


P2SC-ROB-WR-441 - 20180903 Weekly report #441	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Sep 03 to Sun Sep 09, 2018 12 Sep 2018 Laurence Wauters Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

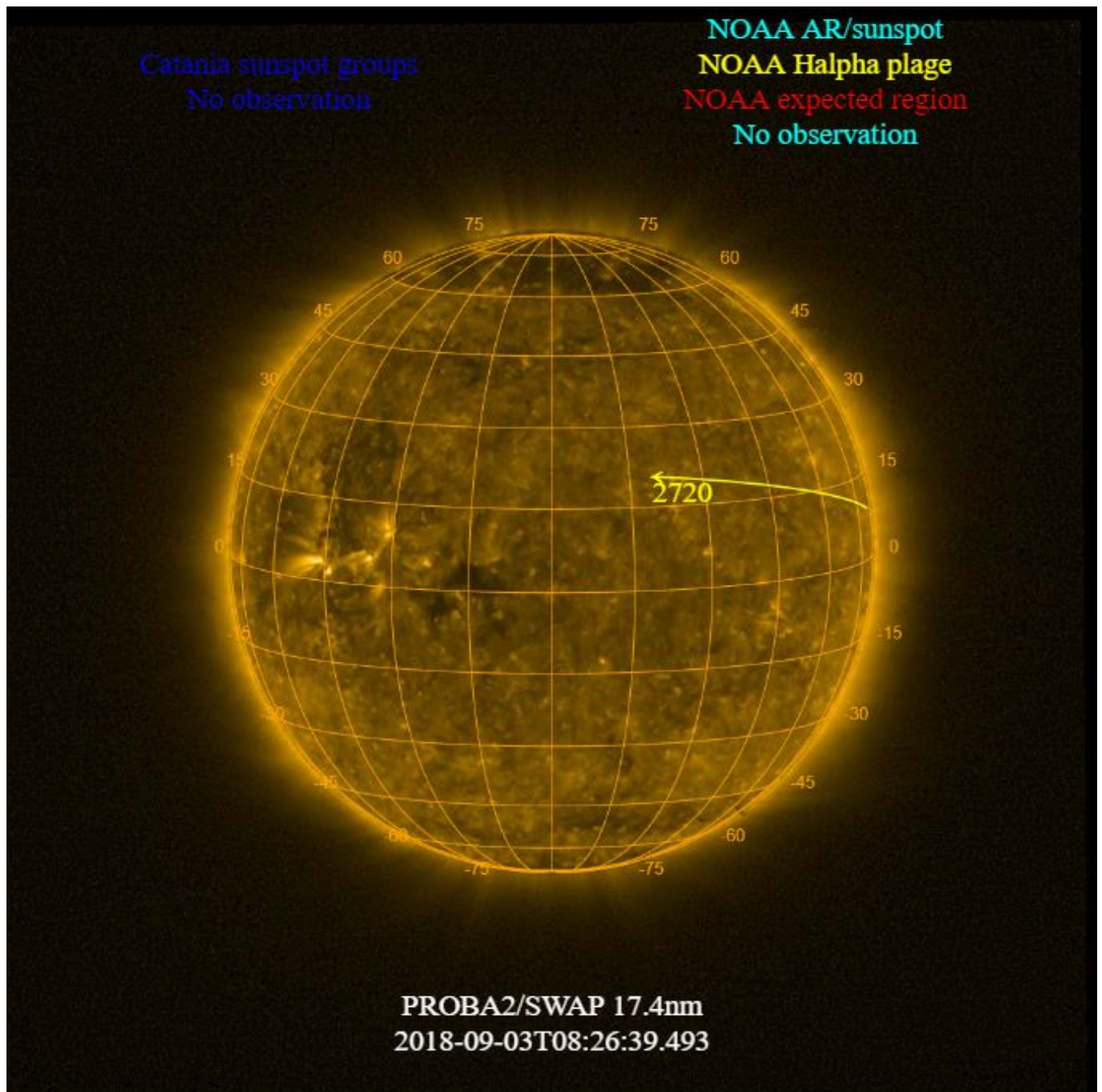
The level of solar activity¹ was **very low** this week.

