



National & Kapodistrian University of Athens
Physics Department – Nuclear and Particle Physics Section
Cosmic Ray Group – A.Ne.Mo.S.



**GLE77 on November 11, 2025
&
G4 Geomagnetic storm on November 12, 2025**



Em. Prof. Helen Mavromichalaki

**Cosmic Ray Group NKUA
Athens Neutron Monitor Station (A.Ne.Mo.S.)**

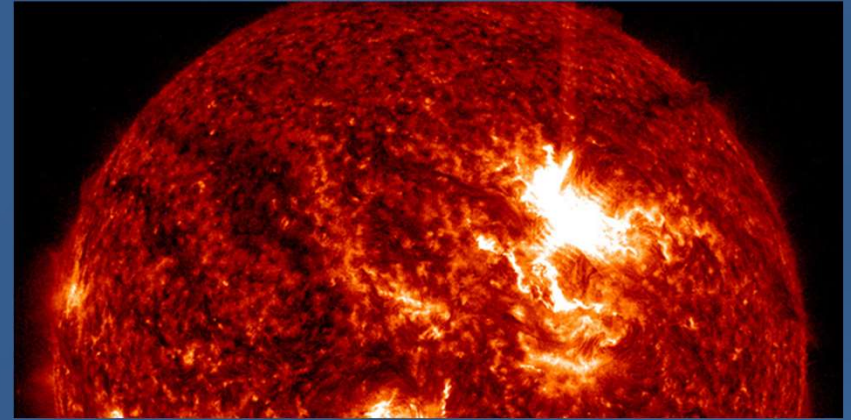
Website: <http://cosray.phys.uoa.gr>

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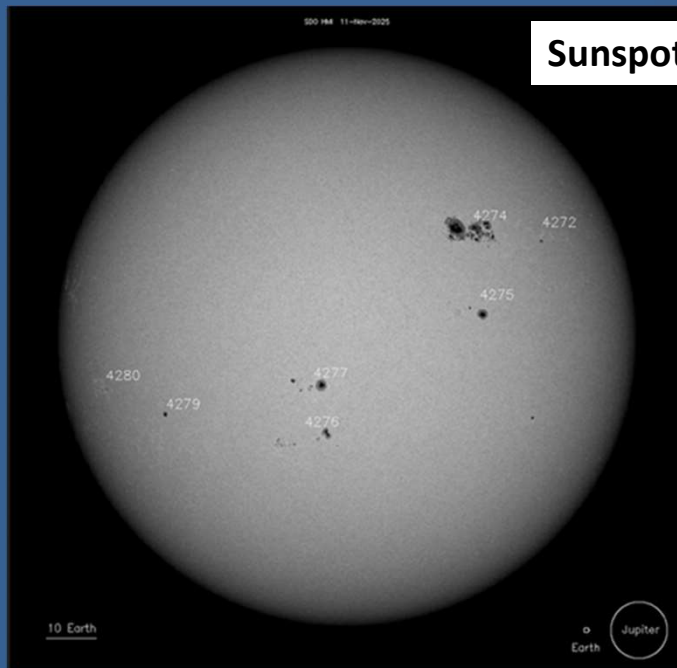
November 2025

Solar Activity

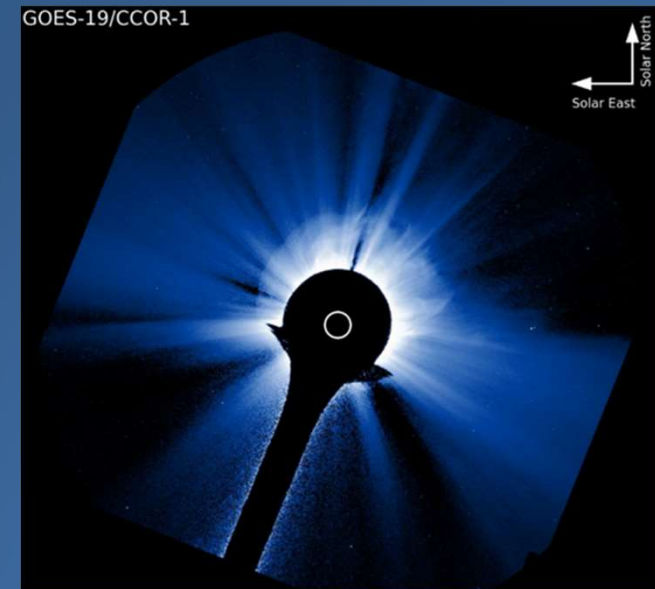
X5.1 solar flare from AR4274 (N12E12)
peaking on November 11, 2025 at 10:04UT



Sunspot region 4274



On November 11, 2025 at
10:23UT a CME was
registered with radial
velocity equal to 1856 Km/s



