


P2SC-ROB-WR-317 - 20160418 Weekly report #317	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Apr 18 to Sun Apr 24, 2016 27 Apr 2016 Robbe Vansintjan Matthew West	Royal Observatory of Belgium - PROBA2 Science Center
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1. Science

Solar & Space weather events

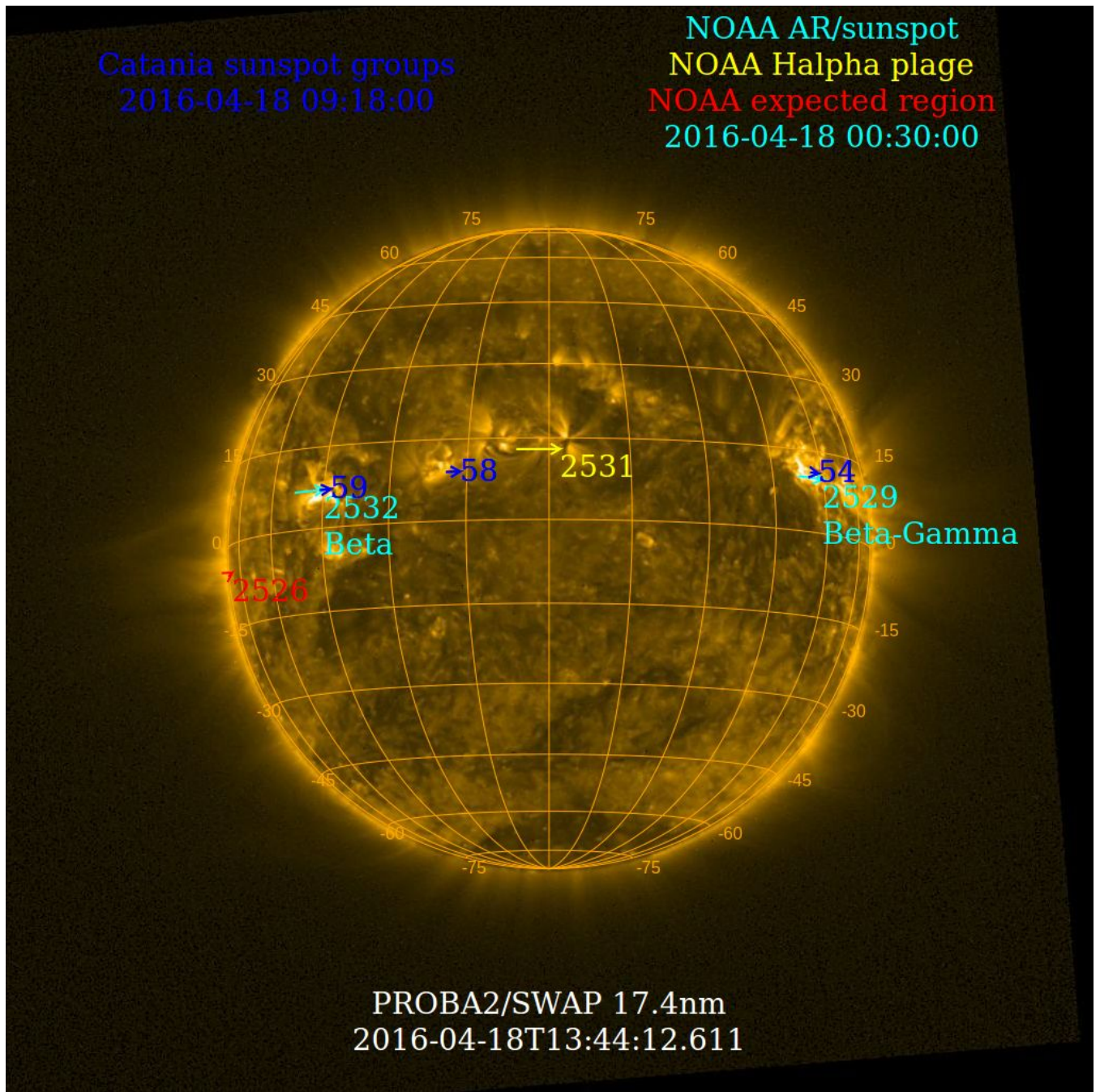
The level of solar activity¹ fluctuated between **very low** and **moderate** this week.