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

	Monday 03 Sep	Tuesday 04 Sep	Wednesday 05 Sep	Thursday 06 Sep	Friday 07 Sep	Saturday 08 Sep	Sunday 09 Sep
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.

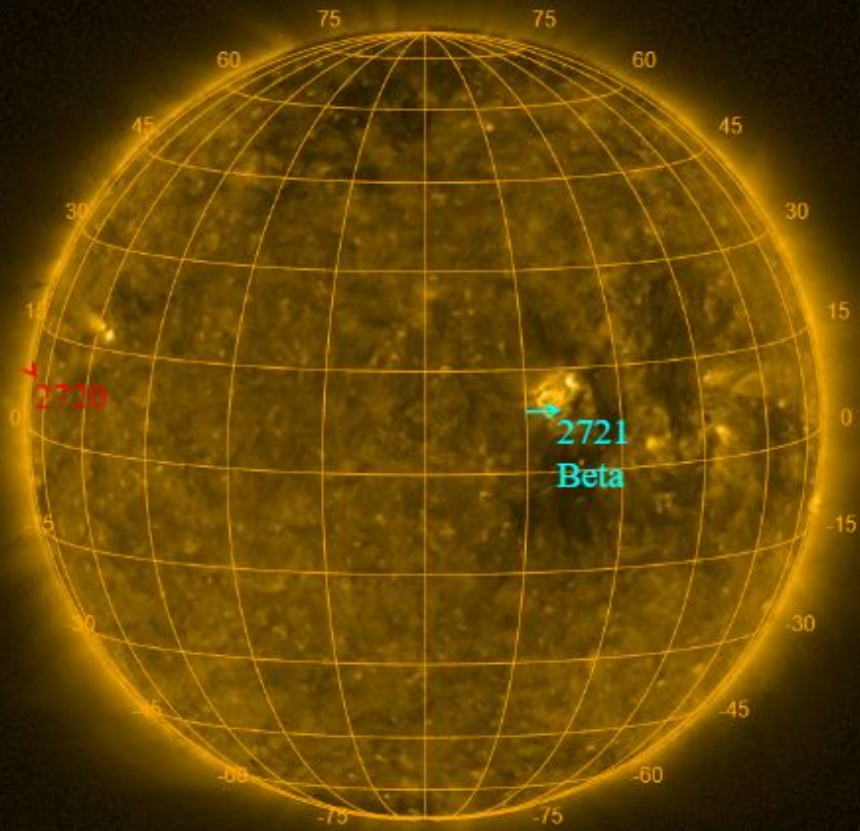
The SWAP images of Sep 03 and Sep 09 are shown below, with annotated active regions.



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

Catania sunspot groups
No observation

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2018-09-09 00:30:00



PROBA2/SWAP 17.4nm
2018-09-09T08:26:27.416

Solar Activity

Solar flare activity was very low 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>

