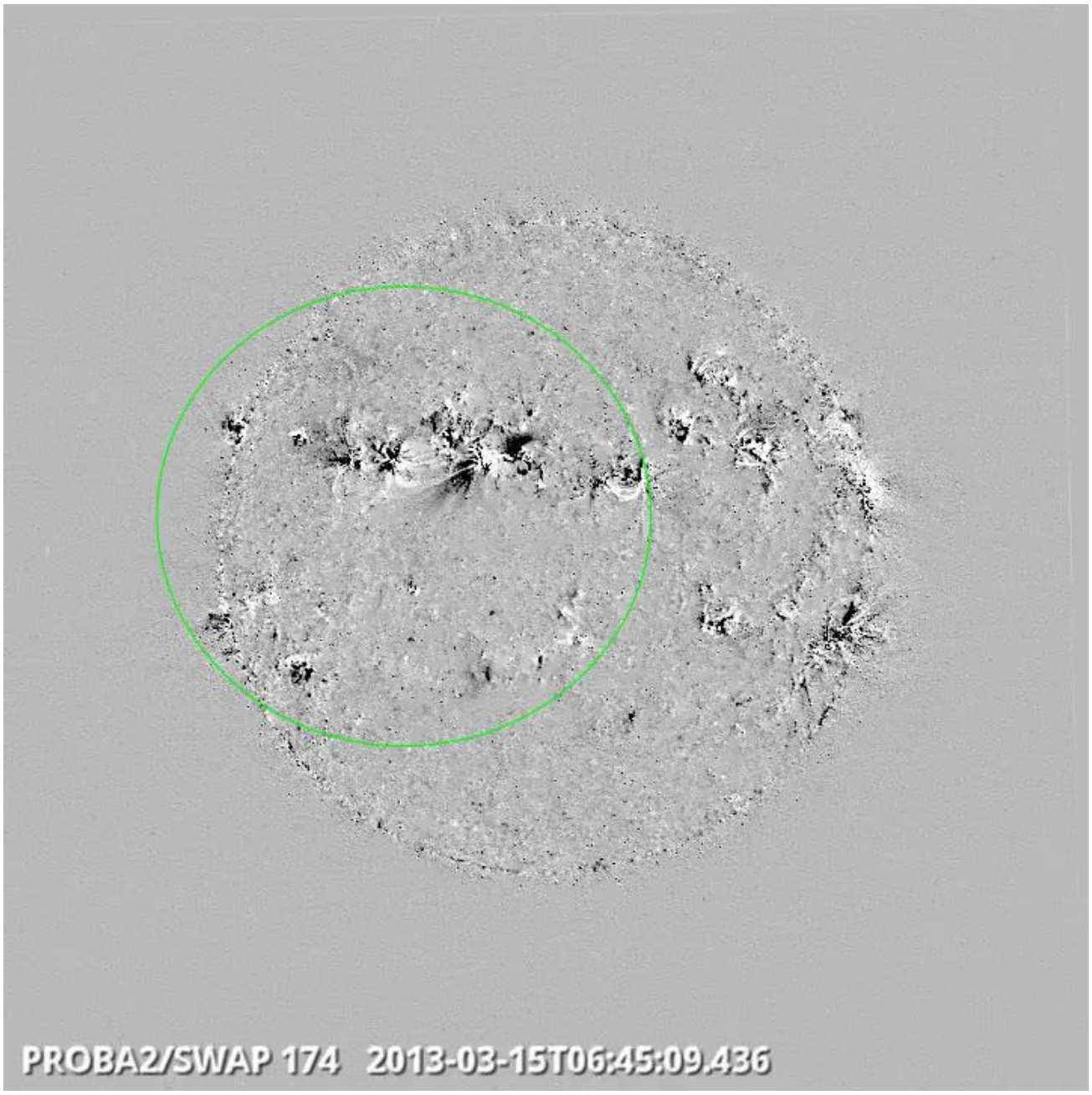
Eruption (C2.0 flare) North Center @ 10:30 - SWAP difference image

Click here for a movie.



