P2SC-ROB-WR-275 - 20150629 Weekly report #275	**P2SC Weekly report**	
Period covered: Date: Written by: Approved by:	Mon Jun 29 to Sun Jul 05, 2015 08 Jul 2015 Katrien Bonte Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

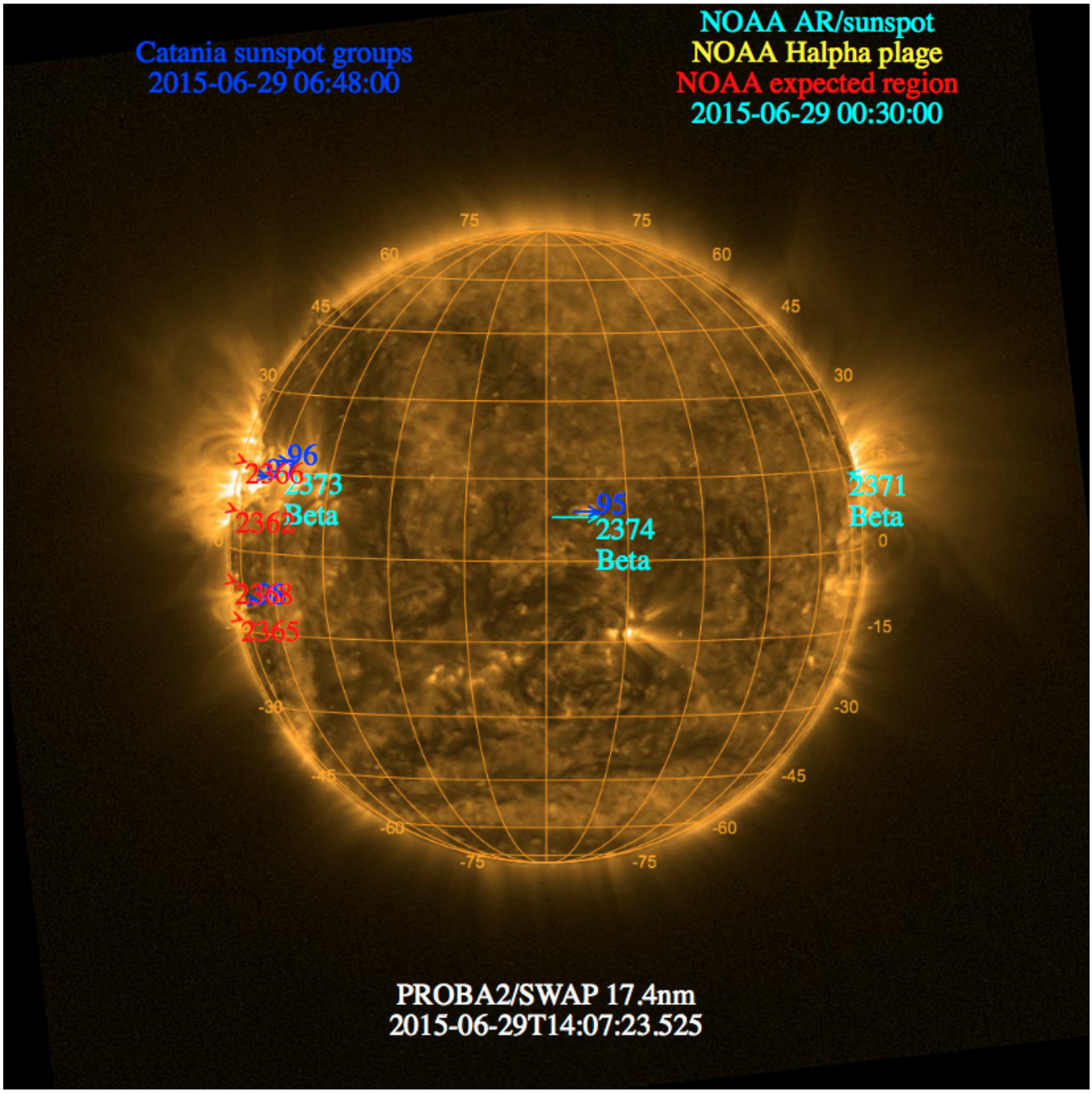
The level of solar activity[1] fluctuated between **very low** and **moderate** this week.

