


P2SC-ROB-WR-534 - 20200615	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Jun 15 to Sun Jun 21, 2020 22 Jun 2020 Jennifer O'Hara 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 15 Jun	Tuesday 16 Jun	Wednesday 17 Jun	Thursday 18 Jun	Friday 19 Jun	Saturday 20 Jun	Sunday 21 Jun
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.

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: <https://proba2.oma.be/ssa>

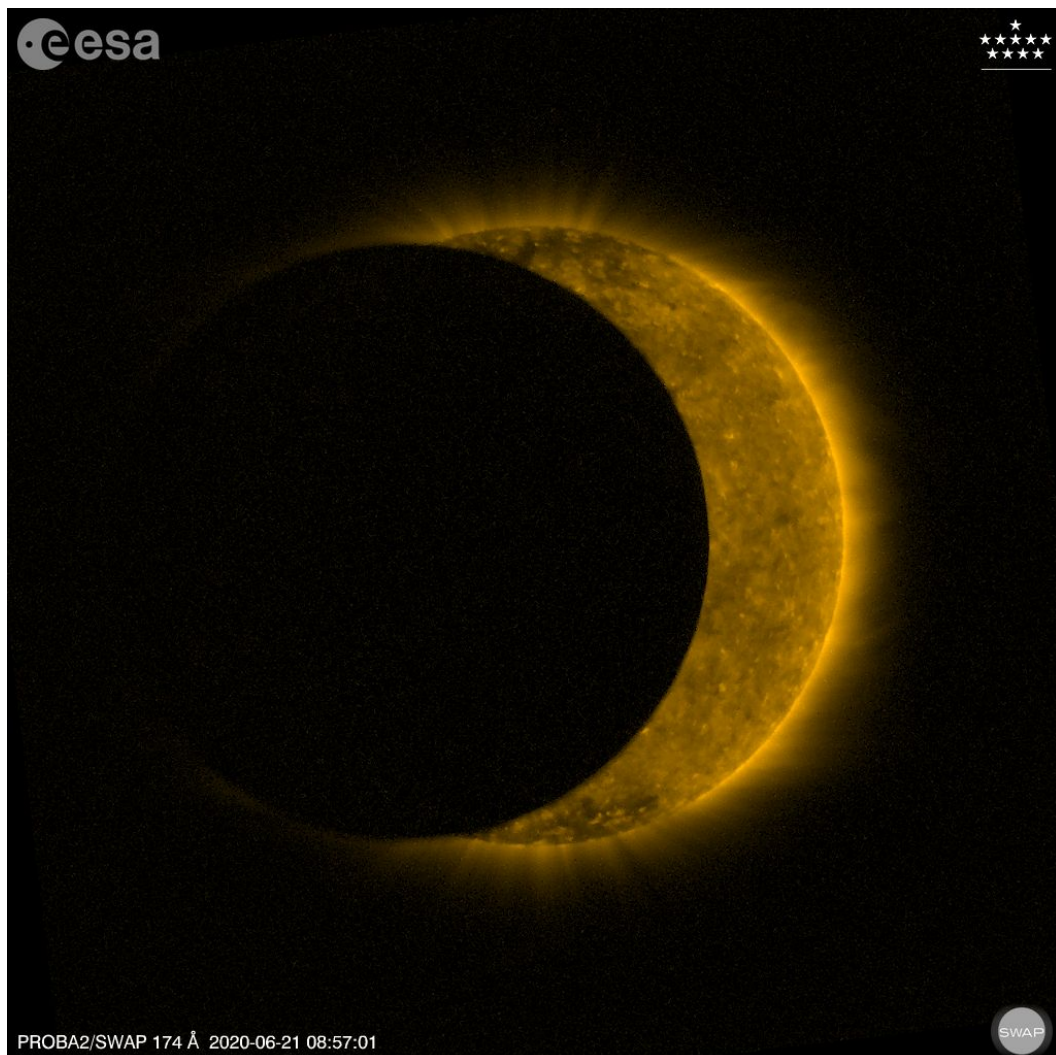
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 534).