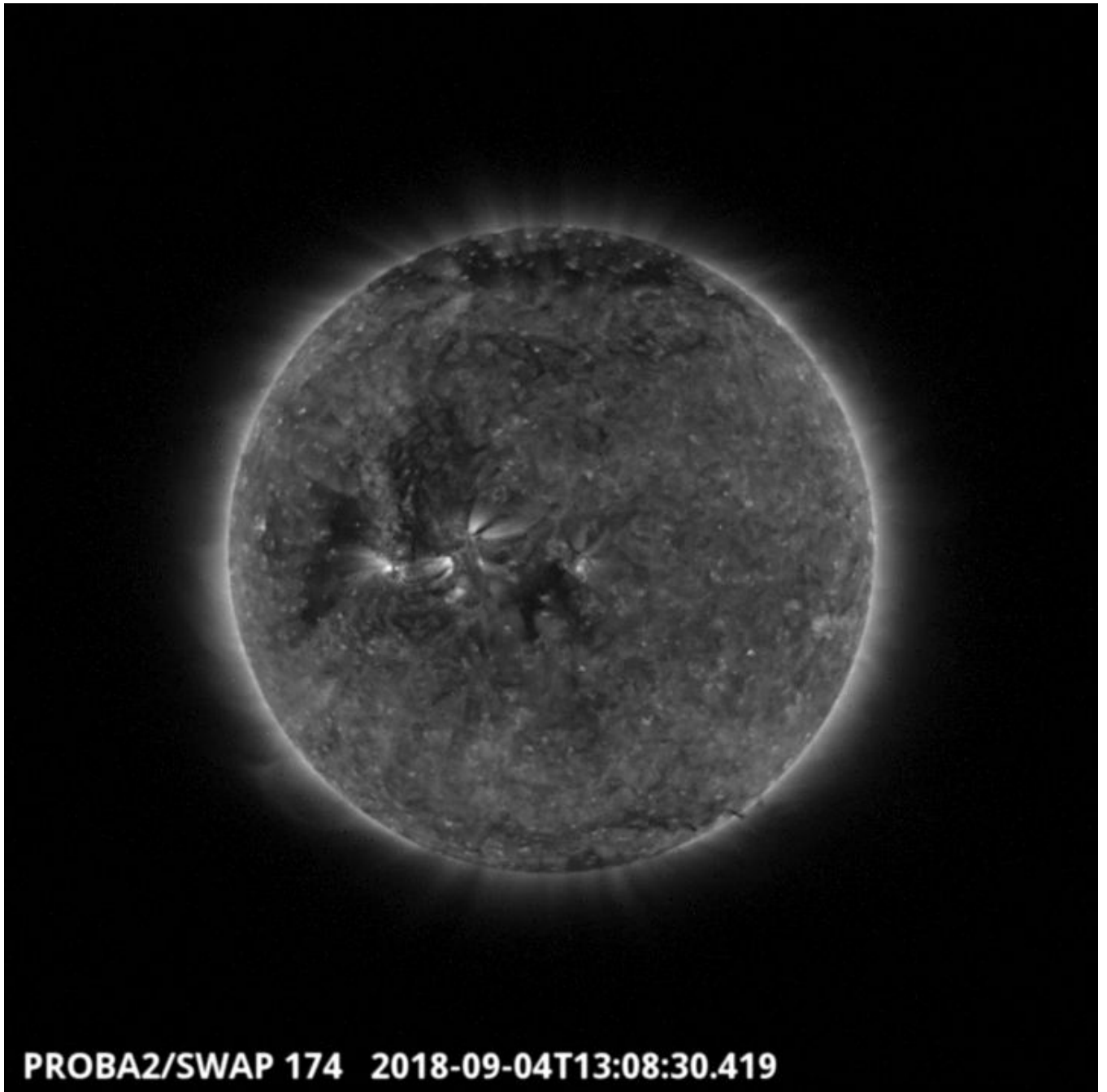
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 441).