Double Eruption; East limb (C3.6 flare) and East Center @ 23:31 - SWAP difference image

On Friday 15th, an M1.1 flare occurred in AR 11692, slightly north east of the center of the solar disk:

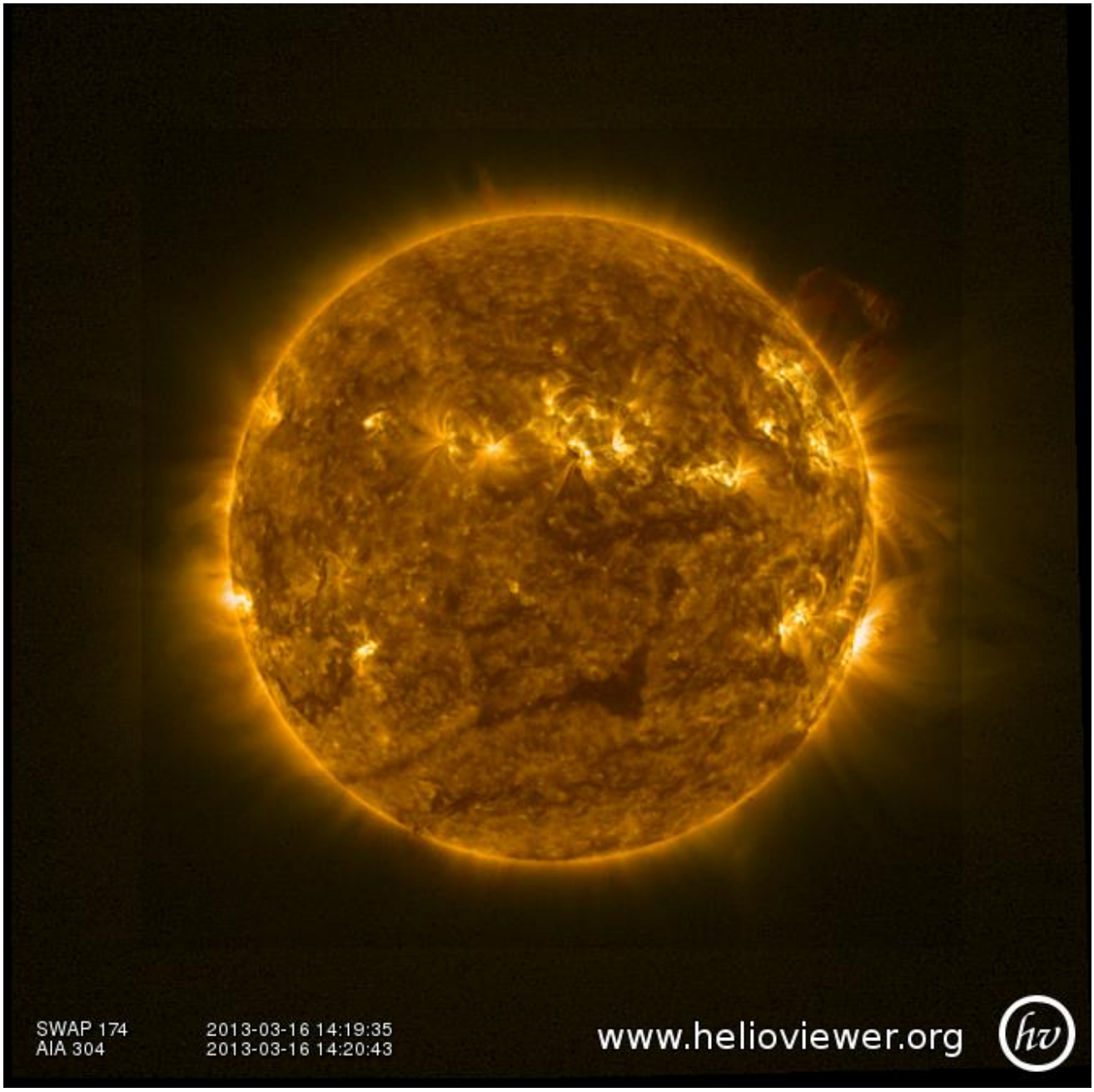


M1.1 flare in AR 11692 @ 06:45 - SWAP difference image

Click here for a movie.