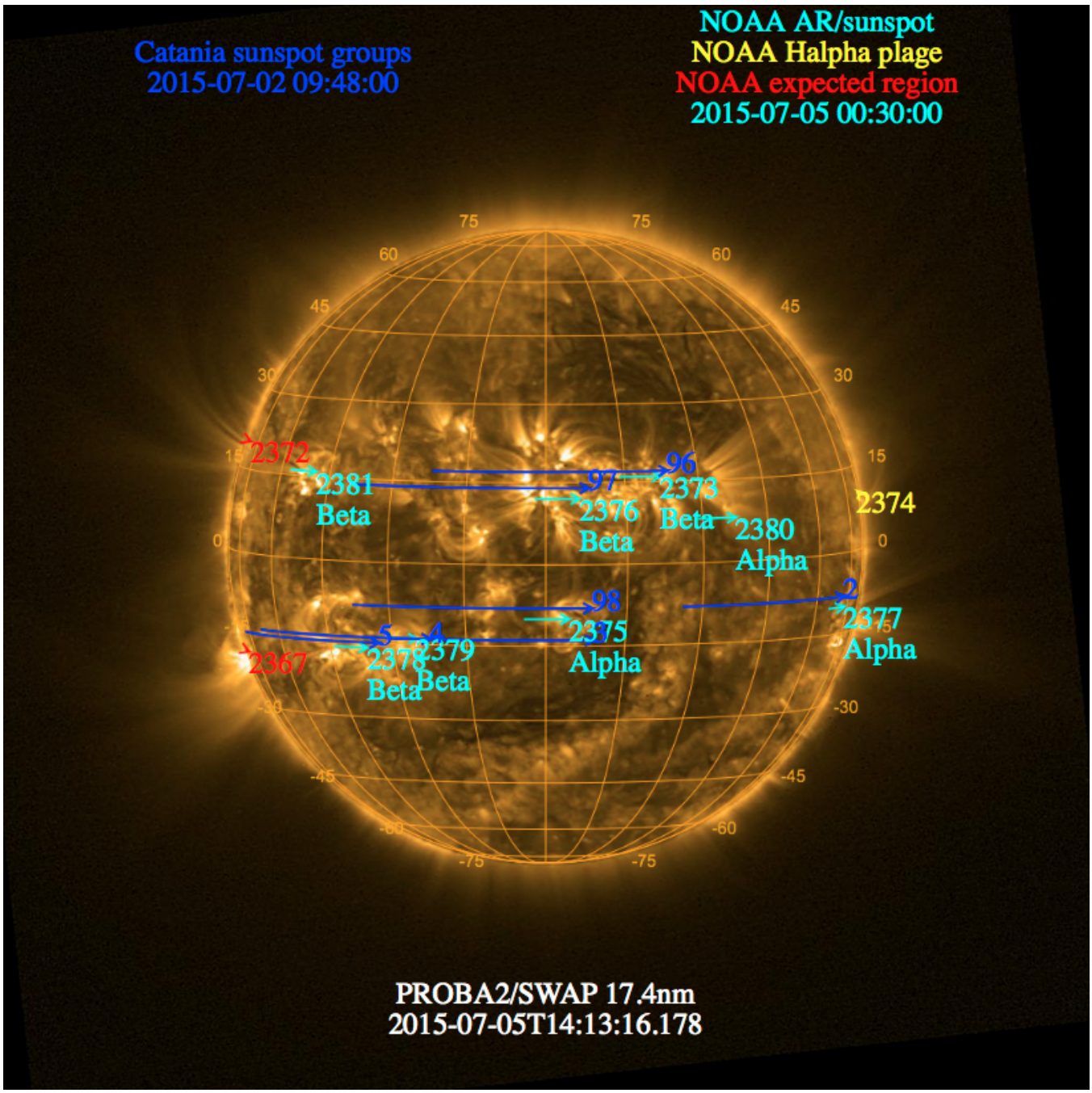
Only M- and X-flares are mentioned, the most energetic one(s) per day are presented in **bold**:

