


P2SC-ROB-WR-225- 20140714 Weekly report #225	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Jul 14 to Sun Jul 20, 2014 23 Jul 2014 Erik Pilyser Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

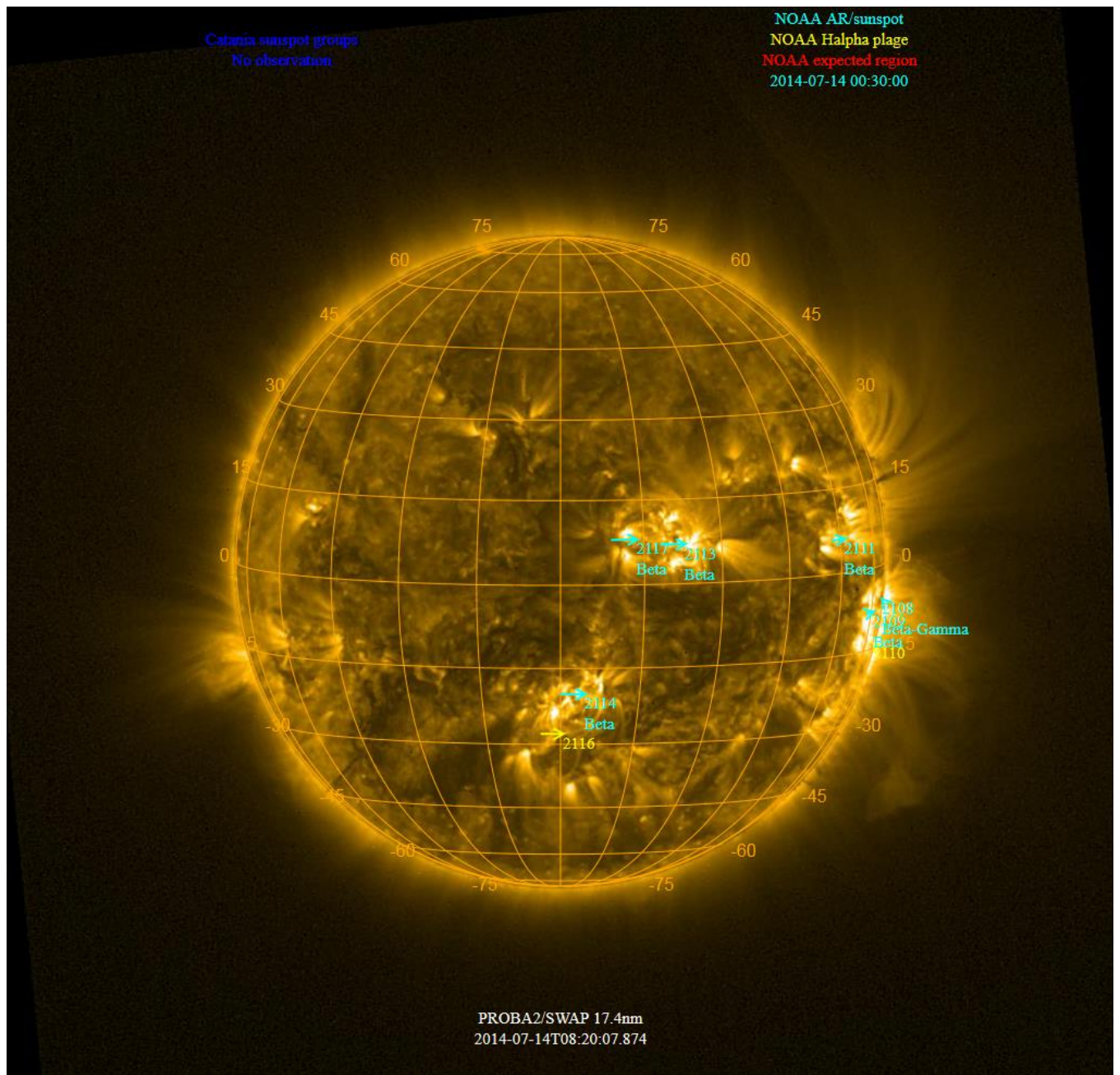
Solar & Space weather events

The level of solar activity was **low to very low** this week.

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

	Monday 14 Jul	Tuesday 15 Jul	Wednesday 16 Jul	Thursday 17 Jul	Friday 18 Jul	Saturday 19 Jul	Sunday 20 Jul
Activity	low	low	low	very low	very low	very low	very low
Flares	-	-	-	-	-	-	-