On Saturday 16th, a big filament eruption occurred:

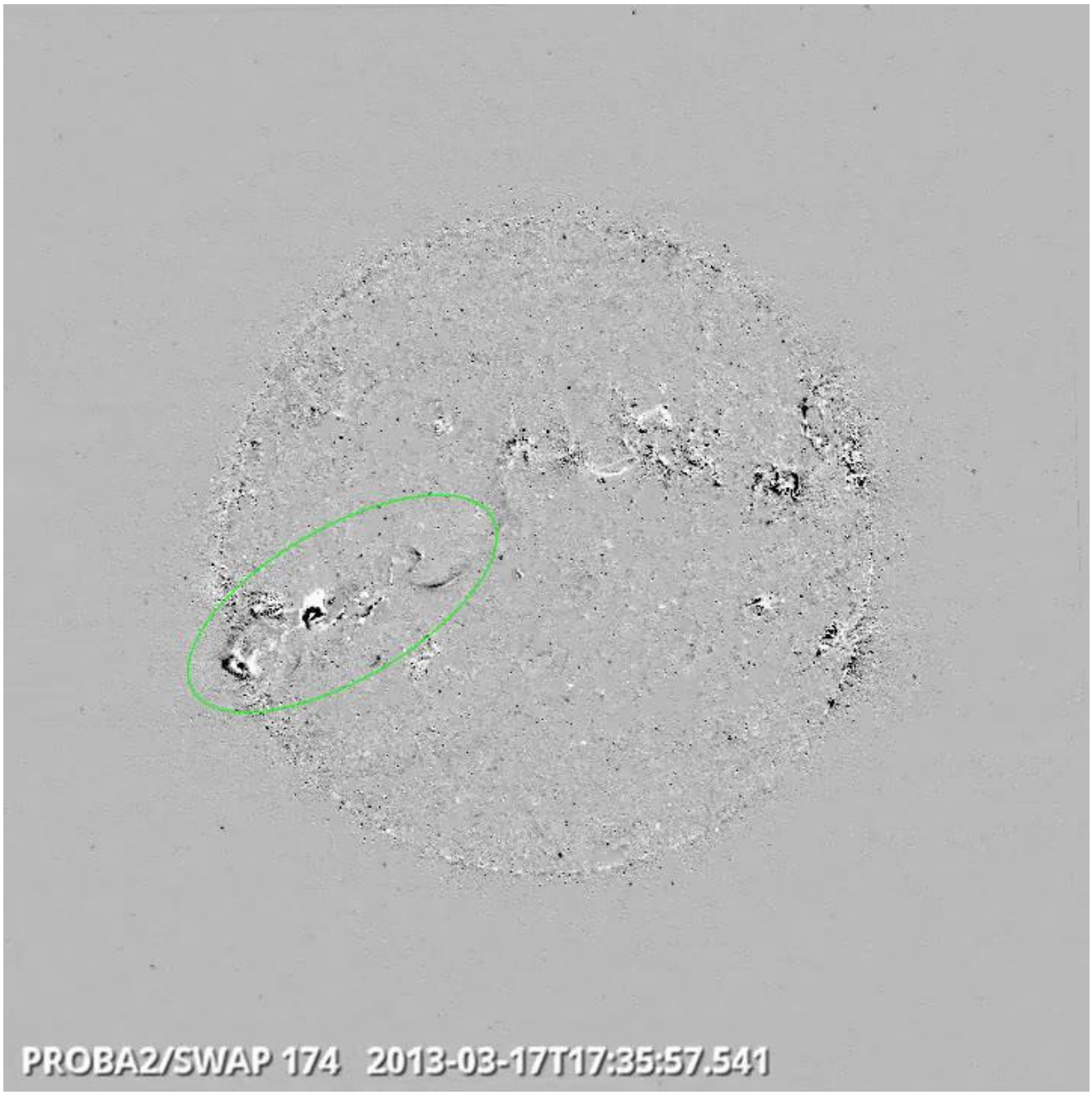
Prominence Eruption @ 14:26 - SWAP difference image



Prominence Eruption @ 14:26 - SWAP + AIA, color - HelioViewer image

For a movie, click here (SWAP difference) or here (SWAP+AIA color - HelioViewer)

