


P2SC-ROB-WR-732 - 20240401	P2SC Weekly report	
Period covered: Date: Written by: Approved by:	Mon Apr 01 to Sun Apr 07, 2024 10 Apr 2024 Laurence Wauters Marie Dominique	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 01 Apr	Tuesday 02 Apr	Wednesday 03 Apr	Thursday 04 Apr	Friday 05 Apr	Saturday 06 Apr	Sunday 07 Apr
Activity	moderate	quiet	very low	very low	very low	very low	low
Flares	M3.9	-	-	-	-	-	-

¹ See appendix. All timings are given in UT.

Solar Activity

Solar flare activity fluctuated from very low to 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: <https://proba2.oma.be/ssa>

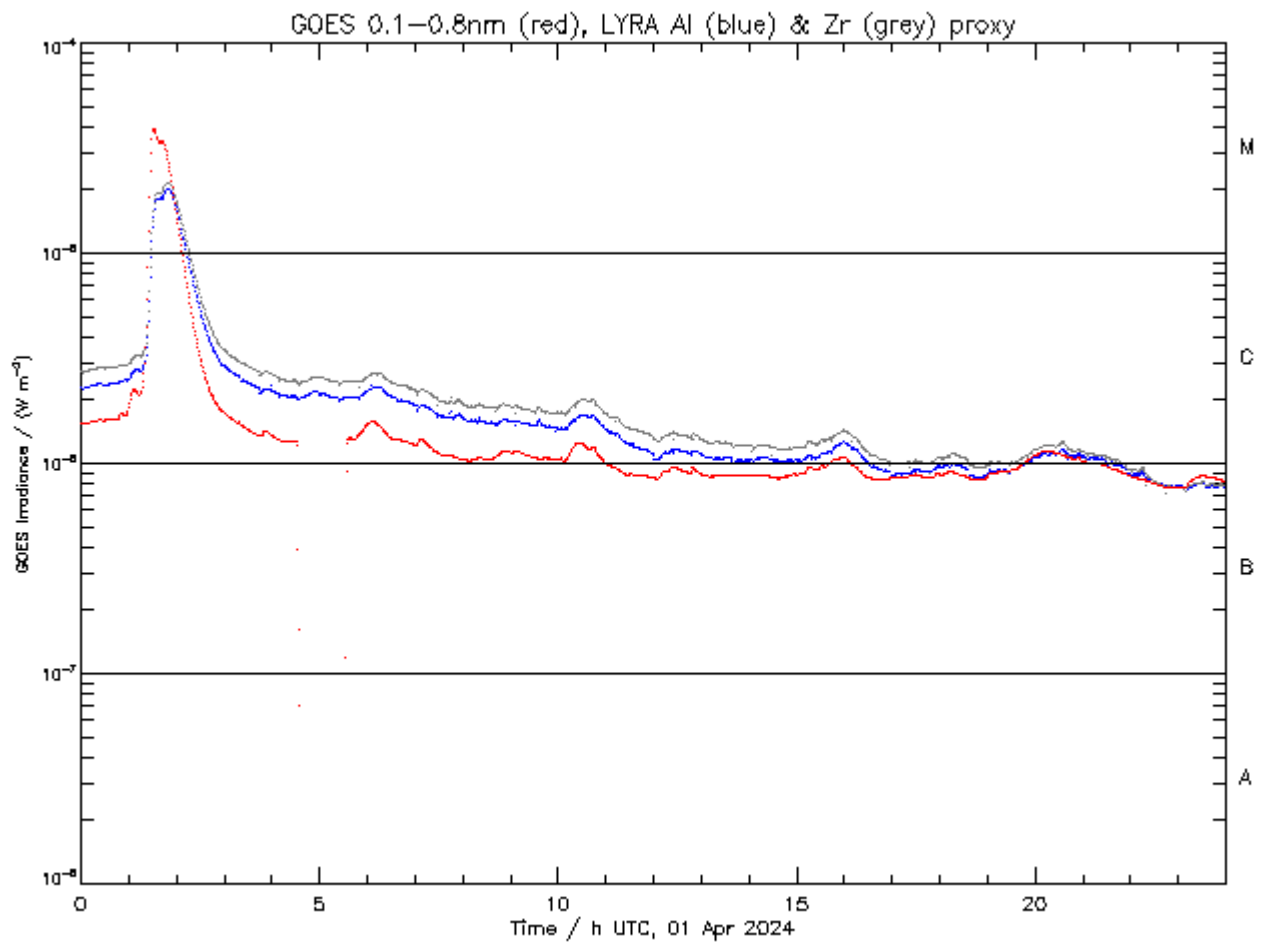
This page also lists the recorded flaring events.