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

	Monday 18 Apr	Tuesday 19 Apr	Wednesday 20 Apr	Thursday 21 Apr	Friday 22 Apr	Saturday 23 Apr	Sunday 24 Apr
Activity	moderate	low	very low	very low	very low	very low	very low
Flares	M6.7@00:29	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

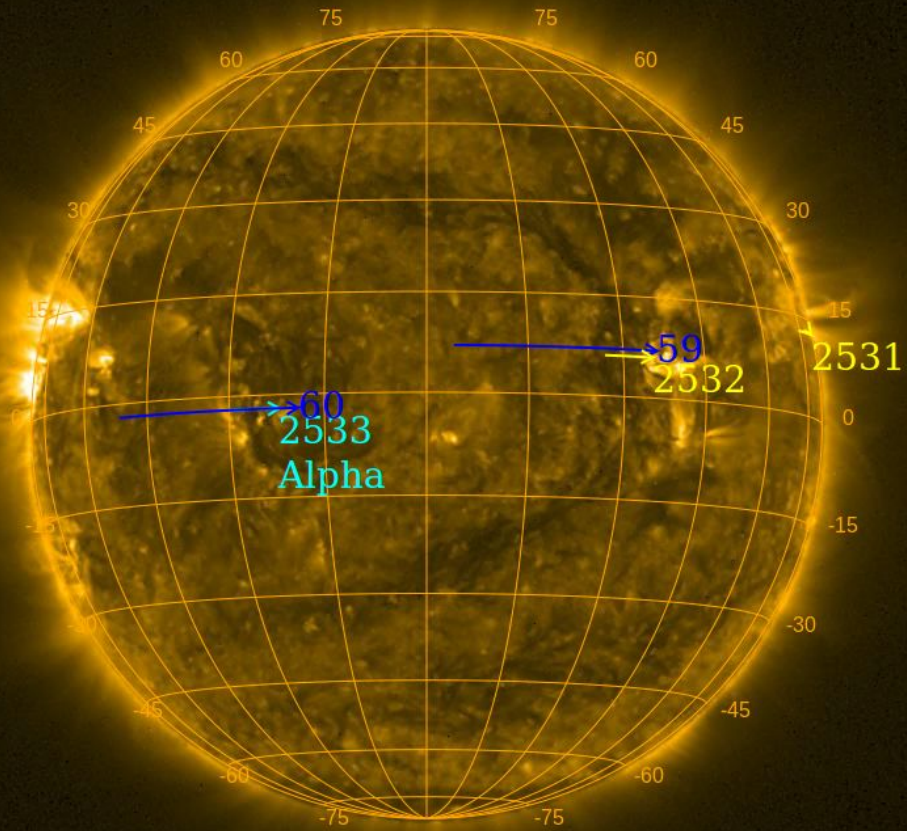
The SWAP images of Apr 18 and Apr 24 are shown below, with annotated active regions.



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

Catania sunspot groups
2016-04-22 09:30:00

NOAA AR/sunspot
NOAA Halpha plage
NOAA expected region
2016-04-24 00:30:00



PROBA2/SWAP 17.4nm
2016-04-24T13:44:48.520

Solar Activity

Solar flare activity fluctuated between very low and moderate during the week.