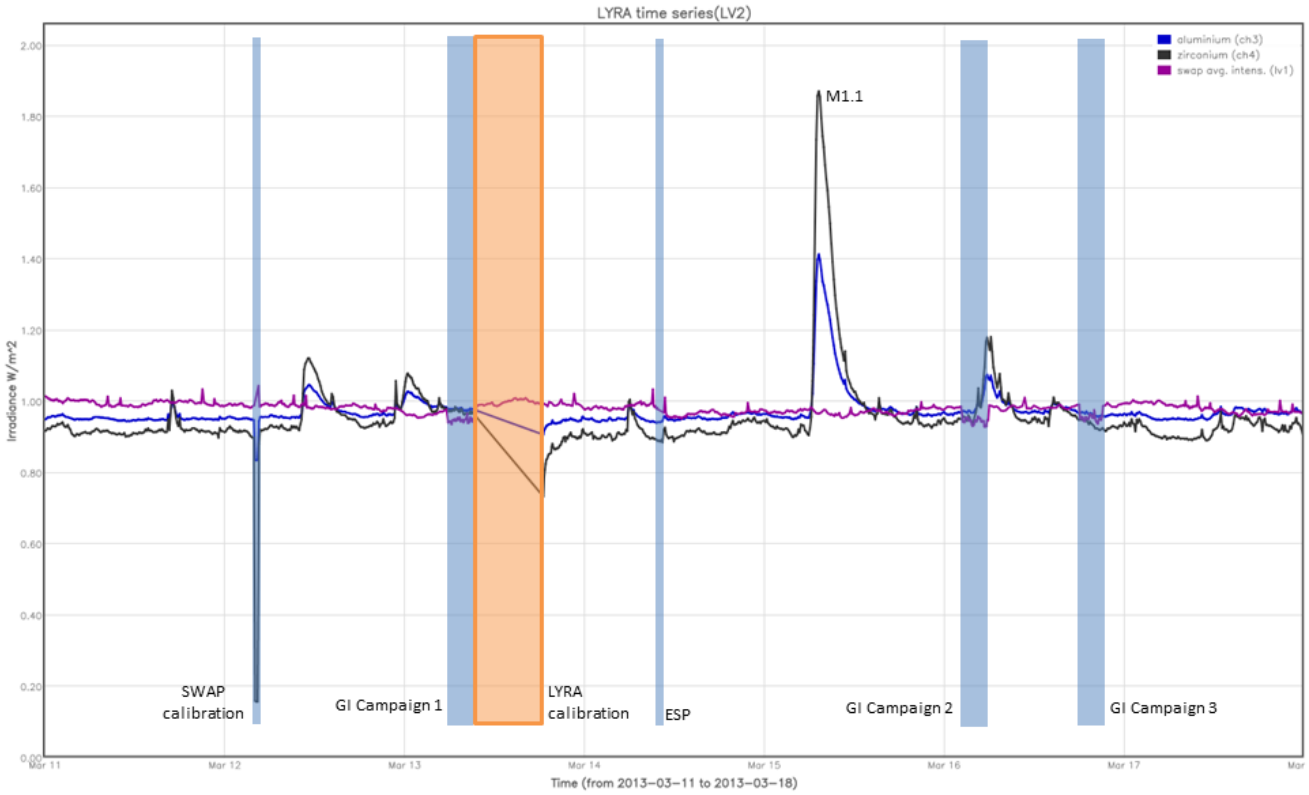
Sunday 17th:



Prominence Eruption @ 17:35, South East Quadrant - SWAP difference image

Click here for a movie of this eruption, followed by another eruption in the northeast quadrant.

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
- GI campaign 1 on Wednesday, 05:45 - 09:30
- ESP experiment on Thursday
- GI campaign 2 on Saturday, 02:26 - 05:52
- GI campaign 3 on Saturday, 18:00 - 21:05

The orange shaded periods correspond to, from left to right:
- LYRA calibration on Wednesday
- Monthly U1 activation on Friday

The red shaded period corresponds to:
- None

Outreach, papers, presentations, etc., referencing SWAP/LYRA data

- 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)

Poster @ Conference LWS / SDO Science Workshop 2013 (March 3-8); Title: Quasi-Periodic Pulsations during the onset of solar flares: multi-instrumental comparison; Author(s): M. J. West et al.

Talk @ Conference LWS / SDO Science Workshop 2013 (March 3-8); Title: Solar EUV irradiance variability as observed by SDO/EVE: from flares to long-term variations; Author: M. Kretzschmar.