	Monday 29 Jun	Tuesday 30 Jun	Wednesday 01 Jul	Thursday 02 Jul	Friday 03 Jul	Saturday 04 Jul	Sunday 05 Jul
Activity	low	low	low	low	moderate	low	very low
Flares	-	-	-	-	**M1.5@12h51**	-	-

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

The SWAP images of Jun 29 and Jul 05 are shown below, with annotated active regions.



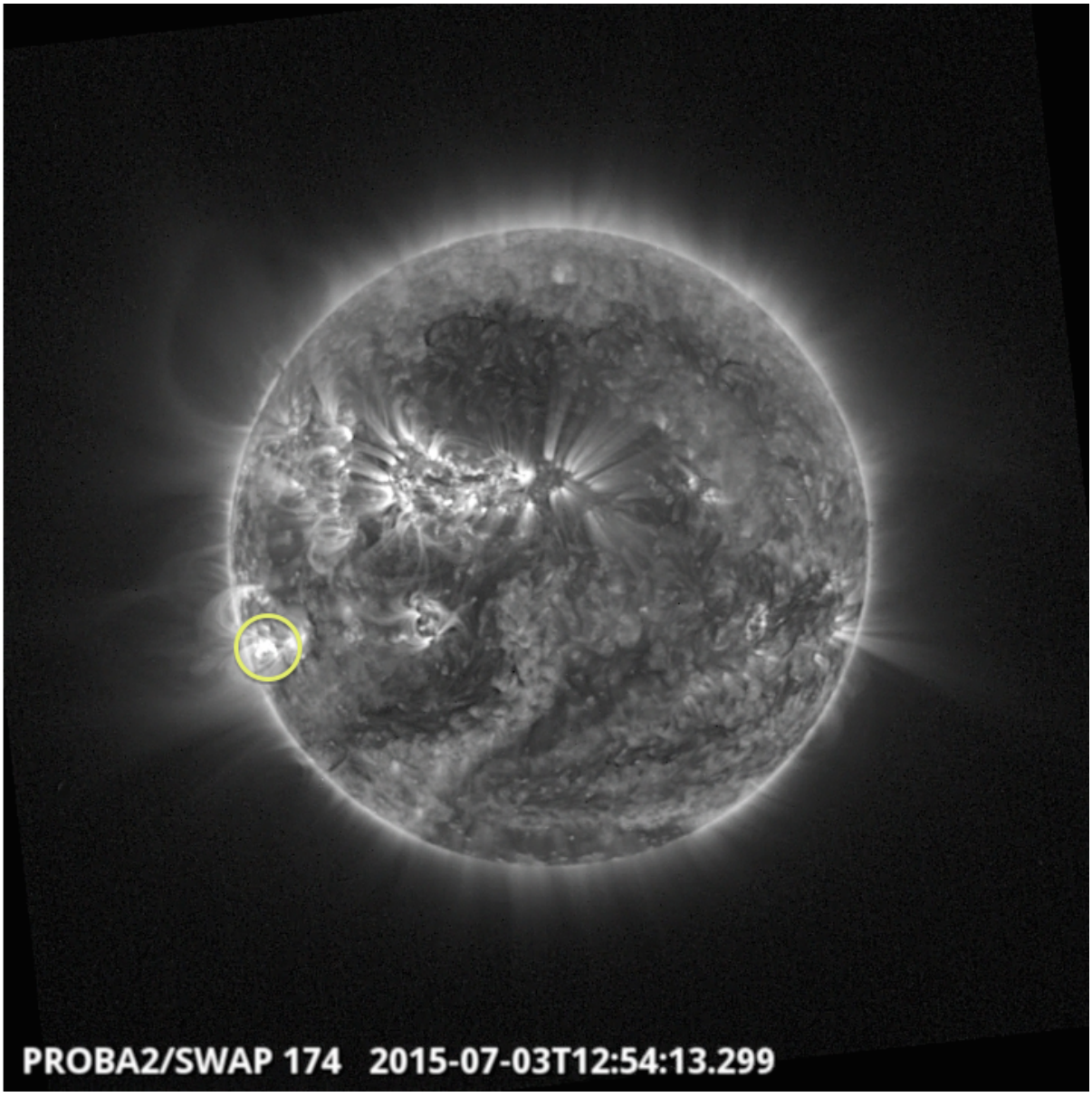

Catania sunspot groups
2015-07-02 09:48:00
NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2015-07-05 00:30:00
