P2SC-ROB-WR-232 - 20140901 Weekly report #232	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Sep 01 to Sun Sep 07, 2014 19 Sep 2014 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

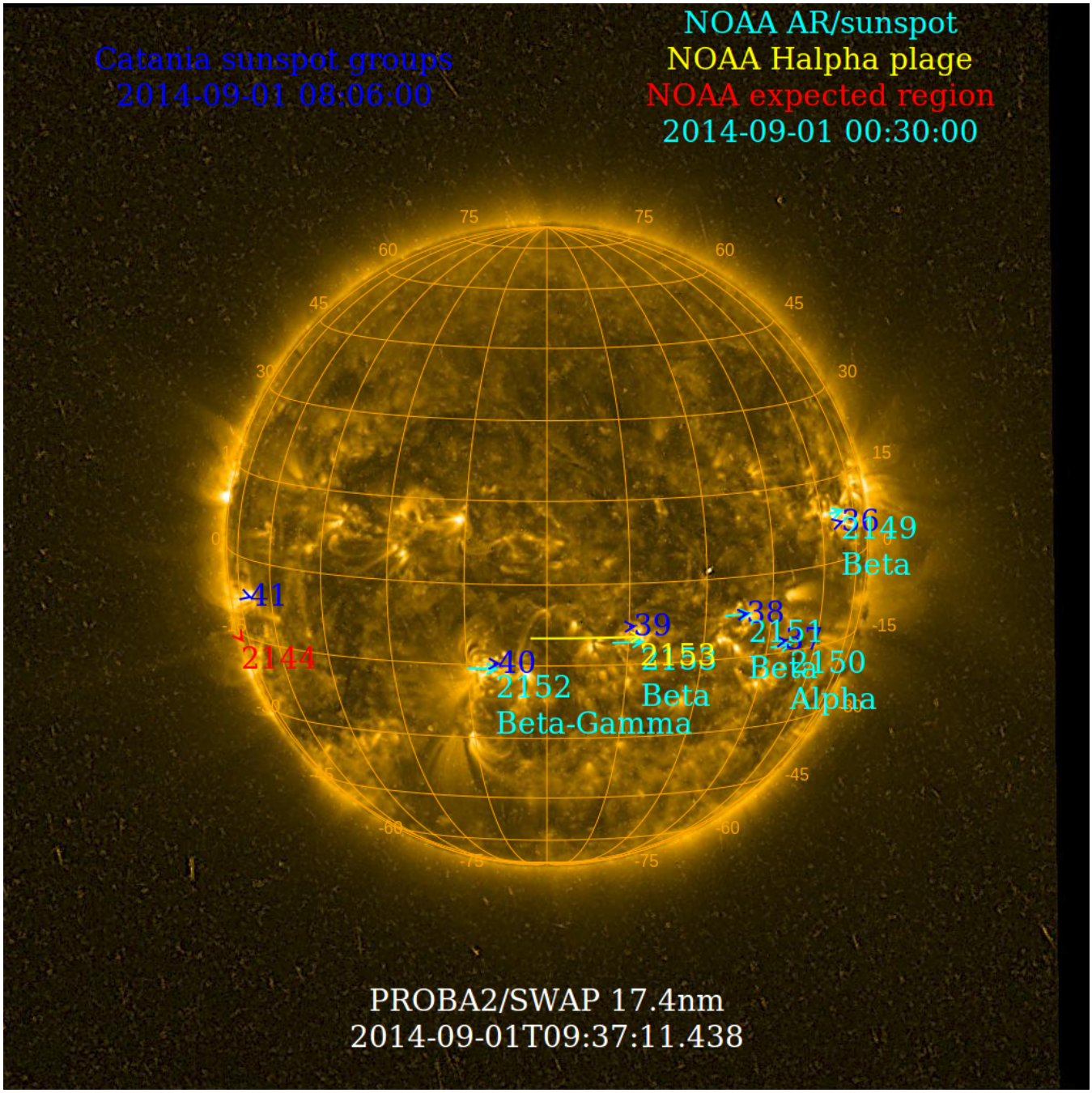
The level of solar activity[1] fluctuated between **low** and **moderate** this week.