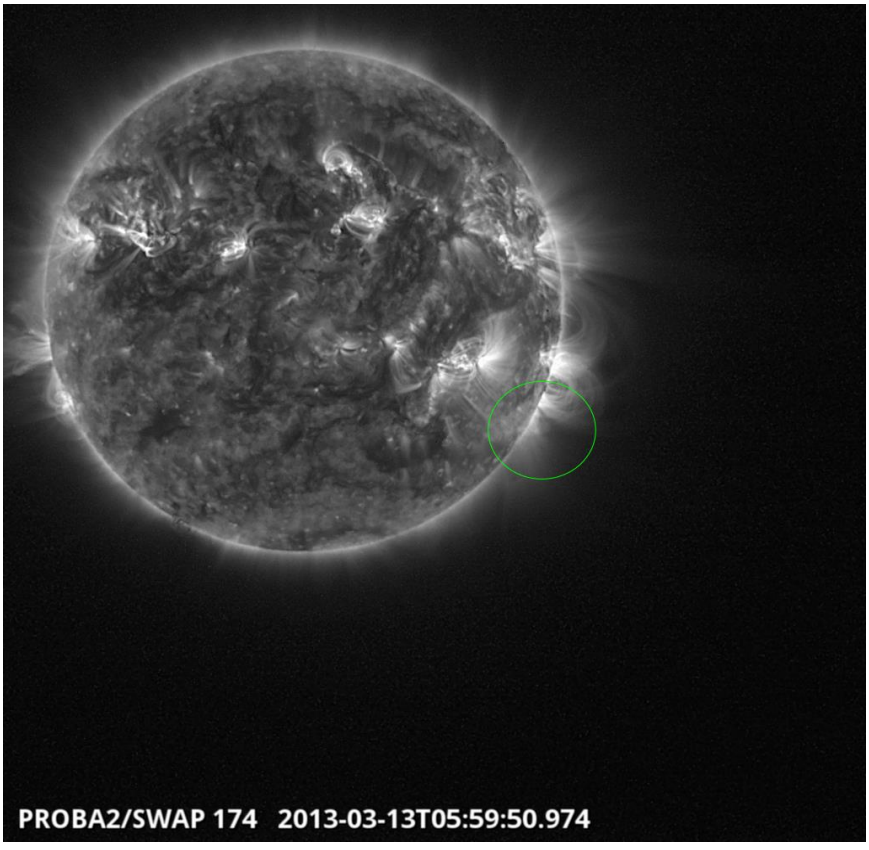
Please also consult http://proba2.oma.be/science/publications for a list of interesting articles using SWAP & LYRA data, as well as a link to the complete article list.

Guest Investigator Program

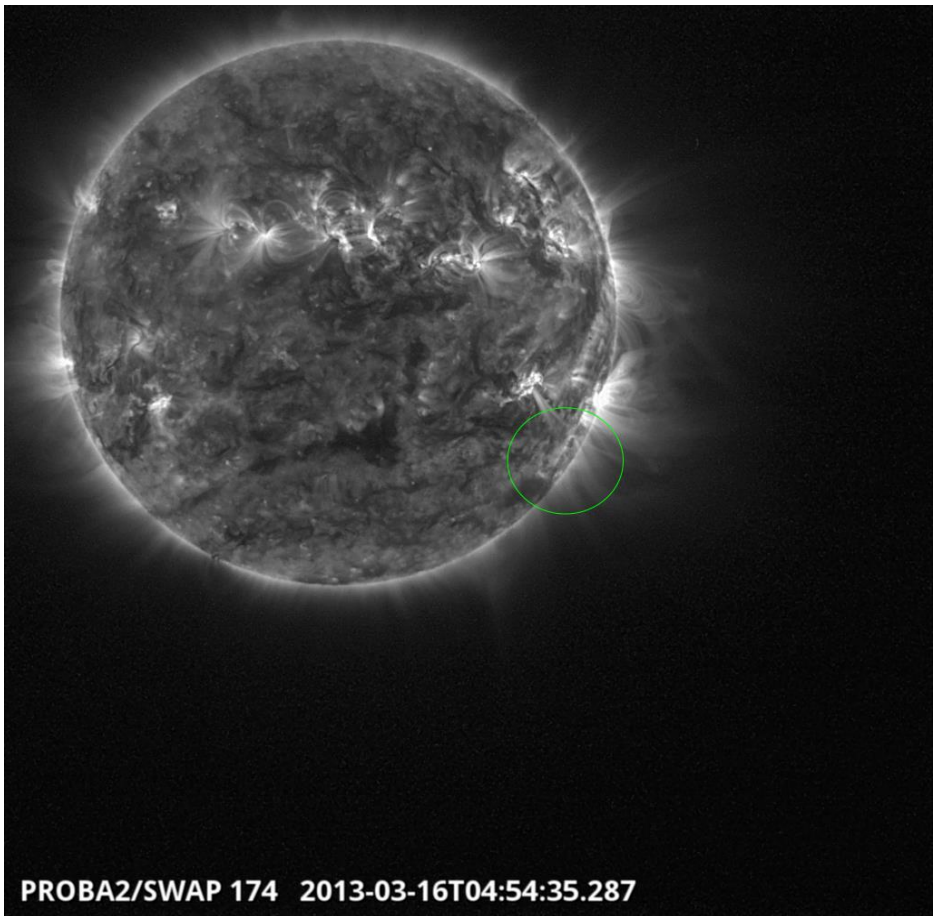
- Maria Madjarska & Klaus Dalsgaard arrived on Monday 11th for their GI program (2 weeks): ‘EUV/Xray jets from coronal holes and the origin of the solar wind’.