2372
2381
Beta
96
97
2373
Beta
2376
Beta
2380
Alpha
2374
98
2375
Alpha
2
2377
Alpha
5
4
2367
2378
Beta
2379
Beta
PROBA2/SWAP 17.4nm
2015-07-05T14:13:16.178

Solar Activity

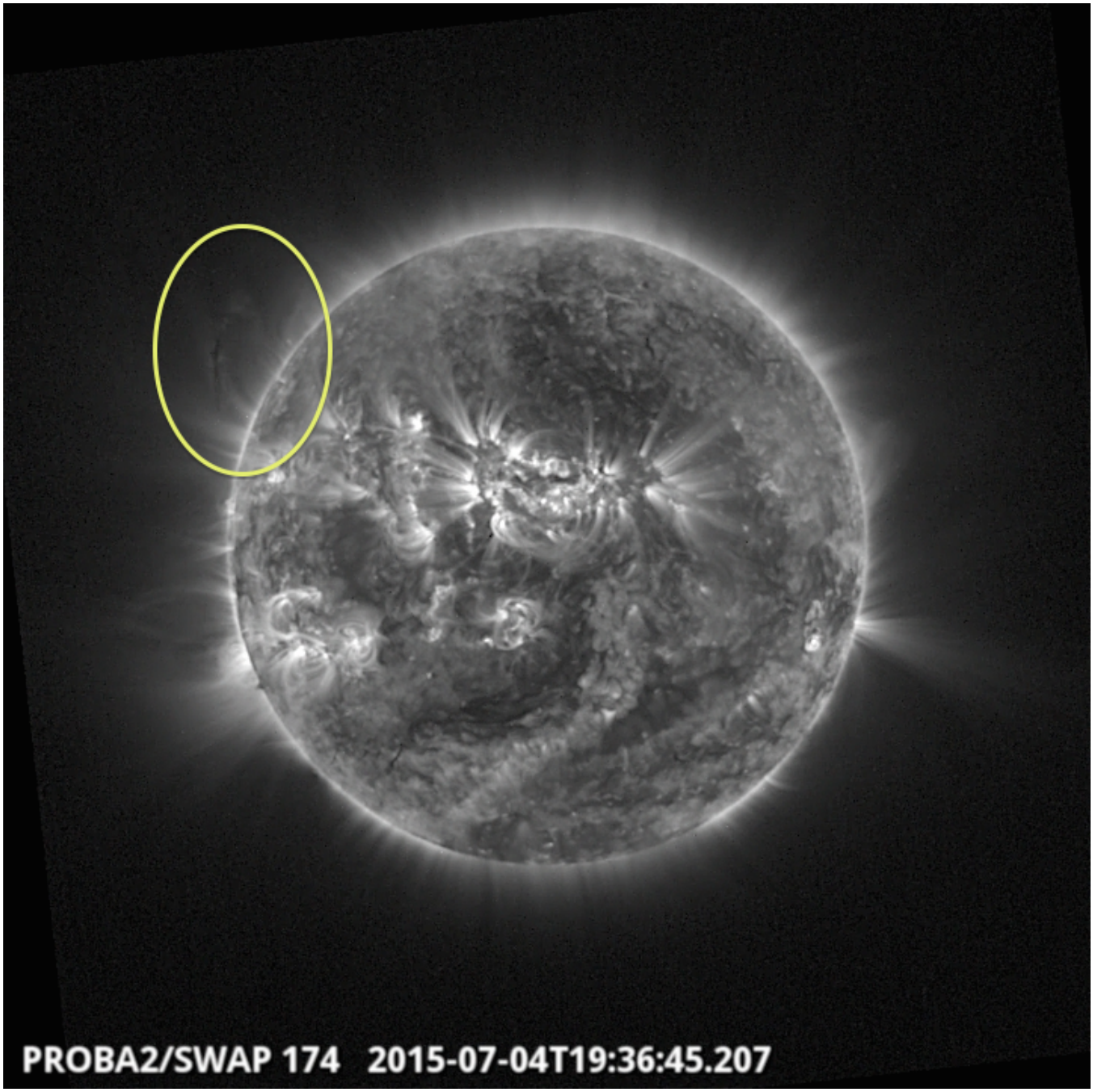
Solar flare activity fluctuated between very low and moderate during the week.
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: http://proba2.oma.be/ssa
This page also lists the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