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

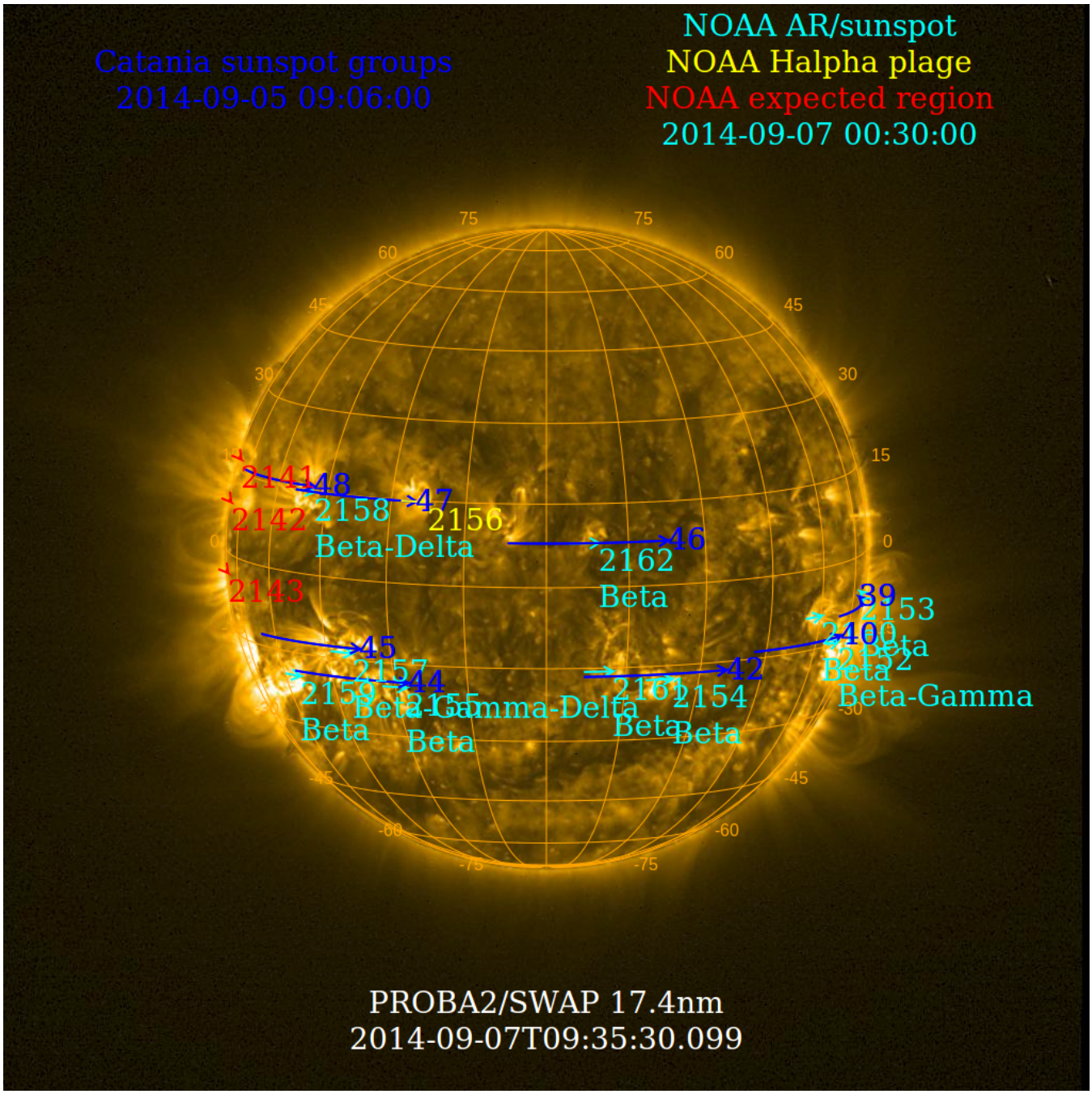
	Monday 01 Sep	Tuesday 02 Sep	Wednesday 03 Sep	Thursday 04 Sep	Friday 05 Sep	Saturday 06 Sep	Sunday 07 Sep
Activity	low	low	moderate	low	low	moderate	low
Flares	-	-	**M2.5@13:54**	-	-	**M1.1@17:09**	-

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

The SWAP images of Sep 01 and Sep 07 are shown below, with annotated active regions.