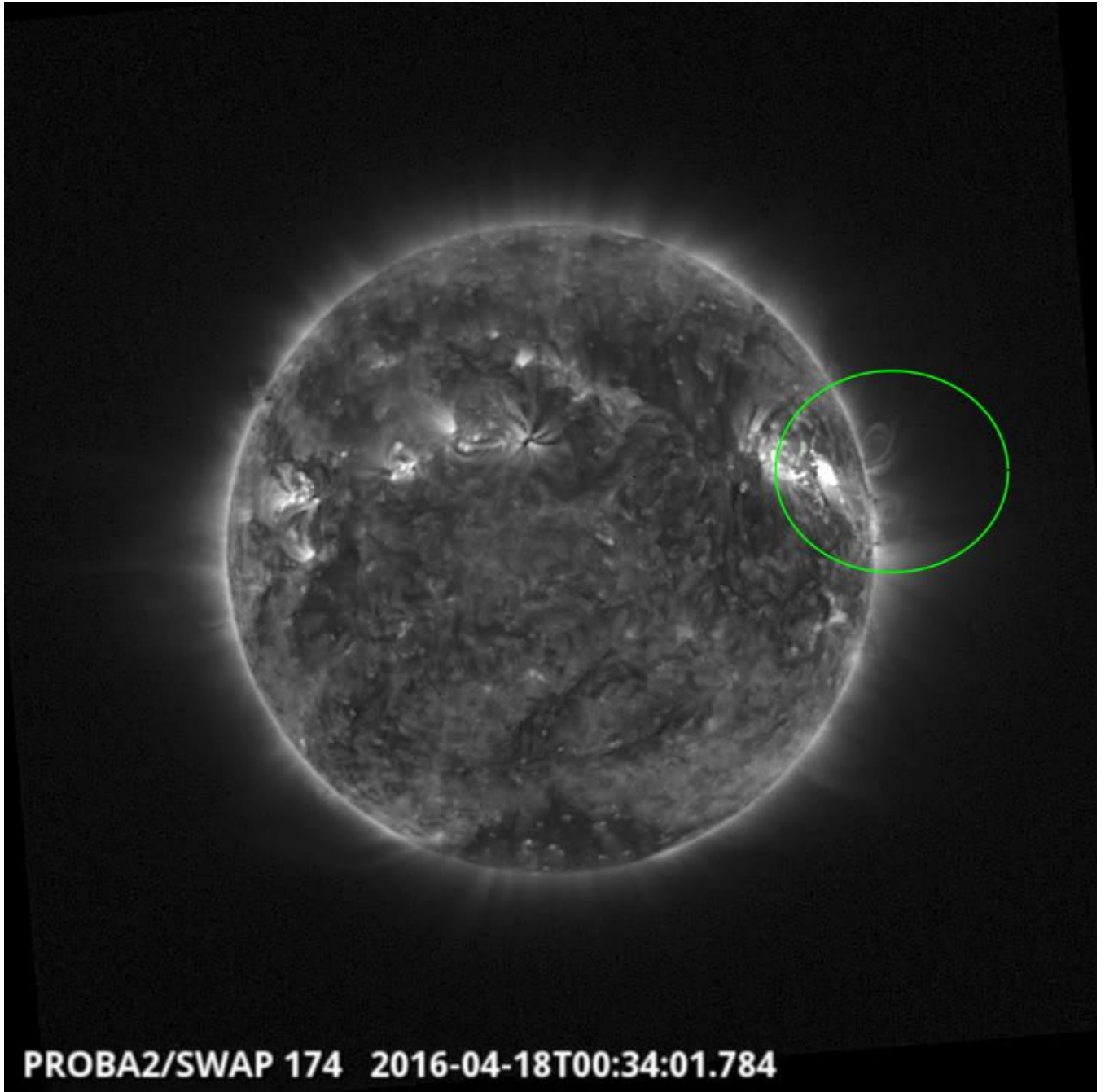
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: <http://proba2.oma.be/ssa>

This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 317).