A weekly overview movie can be found here (SWAP week 275).

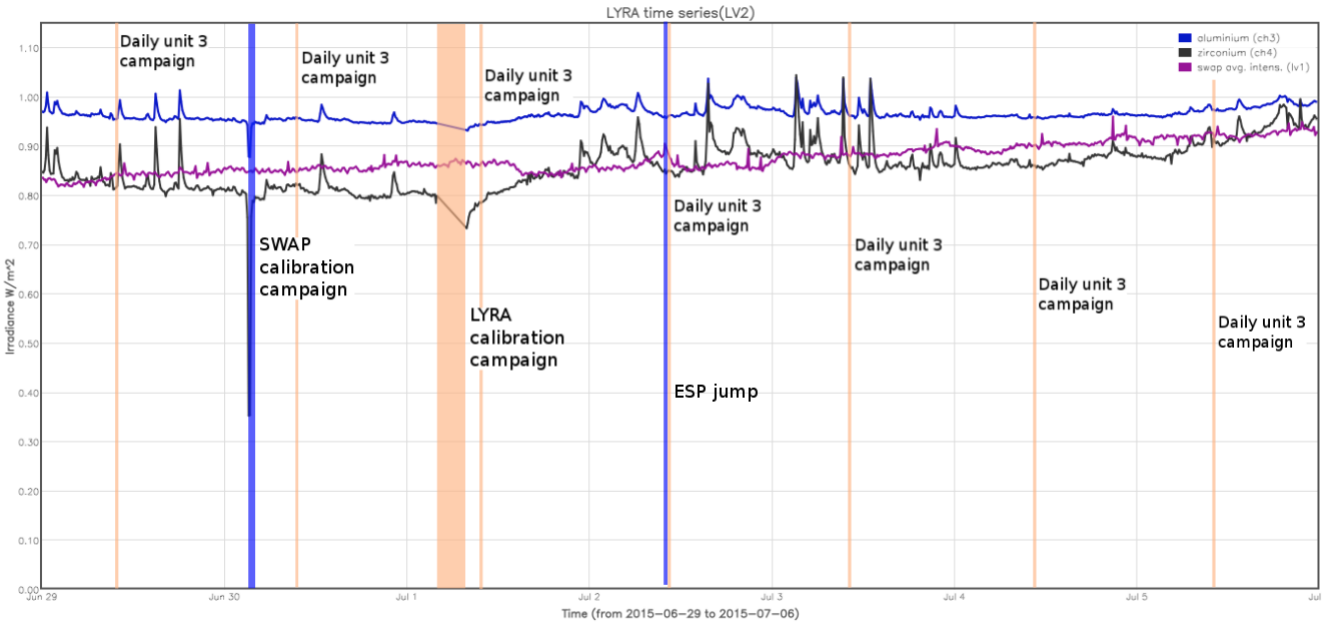
Details about some of this week's events:
One strong flare occurred this week: on July 3rd, AR 2378 produced an M1.5 peaking around 12h51.
Below we provide an annotated SWAP image indicating the location of this flare on the solar disk.
A movie of this event can be found here (SWAP daily movie).