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


Catania sunspot groups
2014-09-05 09:06:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2014-09-07 00:30:00
75
60
45
30
15
0
-15
-30
-45
-60
-75
2141
48
2142
2158
47
2156
Beta-Delta
46
2162
Beta
2143
39
2153
Beta
45
2157
44
2159
Beta
Beta-Gamma-Delta
Beta
2161
2154
42
Beta
Beta
Beta-Gamma
PROBA2/SWAP 17.4nm
2014-09-07T09:35:30.099

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 232).

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

Monday Sep 01

EIT wave on the north east limb @ 11:27 - SWAP difference image

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

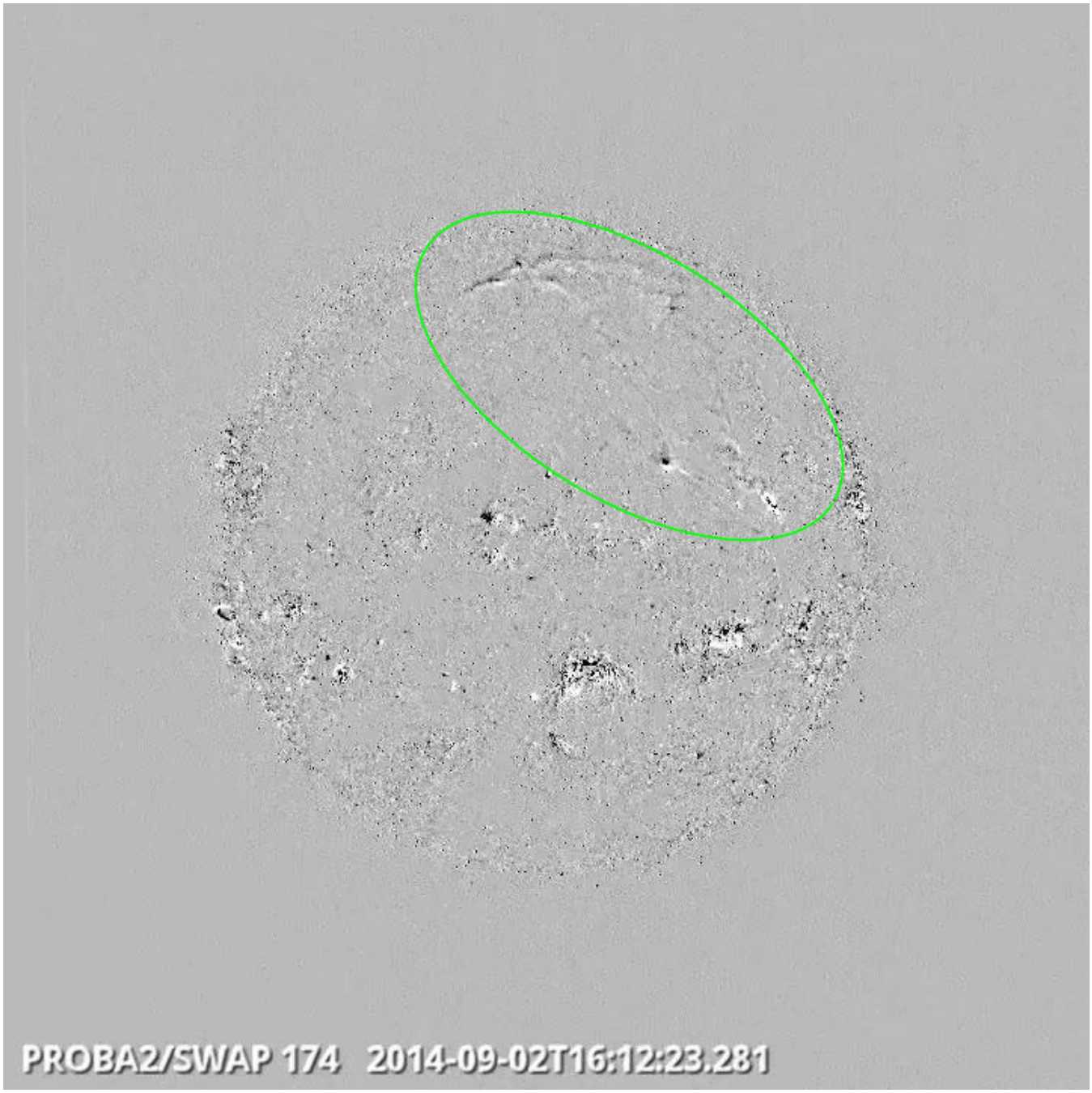
Loop expansion on the east limb @ 15:26 - SWAP difference image