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

Monday Apr 18



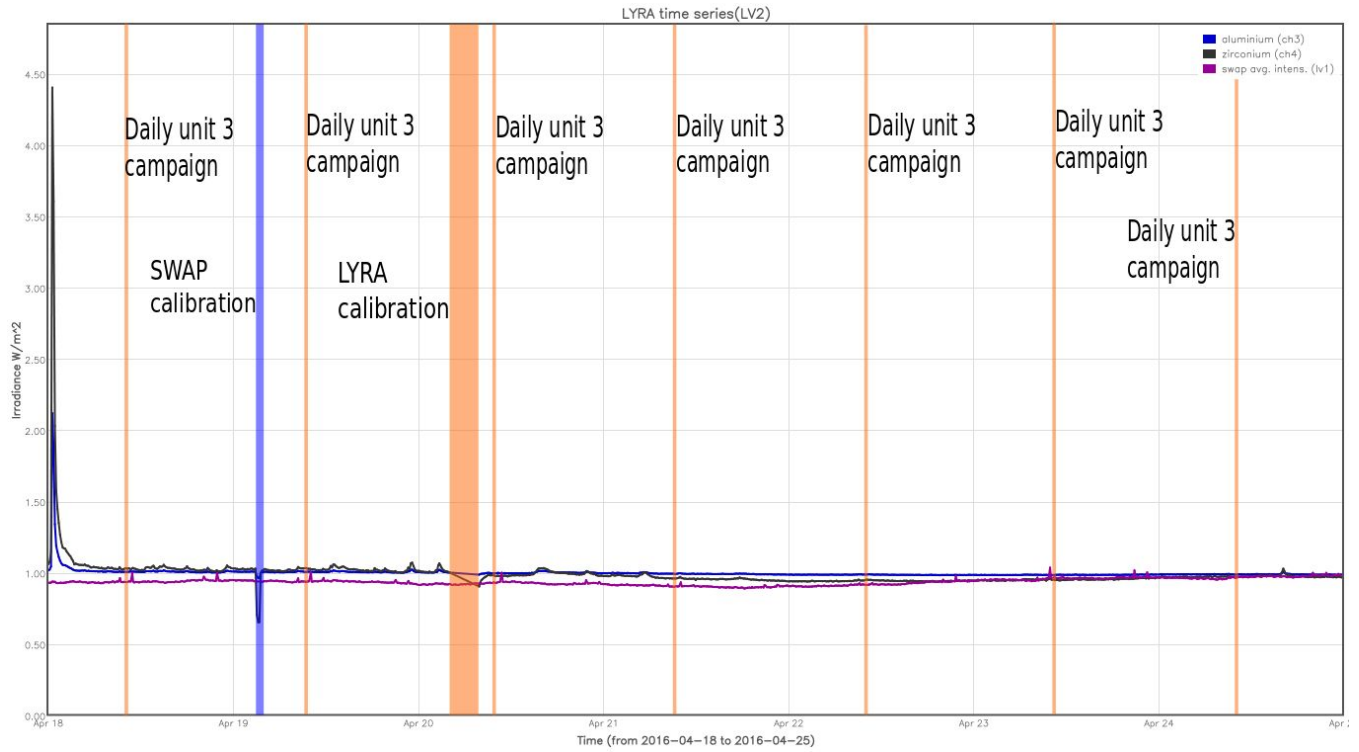
An M-flare was observed by SWAP on the northwest quadrant of the Sun at 15:35 UT on
2016-04-18

Find a movie of the events [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 correspond to, from left to right:

- SWAP bi-weekly calibration campaign, 2016-04-19

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

- Daily unit 3 campaign, 2016-04-18
- Daily unit 3 campaign, 2016-04-19
- LYRA bi-weekly calibration campaign, 2016-04-20
- Daily unit 3 campaign, 2016-04-20
- Daily unit 3 campaign, 2016-04-21
- Daily unit 3 campaign, 2016-04-22
- Daily unit 3 campaign, 2016-04-23
- Daily unit 3 campaign, 2016-04-24

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>).

- E, D'Huys gave a course on PROBA2 at elementary school Ingenium school in Tervuren, Belgium

Guest Investigator Program

- None

2. LYRA instrument status

Calibration

Calibration campaign on Wednesday this week.

IOS & operations

Monday 18 Apr	Tuesday 19 Apr	Wednesday 20 Apr	Thursday 21 Apr	Friday 22 Apr	Saturday 23 Apr	Sunday 24 Apr
Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3 + calibration	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3	Nominal acquisition + daily U3
LYIOS00542	LYIOS00542	LYIOS00542	LYIOS00542	LYIOS00543	LYIOS00543	LYIOS00543

The following science campaigns were performed by LYRA:

- daily U3 observations campaign

On 2016-04-20

- LYRA bi-weekly calibration campaign

LYRA detector temperature

LYRA detector 2 temperature globally varied between 47.4 and 49.8 °C.

3. SWAP instrument status

Calibration

Calibration campaign on Tuesday this week.

MCPM errors

The number of MCPM recoverable errors increased from 3059 to 3204.

The number of MCPM unrecoverable errors remained at 0.

IOS & operations

Monday 18 Apr	Tuesday 19 Apr	Wednesday 20 Apr	Thursday 21 Apr	Friday 22 Apr	Saturday 23 Apr	Sunday 24 Apr
Nominal acquisition	Nominal acquisition + calibration	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition	Nominal acquisition
IOS00643 636 images	IOS00643 684 images	IOS00643 692 images	IOS00643 676 images	IOS00643 665 images	IOS00643 655 images	IOS00643 640 images

Special operations for SWAP, this week:

On 2016-04-19

- SWAP calibration campaign, 2016-04-19

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.24 and 0.46 °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 20423 to 20487) 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 2016 Apr 18 00:00 UT and 2016 Apr 25 00:00 UT: 4648

Highest cadence in this period: 30 seconds

Average cadence in this period: 130.12 seconds

Number of image gaps larger than 300 seconds: 347

Largest data gap: 9.17 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)