A weekly overview movie can be found [here](#) (SWAP week 732).

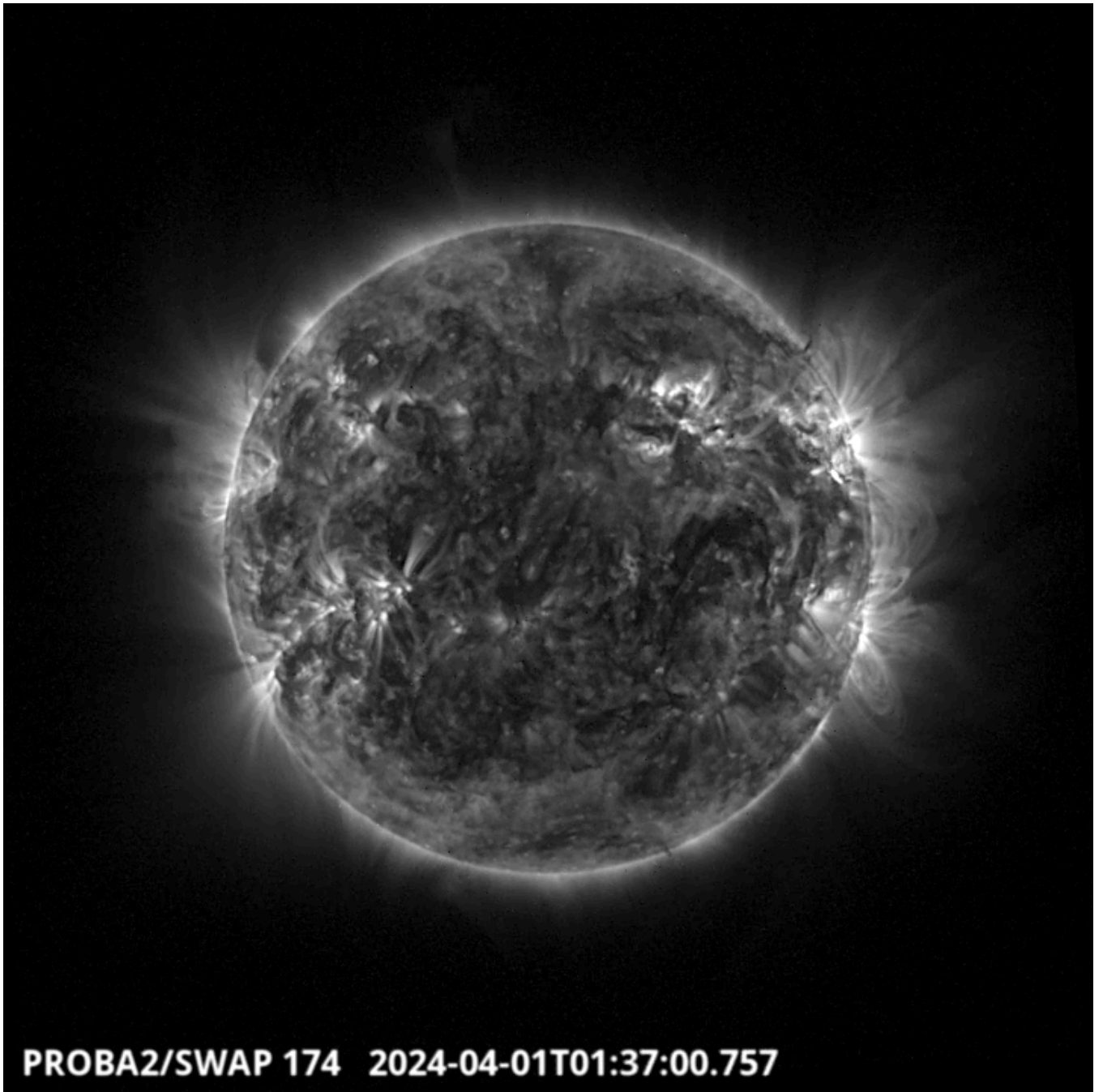
Details about some of this week's events can be found further below.