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

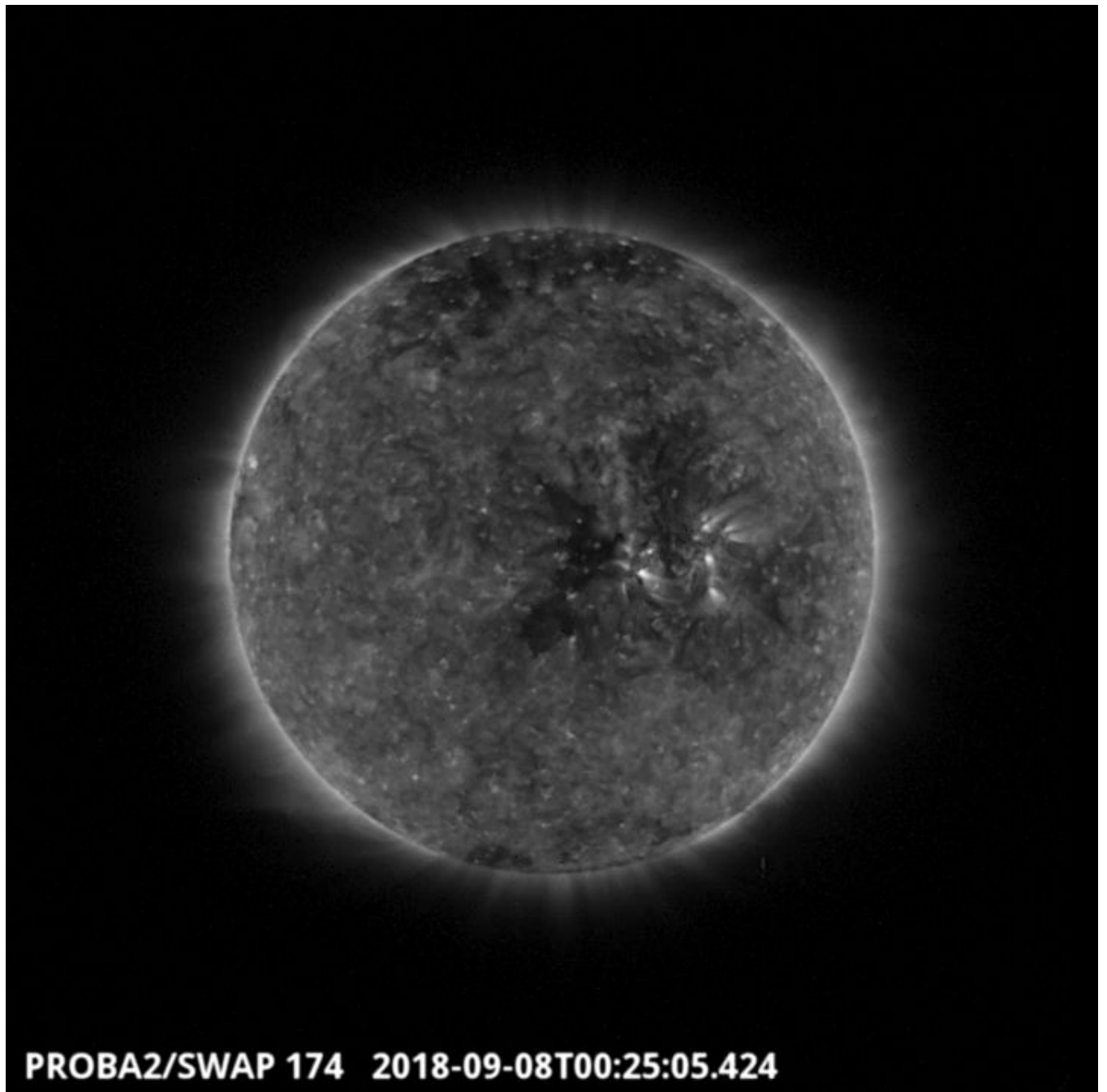
If any of the linked movies are unavailable they can be found in the P2SC movie repository [here](#)

Tuesday Sep 04



A small coronal hole is visible in the SWAP image above, it transited the central meridian on 2018-Sep-04. Find a movie of the event [here](#) (SWAP movie)

Saturday Sep 08



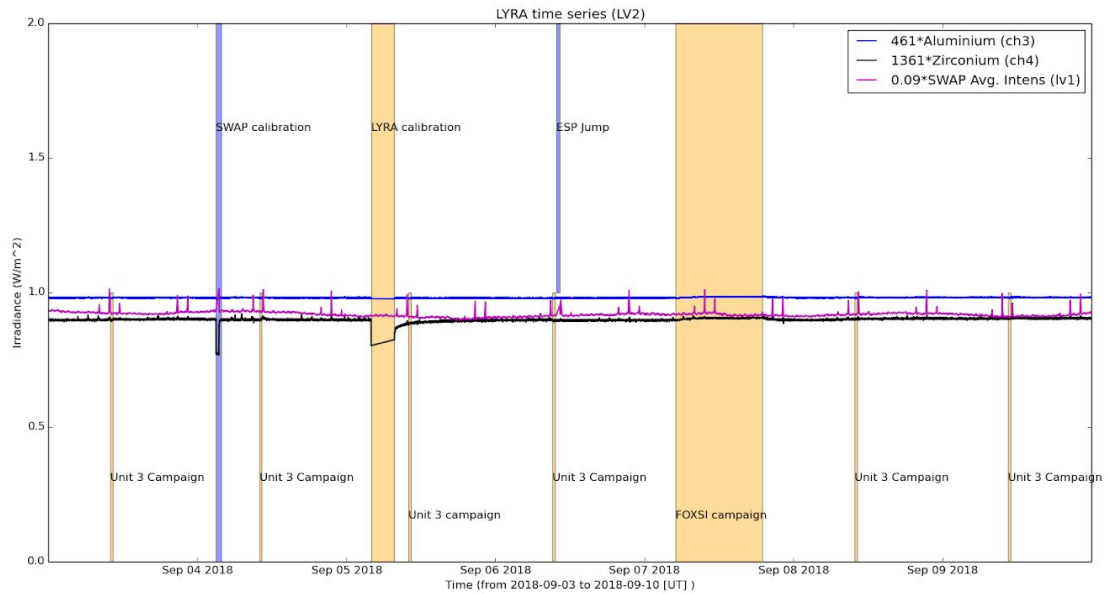
A trans-equatorial coronal hole is visible in the SWAP image above. It transited the central meridian early on 2018-Sep-08.