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

Loop expansion on the east limb @ 22:04 - SWAP difference image

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

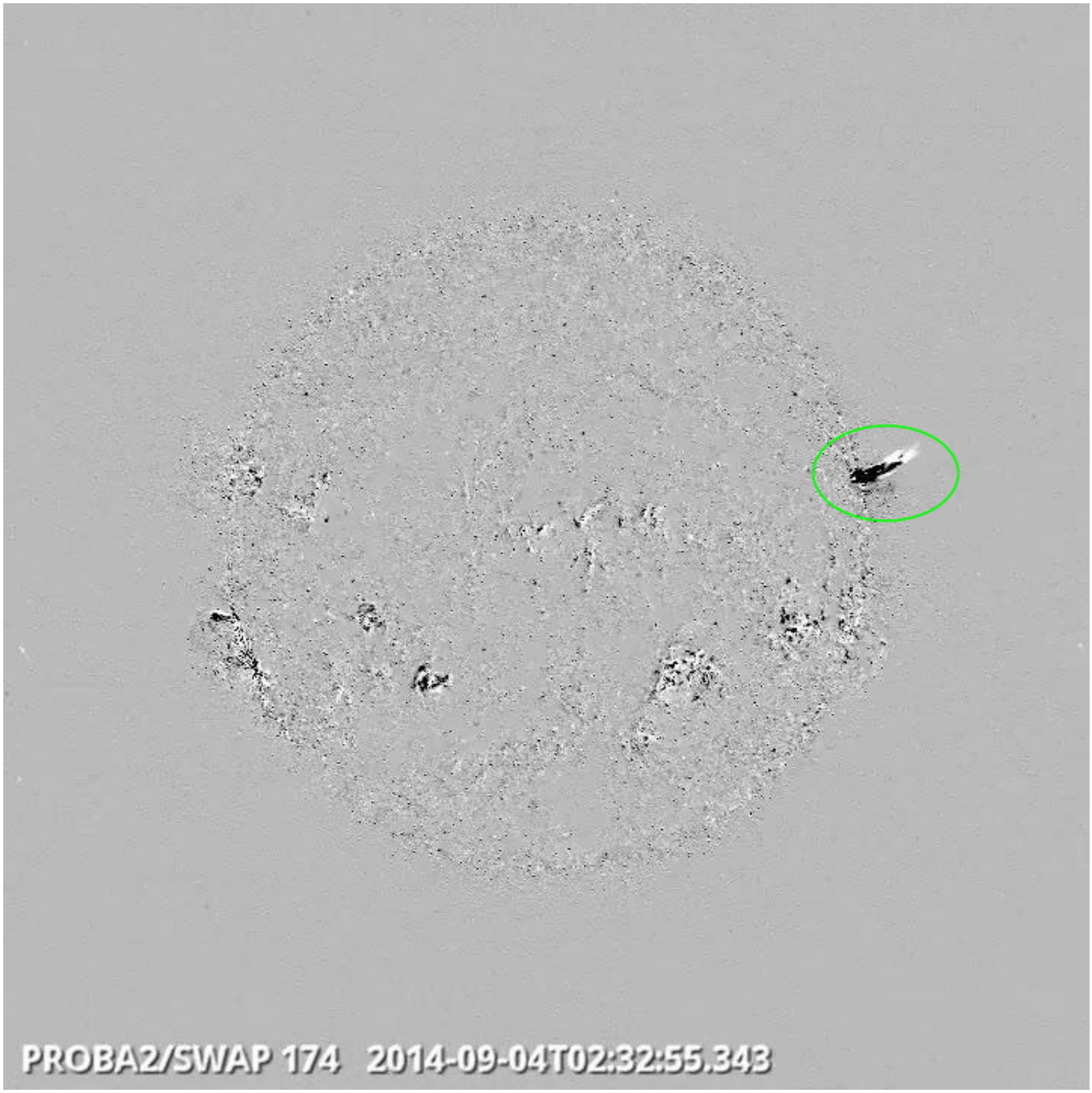
Tuesday Sep 02



Filament eruption on the northern half of the Sun @ 16:12 - SWAP difference image

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

