



Space Weather Activity

ICAO Space Weather Workshop 5 – 7 June 2023

Overview: The objective of this project is to familiarise yourself with the data used for the analysis of the space weather events that culminate in geomagnetic storms on Earth. Event to consider (21 April 2023)

Step 1 (Identification of X-ray solar flare): Open the following link
http://www.solarmonitor.org/goes_pop.php

Enter the date of your event under **Date Search** to view the plot of GOES X-ray Flux. From the plot, identify the intensity of the largest x-ray solar flare event (e.g. C-, M- or X-class solar flare). You will need to use the **GOES 15 1.0-8.0 Å** data series (the red line).

Q. What is the intensity of the flare observed?

Step 2 (Flare movies): Open the following link:
<http://sdo.gsfc.nasa.gov/data/aiami/>. Under **Dates** enter the start and the end dates (1st and 2nd blog respectively) that correspond with the date of the flare found in step 1.

- You need to have approximately 6 hours before your event and 6 hours after your event, making sure that you have at least 12 hours of footage.
- Under **Telescopes** choose **AIA 094 (green) or AIA 131 (teal)**.
- Select **Browser Display** under **Choose a format** and choose the **Resolution** as **512x512**.
- Click **Submit** to play the movie.

Note that it will take some time for all the frames to load.

Q. What is the peak time of the solar flare event?

Step 3 (Coronagraph images of the CME): Go to the following link:

<https://soho.nascom.nasa.gov/data/Theater/>

Insert the start and end date when you observed the solar flare. You can use either the C3 or C2 image to view the movie.



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Do you observe any coronal mass ejection (CME)?

Step 4 (Impact on Earth, 23 – 25 April 2023): Check the CME impact on Earth by obtaining Dst index data from <http://wdc.kugi.kyoto-u.ac.jp/dstdir/index.html> and Kp index on <https://www.spaceweatherlive.com/en/auroral-activity/kp-index.html>

Additional Information: space weather website for update on current conditions can be found on <https://spaceweather.sansa.org.za/>