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

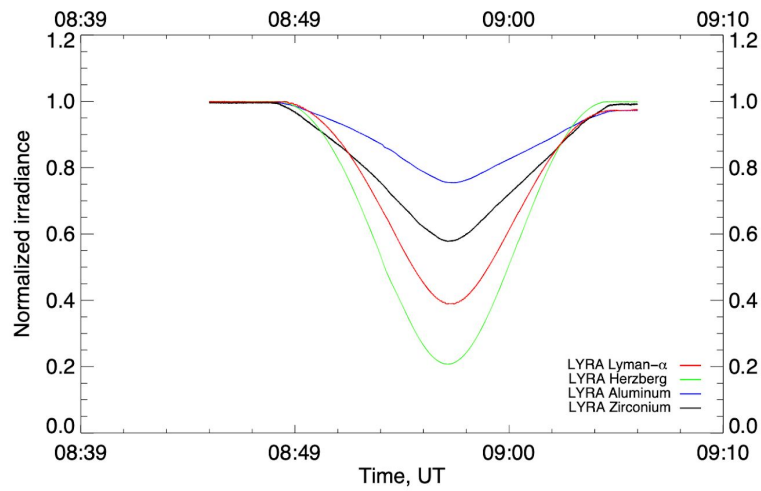
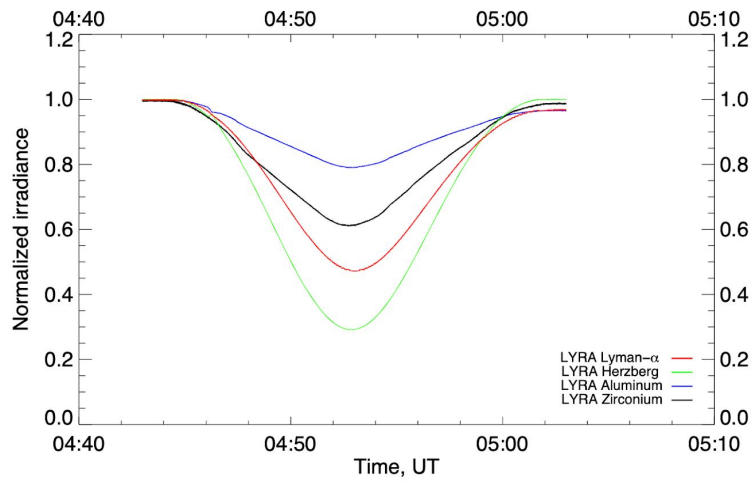
If any of the linked movies are unavailable they can be found in the P2SC movie repository [here](#)

Sunday Jun 21



On 2020-Jun-21 an annular eclipse as seen from Earth was observed by SWAP and LYRA as two partial solar eclipses. The SWAP image above was taken during the second partial occultation.

Find a movie of the event [here](#) and further images available [here](#)