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

Monday Apr 01



ROB/SIDC, Brussels, Belgium

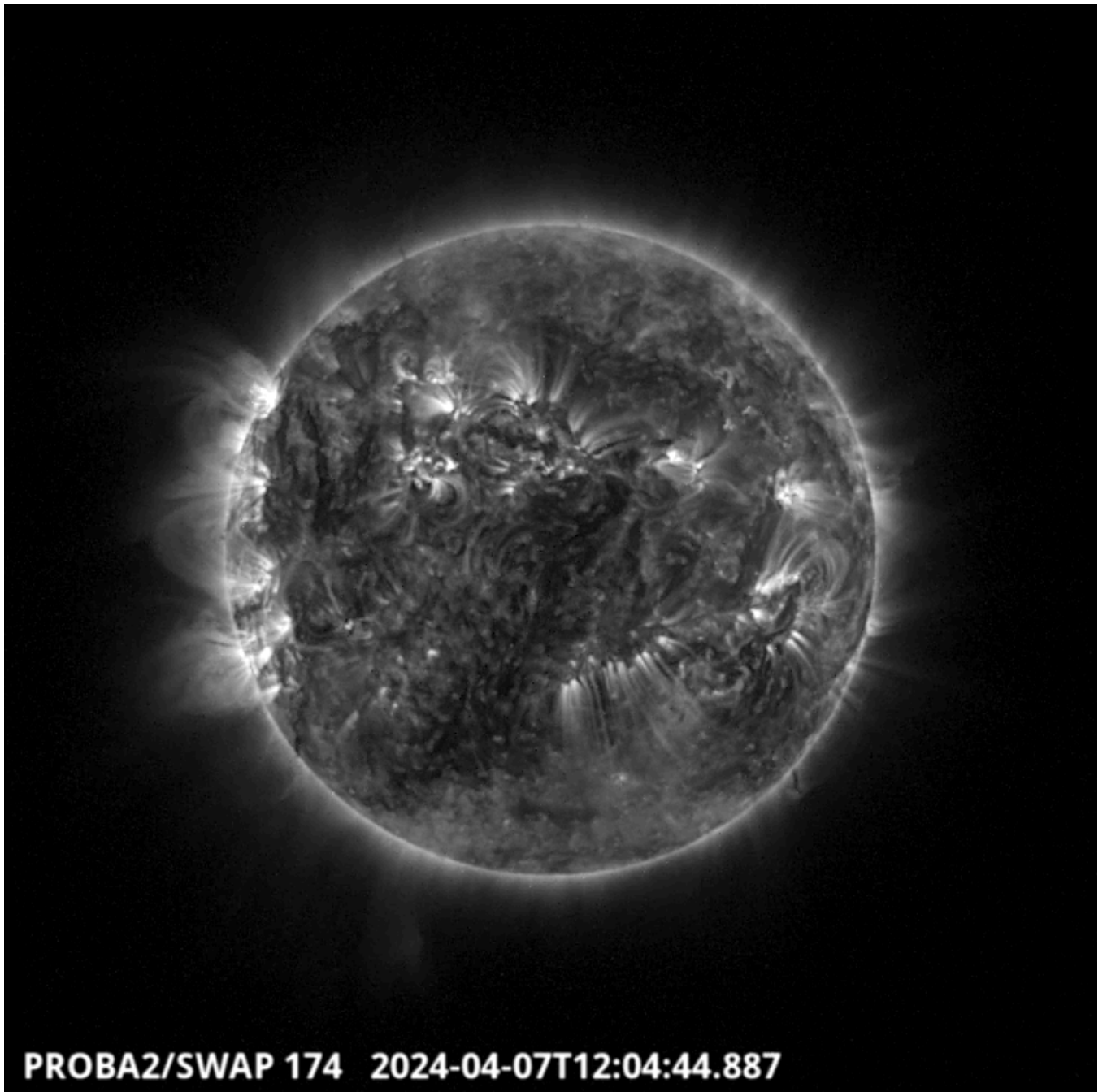


PROBA2/SWAP 174 2024-04-01T01:37:00.757

The largest flare of this week was an M3.6. This flare is visible on the SWAP image and LYRA curves around 1:37 UT. It occurred in the western hemisphere close to the limb, it originated from NOAA AR3625.

Find a SWAP movie of the event [here](#).