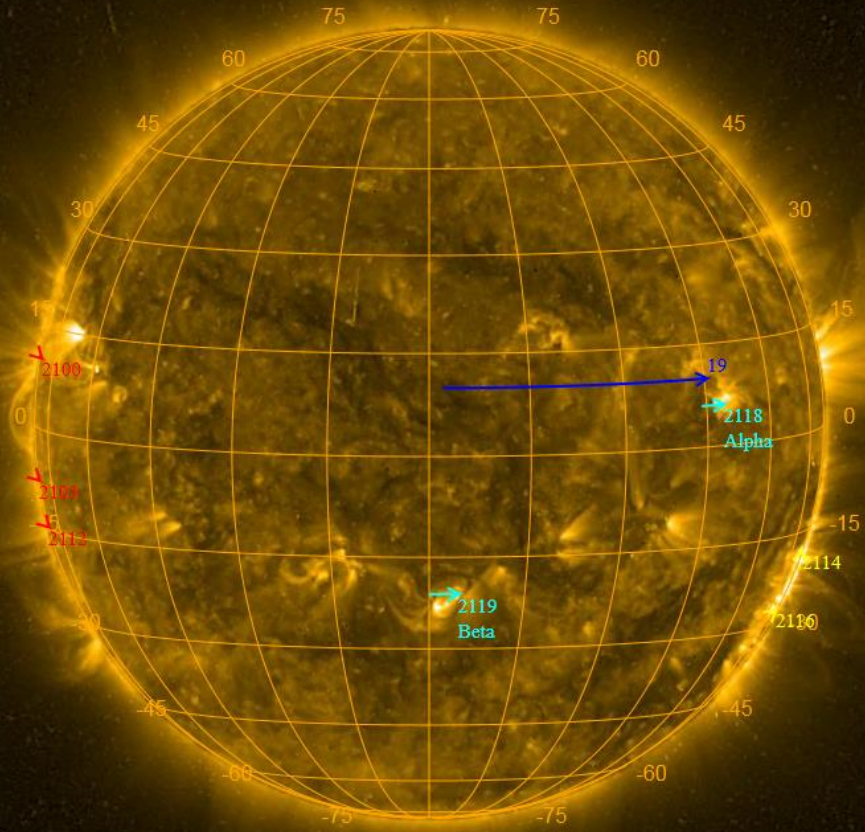
The SWAP images of July 14 and July 20 are shown below, with annotated active regions.



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

Catania sunspot groups
2014-07-17 08:30:00

NOAA AR/sunspot
NOAA Alpha plage
NOAA expected region
2014-07-20 00:30:00



PROBA2/SWAP 17.4nm
2014-07-20T08:21:36.504

Solar Activity

The level of solar activity was **low** to **very low** this week.

In order to view the activity of this week in more detail, we suggest going 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 225).

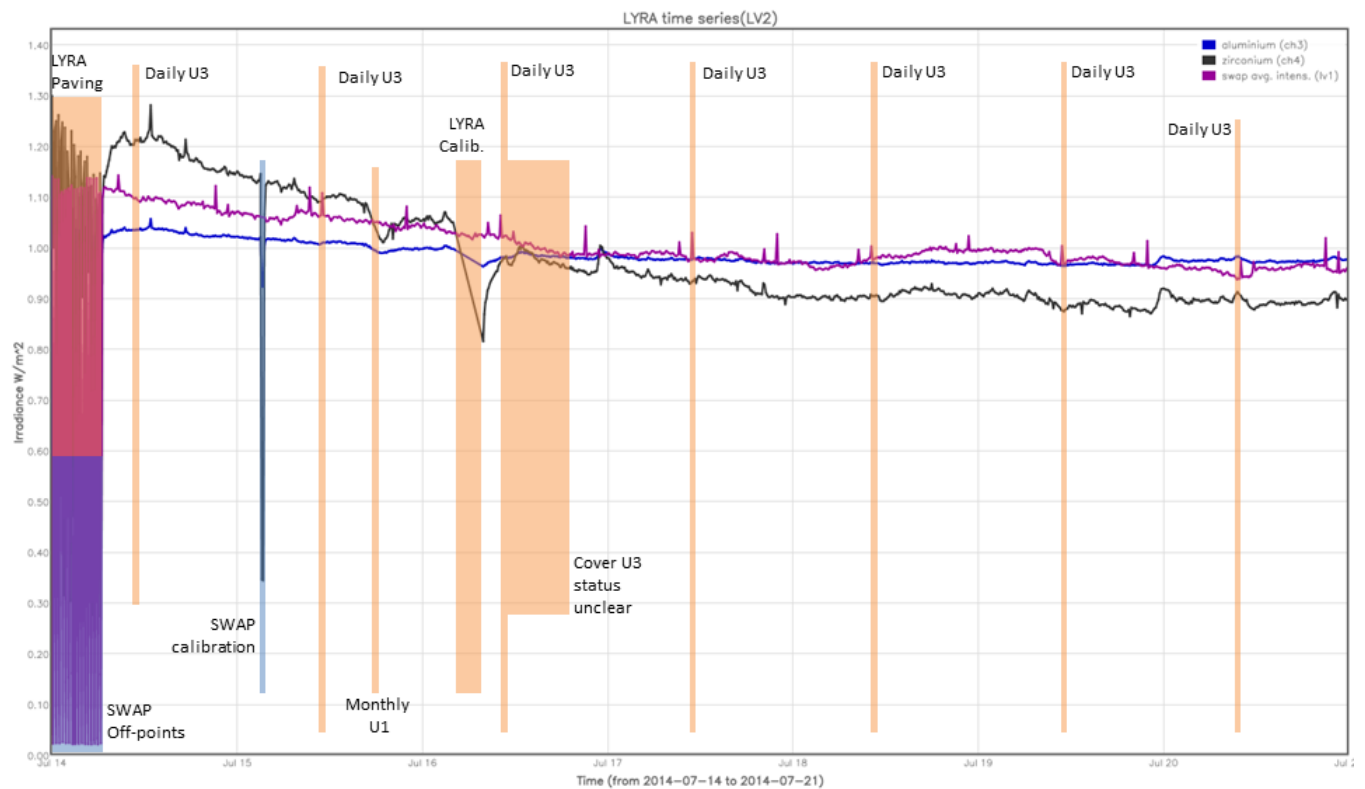
Note the off-point campaigns at the beginning of this movie. They are the consequence of SWAP supporting the LYRA paving campaign at the very beginning of this week (see also section 2 for more details)