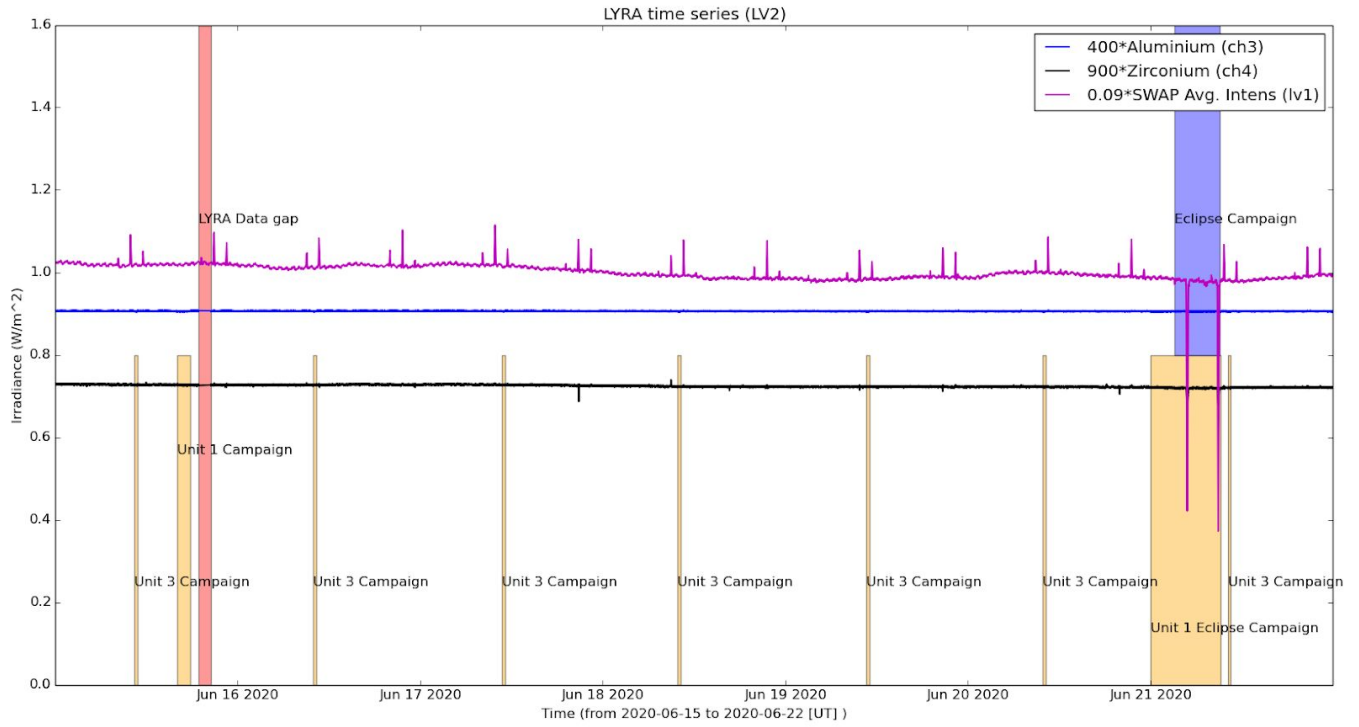


The two occultations were also observed by LYRA's "calibration unit" (unit 1) in addition to the nominal one (unit 2). The plots above show normalized observations by LYRA during the two passes in the eclipse zone. The colors correspond to the observations by the four channels of LYRA: red = Lyman-alpha, green = Herzberg, blue = Aluminum, black = Zirconium.

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)



Operations and Calibrations:

The blue shaded periods related to SWAP, correspond to, from left to right:

- High cadence eclipse campaign, 2020-Jun-21

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

- Daily Unit 3 campaign, 2020-Jun-15
- Monthly Unit 1 campaign, 2020-Jun-15
- Daily Unit 3 campaign, 2020-Jun-16
- Daily Unit 3 campaign, 2020-Jun-17
- Daily Unit 3 campaign, 2020-Jun-18
- Daily Unit 3 campaign, 2020-Jun-19
- Daily Unit 3 campaign, 2020-Jun-20
- Unit 1 eclipse campaign, 2020-Jun-21
- Daily Unit 3 campaign, 2020-Jun-21

The red shaded periods related to other issues corresponds to:

- Due to a bug in the LYTMR BINLYRA_34563_RED3_2020.06.15T20.56.36.tar was not able to be processed resulting in a Data gap between 18:53:19 and 20:27:41 UT.

2. LYRA instrument status

IOS

Start IOS	Mon Jun 15 2020	LYIOS00836
End IOS	Sun Jun 13 2020	LYIOS00837

LYRA detector temperature

LYRA detector 2 temperature globally varied between 48.34 and 51.27 °C.

3. SWAP instrument status

MCPM errors

The number of MCPM recoverable errors increased from 9270 to 9422.

The number of MCPM unrecoverable errors remained at 0.

IOS

Start IOS	Mon Jun 15 2020	IOS00914
End IOS	Sun Jun 21 2020	IOS00915

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -1.45 and 0.07 °C.

4. PROBA2 Science Center Status

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 34555 to 34623) 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 2020 Jun 15 00:00 UT and 2020 Jun 22 00:00 UT: 5018

Highest cadence in this period: 17 seconds

Average cadence in this period: 120.52 seconds

Number of image gaps larger than 300 seconds: 125

Largest data gap: 11.00 minutes

Data coverage LYRA

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

- Due to a bug in the LYTMR BINLYRA_34563_RED3_2020.06.15T20.56.36.tar was not able to be processed resulting in a Data gap between 18:53:19 and 20:27:41 UT.

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)