Sunday Apr 07



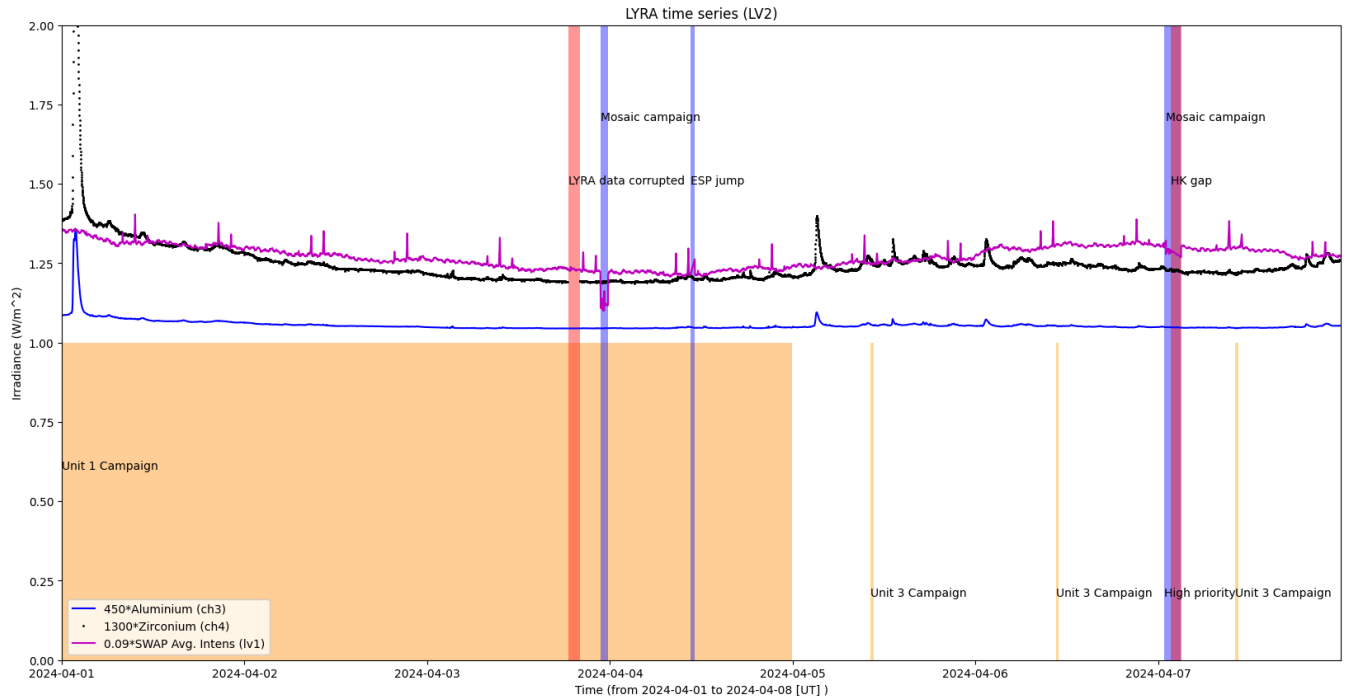
An extended coronal hole is visible in the center of this SWAP image extending toward the South-East part of the Sun.

Find a SWAP movie of the event [here](#).

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:

- Weekly mosaic campaign, 2024-Apr-03
- ESP jump, 2024-Apr-04
- High priority images, usual 110s cadence, 2024-Apr-07, between 00:45 - 01:00 UT
- SWAP mosaic for corona observation before eclipse, 2024-Apr-07, between 01:00-03:00 UT

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

- Unit 1 flare campaign, from 2024-Apr-01 until 2024 Apr-04
- Daily unit 3 campaign, 2024-Apr-05
- Daily unit 3 campaign, 2024-Apr-06
- Daily unit 3 campaign, 2024-Apr-07

The red shaded periods related to other issues corresponds to:

- Pass 46828 possibly corrupted on-board, 2024-Apr-03
- HK gap on April 07, the HK file for pass 36858 doesn't provide the HK parameters.

2. LYRA instrument status

IOS

Start IOS	Mon Apr 01 2024	LYIOS01072
End IOS	Sun Apr 07 2024	LYIOS01072

LYRA detector temperature

LYRA detector 2 temperature globally varied between 50.22 and 53.54 °C.

3. SWAP instrument status

MCPM errors

The number of MCPM recoverable errors increased from 55567 to 55971.

The number of MCPM unrecoverable errors remained at 3135.

IOS

Start IOS	Mon Apr 01 2024	IOS01194
End IOS	Sun Apr 07 2024	IOS01195

SWAP detector temperature

The SWAP Cold Finger Temperature globally varied between -0.73 and 0.79 °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 46810 to 46866) 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 2024 Apr 01 00:00 UT and 2024 Apr 08 00:00 UT: 4574

Highest cadence in this period: 18 seconds

Average cadence in this period: 132.25 seconds

Number of image gaps larger than 300 seconds: 165

Largest data gap: 33.67 minutes

Data coverage LYRA

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

- None
- Pass 46828 possibly corrupted on-board

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)