- During the week, 3 specific SWAP campaigns were executed with specific off-points to hunt for jets at the border of coronal holes and active regions.

On Wednesday 13th the area indicated below was targeted:



On Saturday 16th, the area indicated below was targeted (twice):



2. LYRA instrument status

Calibration

LYRA calibration on Wednesday.

IOS & operations

Monday 11 Mar	Tuesday 12 Mar	Wednesday 13 Mar	Thursday 14 Mar	Friday 15 Mar	Saturday 16 Mar	Sunday 17 Mar
Nominal acquisition + daily U3 LYIOS00315	Nominal acquisition + daily U3 LYIOS00317	Nominal acquisition + daily U3 + calibration LYIOS00317	Nominal acquisition + daily U3 LYIOS00317	Nominal acquisition + daily U3 + monthly U1 LYIOS00317	Nominal acquisition + daily U3 LYIOS00317	Nominal acquisition + daily U3 LYIOS00317

The following science campaigns were performed by LYRA:
- daily U3 observations campaign
- monthly U1 observation campaign on Friday 15th.

LYRA detector temperature

LYRA detector 2 temperature globally varied between 49.5 to 48.5 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 decreased until 47.3 degrees. During the monthly U1 observation, temperature increased to 49.9 degrees.

To be explored
- None

3. SWAP instrument status

Calibration

LYRA calibration on Tuesday.

MCPM errors

The number of MCPM recoverable errors increased from 6999 to 7092.

The number of MCPM unrecoverable errors remained at 1127.

IOS & operations

Monday 04 Mar	Tuesday 05 Mar	Wednesday 06 Mar	Thursday 07 Mar	Friday 08 Mar	Saturday 09 Mar	Sunday 10 Mar
Nominal acquisition IOS00457 518 images	Nominal acquisition + calibration IOS00457 592 images	Nominal acquisition IOS00458 656 images	Nominal acquisition + ESP IOS00458 546 images	Nominal acquisition IOS00458 457 images	Nominal acquisition IOS00459 896 images	Nominal acquisition IOS00459 514 images

Special operations for SWAP, this week:
- GI campaign 1 on Wednesday, 05:45 to 09:00
- ESP jump on Thursday
- GI campaign 2 on Saturday, 02:26 to 05:52
- GI campaign 3 on Saturday, 18:00 to 21:05

SWAP detector temperature

The SWAP Cold Finger Temperature, globally varied between 0.86 and -0.08 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 10458 to 10520) was nominal, except for:
- None

Data coverage HK

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

Data coverage SWAP

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

Total number of images between 2013 Mar 11 0UT and 2013 Mar 18 0UT: 4191
Highest cadence in this period: 30 seconds
Average cadence in this period: 144.33 seconds
Number of image gaps larger than 300 seconds: 16
Largest data gap: 34.33 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
EIT	Extreme ultraviolet Imaging Telescope
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

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?)