Except for a single weak flare occurrence on the South West limb and a few small prominence eruptions, no noteworthy solar events occurred this week.

An overview of the weekly LYRA & SWAP data is provided below:

The following curves are visible:

- black: Zirconium Channel LYRA Unit 2
- blue: Aluminum Channel of LYRA Unit 2
- purple: SWAVINT (SWAP Average Intensity; integrated solar intensity per SWAP image pixel)



The (LYRA related) orange shaded periods correspond to, from left to right (see also section 2):

- LYRA paving campaign (Monday)
- Daily LYRA unit 3 campaign (2 consecutive days)
- Monthly Unit 1 campaign (Tuesday)
- Bi-weekly LYRA calibration campaign on Wednesday
- Daily LYRA unit 3 campaign (once)
- Period of unclear Unit 3 cover status (Wednesday)
- Daily LYRA unit 3 campaign (4 times)

The (SWAP related) blue shaded periods correspond to, from left to right (see also section 3)

- Support to LYRA paving campaign (several predefined sequential off-pointings)
- bi-weekly SWAP calibration campaign on Tuesday.

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>).

SWAP & LYRA data is being provided to the VENUS EXPRESS mission, in support of their upcoming operations to aerobrake the orbiter into Venus' atmosphere (see also this ESA [link](#)). This type of information is provided on a daily basis and can be found on this [website](#).

Guest Investigator Program

- None

Other Visitors

- None

2. LYRA instrument status

Calibration

- LYRA Paving campaign on Monday (Monday, from 13:07:2014T23:58:00 -> 14:07:2014T06:37:00). During a paving campaign, SWAP provides support by off-pointing in predefined directions, sequentially.
- Bi-weekly LYRA calibration on Tuesday.
- Monthly LYRA Unit 1 campaign on Tuesday.

IOS & operations

Monday 14 Jul	Tuesday 15 Jul	Wednesday 16 Jul	Thursday 17 Jul	Friday 18 Jul	Saturday 19 Jul	Sunday 20 Jul
Nominal acquisition + daily U3 + Paving	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + calibration + monthly U1	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00409	LYIOS00410	LYIOS00410->411	LYIOS00411	LYIOS00411	LYIOS00411	LYIOS00411

The following science campaigns were performed by LYRA:

- Daily LYRA unit 3 campaign (7 consecutive days)

LYRA detector temperature

During normal operations, the LYRA detector 2 temperature varied between 46.7 and 47.5°C, taking into account the small daily U3 activation temperature peaks. During the bi-weekly calibration campaign, temperature dropped to 45.3 °C. During the paving campaign on Monday, temperature went up to 49.5 °C

3. SWAP instrument status

Calibration

Bi-weekly SWAP calibration on Wednesday.

MCPM errors

The number of MCPM **recoverable** errors increased from 20206 to 20471.

The number of MCPM **unrecoverable** errors remained at 1657.

IOS & operations

Monday 14 Jul	Tuesday 15 Jul	Wednesday 16 Jul	Thursday 17 Jul	Friday 18 Jul	Saturday 19 Jul	Sunday 20 Jul
Nominal acquisition + off-point support to LYRA	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00526 598 images	IOS00527 666 images	IOS00527 659 images	IOS00527 661 images	IOS00527 663 images	IOS00527 664 images	IOS00527 615 images

Special SWAP operations this week

- During a LYRA paving campaign, SWAP provides support by off-pointing in predefined directions sequentially.

SWAP detector temperature

The SWAP Cold Finger Temperature varied between -0.50 °C and -1.36 °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 14686 and 14747) was nominal.

Data coverage HK

All HK data files (LYRA_AD) have been received.

Data coverage SWAP

All SWAP Science data files (BINSWAP) have been received.

Total number of images between 2014 Jul 14 0UT and 2014 Jul 21 0UT: 4527

Highest cadence in this period: 30 seconds

Average cadence in this period: 133.59 seconds

Number of image gaps larger than 300 seconds: 17

Largest data gap: 6.82 minutes

Data coverage LYRA

All LYRA Science data files (BINLYRA) have been received.

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)