Find a movie of the event [here](#) (SWAP 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 related to SWAP, correspond to, from left to right:

- Bi-weekly calibration, 2018-Sep-04
- ESP jump, 2018-Sep-06

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

- Unit 3 campaign, 2018-Sep-03
- Unit 3 campaign, 2018-Sep-04
- Bi-weekly calibration, 2018-Sep-05
- Unit 3 campaign, 2018-Sep-05
- Unit 3 campaign, 2018-Sep-06
- FOXSI campaign, 2018-Sep-07
- Unit 3 campaign, 2018-Sep-08
- Unit 3 campaign, 2018-Sep-09

The red shaded periods related to other issues corresponds to:

- None

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>).

Milla Kalliokoski, gave a STCE seminar: Synthetic extreme ultraviolet images to validate the magneto-frictional coronal simulation.

Ritesh Patel, gave a seminar: Automated Detection of CMEs in SWAP images.

Guest Investigator Program

- Milla Kalliokoski continued her visit at P2SC until the 6th September, she works on “Synthetic extreme ultraviolet images to validate the magneto-frictional coronal simulation”.
- Karen Meyer, continued her visit to P2SC as PROBA2 GI until the 8th September, she works on “Investigation of the middle corona with SWAP and a data-driven non-potential coronal field model”.
- PhD student Ritesh Patel continued his visit to P2SC as PROBA2 GI until 10th September, he works on “Automated detection of Coronal Mass Ejections (CMEs) in SWAP images”, along with his supervisor, Dipankar Banerjee.

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 03 Sep	Tuesday 04 Sep	Wednesday 05 Sep	Thursday 06 Sep	Friday 07 Sep	Saturday 08 Sep	Sunday 09 Sep
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + calibration	Nominal acquisition + daily U3	Nominal acquisition + FOXSI campaign	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00722	LYIOS00722	LYIOS00722	LYIOS00722	LYIOS00722	LYIOS00723	LYIOS00723

The following science campaigns were performed by LYRA:

- daily U3 observations campaign
- Bi-weekly Calibration, 2018-Sep-05
- FOXSI campaign with Unit 1 and Unit 2, 2018-Sep-07

LYRA detector temperature

LYRA detector 2 temperature globally varied between 47.14 and 51.69 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 1981 to 2125.

The number of MCPM unrecoverable errors remained at 14.

IOS & operations

Monday 03 Sep	Tuesday 04 Sep	Wednesday 05 Sep	Thursday 06 Sep	Friday 07 Sep	Saturday 08 Sep	Sunday 09 Sep
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition + ESP jump	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00787 563 images	IOS00787 676 images	IOS00787 669 images	IOS00787 679 images	IOS00787 687 images	IOS00787 627 images	IOS00787 597 images

Special operations for SWAP, this week:

- Bi-weekly calibration, 2018-Sep-04
- ESP jump, 2018-09-06

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.61 and 0.07 °C.

4. PROBA2 Science Center Status

The main operator is Laurence Wauters.

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 28498 to 28561) 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 2018 Sep 03 00:00 UT and 2018 Sep 10 00:00 UT: 4624

Highest cadence in this period: 30 seconds

Average cadence in this period: 130.81 seconds

Number of image gaps larger than 300 seconds: 141

Largest data gap: 33.67 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
DAC	Data Acquisition Controller
DBR	Deployment, backup & recovery
DDA	Decommutated data archive
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)