Throughout the week there were a series of prominence eruptions emerging from the north-east of the Sun, these eruptions were seen as a series of CMEs in LASCO coronagraph data. The source region was beyond the solar disk and all these events were backsided. An example was on 2015-Jul-04 19:36 UT. See image below:



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:

- SWAP bi-weekly calibration campaign on 2015-06-30
- ESP jump on 2015-07-02

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

- LYRA daily U3 campaign on 2015-06-29
- LYRA daily U3 campaign on 2015-06-30
- LYRA short bi-weekly calibration on 2015-07-01
- LYRA daily U3 campaign on 2015-07-01
- LYRA daily U3 campaign on 2015-07-02
- LYRA daily U3 campaign on 2015-07-03
- LYRA daily U3 campaign on 2015-07-04
- LYRA daily U3 campaign on 2015-07-05

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).

On Tuesday June 30th, the P2SC organised a SWT meeting in the Meridian room at the Royal Observatory of Belgium. Several presentations pertaining to PROBA2 were presented. The minutes of the meeting can be found here: http://proba2.oma.be/SWT11

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 29 Jun	Tuesday 30 Jun	Wednesday 01 Jul	Thursday 02 Jul	Friday 03 Jul	Saturday 04 Jul	Sunday 05 Jul
Nominal acquisition + daily U3 LYIOS00481	Nominal acquisition + daily U3 LYIOS00481	Nominal acquisition + daily U3 + calibration LYIOS00481	Nominal acquisition + daily U3 LYIOS00481	Nominal acquisition + daily U3 LYIOS00482	Nominal acquisition + daily U3 LYIOS00482	Nominal acquisition + daily U3 LYIOS00482

The following science campaigns were performed by LYRA:

- Daily unit 3 observation campaigns
- Bi-weekly calibration on 2015-07-01 at 04:00

LYRA detector temperature

LYRA detector 2 temperature globally varied between 47.10 and 48.36 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 91 to 124.
The number of MCPM unrecoverable errors remained 0.

IOS & operations

Monday 29 Jun	Tuesday 30 Jun	Wednesday 01 Jul	Thursday 02 Jul	Friday 03 Jul	Saturday 04 Jul	Sunday 05 Jul
Nominal acquisition IOS00587 570 images	Nominal acquisition + calibration IOS00587 594 images	Nominal acquisition IOS00587 692 images	Nominal acquisition + ESP jump IOS00587 648 images	Nominal acquisition IOS00587 695 images	Nominal acquisition IOS00587 657 images	Nominal acquisition IOS00587 528 images

Special operations for SWAP, this week:

- Bi-weekly calibration on 2015-06-30 at 03:00
- ESP jump on 2015-07-02 at 10:00

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.01 and -1.21 °C.

4. PROBA2 Science Center Status

The main operator is Katrien Bonte.

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 17781 to 17845) was nominal, except for:

- None.

Data coverage HK

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

- None.

Data coverage SWAP

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

- None.

Total number of images between 2015 Jun 29 0UT and 2015 Jul 06 0UT: 4384
Highest cadence in this period: 30 seconds
Average cadence in this period: 137.90 seconds
Number of image gaps larger than 300 seconds: 220
Largest data gap: 35.83 minutes

Data coverage LYRA

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

- 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
SoFAST	Solar Feature Automated Search Tool
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)