Thursday Sep 04



Eruption on the west limb @ 02:32 - SWAP difference image

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

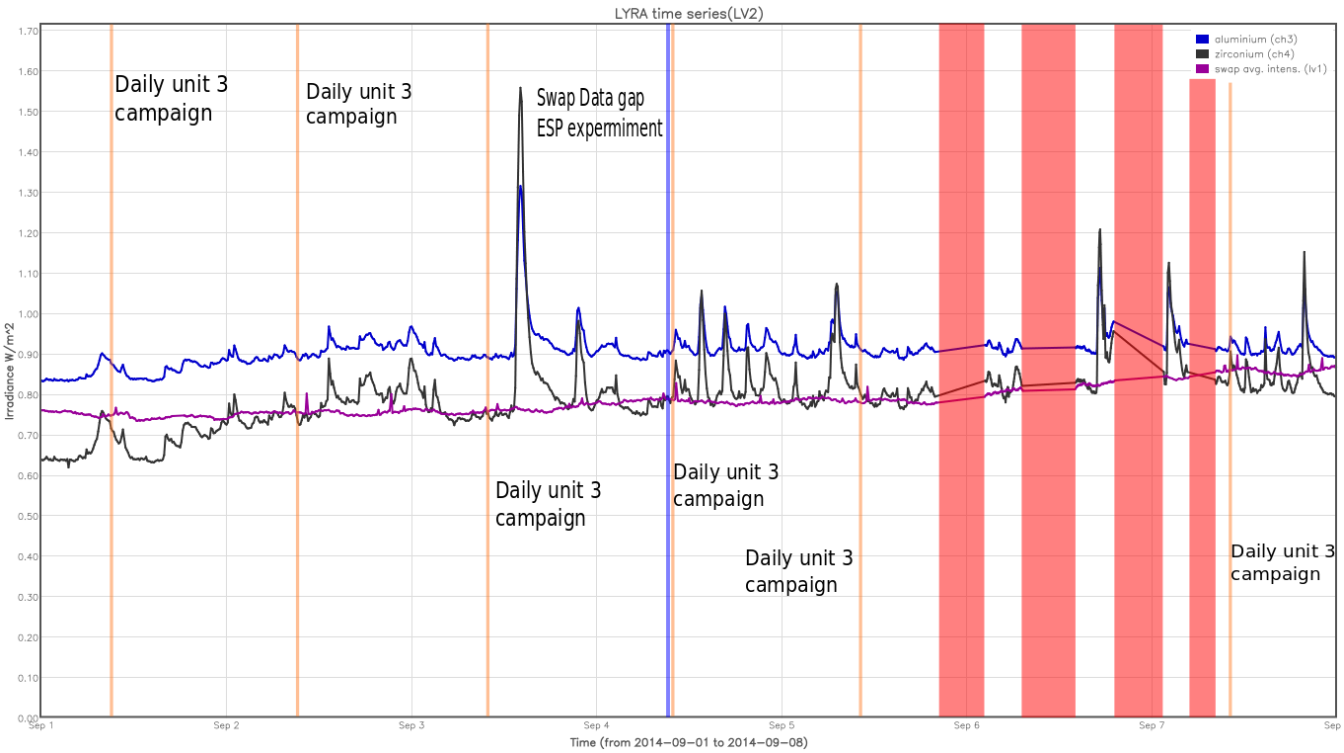
Friday Sep 05

Eruption on the east limb @ 06:31 - SWAP difference image

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

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:

- A data gap in SWAP due to the ESP jump. (SWAP stops taking images to allocate CPU power to the ESP experiment)

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

- Daily unit 3 campaign, six times (The unit 3 campaign on the 6th of September was lost)

The red shaded period corresponds to:

- Data gaps in the LYRA and the auxiliary data

LYRA and auxiliary data gaps (red) were caused because KSAT didn't start recording on BBE5 during the following Svalbard downlink passes 15155, 15156, 15160, 15161, 15164, 15165, 15167, 15168, 15169. SWAP also had a reduced cadence. However, because of the priority allocation of the images there was no data gap. Separately, SWAP image download blocked during the pass 15164. An unblocking procedure was performed during the pass 15170 on 2014 - Sep -07 at 18:20:05

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

- Jason Byrne visited the P2SC to work on “SWAP Studying the Low-Corona Initiation Phase of CMEs”

2. LYRA instrument status

Calibration

No calibration this week.

IOS & operations

Monday 01 Sep	Tuesday 02 Sep	Wednesday 03 Sep	Thursday 04 Sep	Friday 05 Sep	Saturday 06 Sep	Sunday 07 Sep
Nominal acquisition + daily U3 LYIOS00415	Nominal acquisition + daily U3 LYIOS00416	Nominal acquisition + daily U3 LYIOS00416	Nominal acquisition + daily U3 LYIOS00416	Nominal acquisition + daily U3 LYIOS00416	Nominal acquisition + daily U3 LYIOS00417	Nominal acquisition + daily U3 LYIOS00417

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 47.4 and 48.2 °C, taking into account the daily U3 activation periods.

3. SWAP instrument status

Calibration

No calibration this week.

MCPM errors

The number of MCPM recoverable errors increased from 21560 to 21739.
The number of MCPM unrecoverable errors remained at 1657.

IOS & operations

Monday 01 Sep	Tuesday 02 Sep	Wednesday 03 Sep	Thursday 04 Sep	Friday 05 Sep	Saturday 06 Sep	Sunday 07 Sep
Nominal acquisition IOS00535 659 images	Nominal acquisition IOS00535 637 images	Nominal acquisition IOS00535 666 images	Nominal acquisition + ESP jump IOS00535 647 images	Nominal acquisition IOS00535 496 images	Nominal acquisition IOS00536 227 images	Nominal acquisition IOS00536 373 images

Special operations for SWAP, this week:

- ESP jump

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.3 and -0.6 °C.

4. PROBA2 Science Center Status

The main operator is Robbe Vansintjan.

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 15113 to 15172) was nominal, except for:

- 15155, 15156, 15160, 15161, 15164, 15165, 15167, 15168, 15169.

Data coverage HK

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

- 15155, 15156, 15160, 15161, 15164, 15165, 15167, 15168, 15169.

Data coverage SWAP

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

- 15155, 15156, 15160, 15161, 15164, 15165, 15167, 15168, 15169.

The SWAP images download blocked during the pass 15164.
The unblocking procedure has been performed during the pass 15170 at 2014-09-07T18:20:05

Total number of images between 2014 Sep 01 0UT and 2014 Sep 08 0UT: 3705
Highest cadence in this period: 0 seconds
Average cadence in this period: 163.26 seconds
Number of image gaps larger than 300 seconds: 150
Largest data gap: 390.00 minutes

This data gap is from the 7th of September and is caused by the data downlinks missed at Svalbard and the SWAP images download blocking.

Data coverage LYRA

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

- 15155, 15156, 15160, 15161, 15164, 15165, 15167, 15168, 15169.

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)