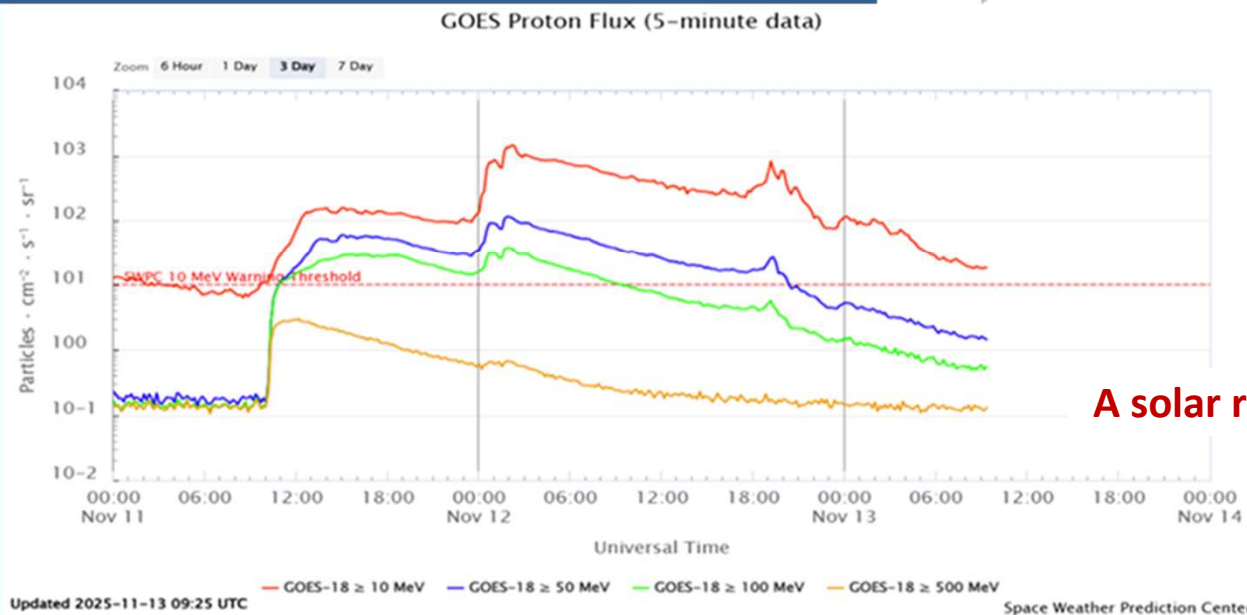
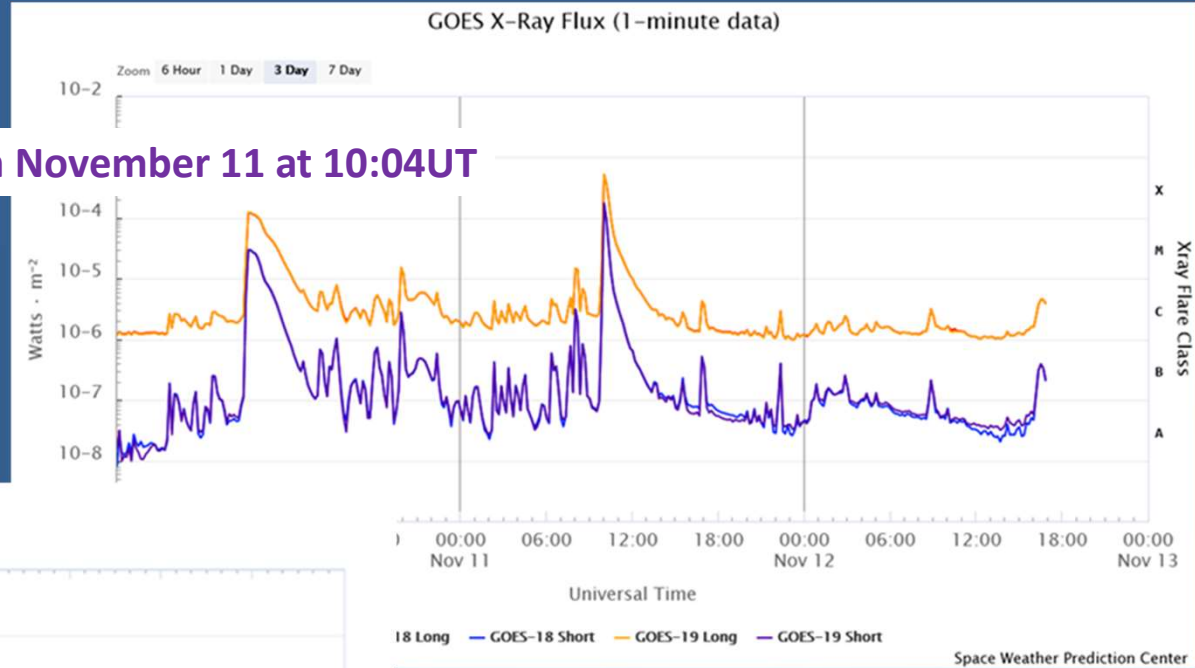
(Credit: NOAA Space Weather Prediction Center)

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Space – borne observations

The X5.1 solar flare on November 11 at 10:04UT



A solar radiation storm of level S3 was observed

(Credit: <https://www.swpc.noaa.gov/>)

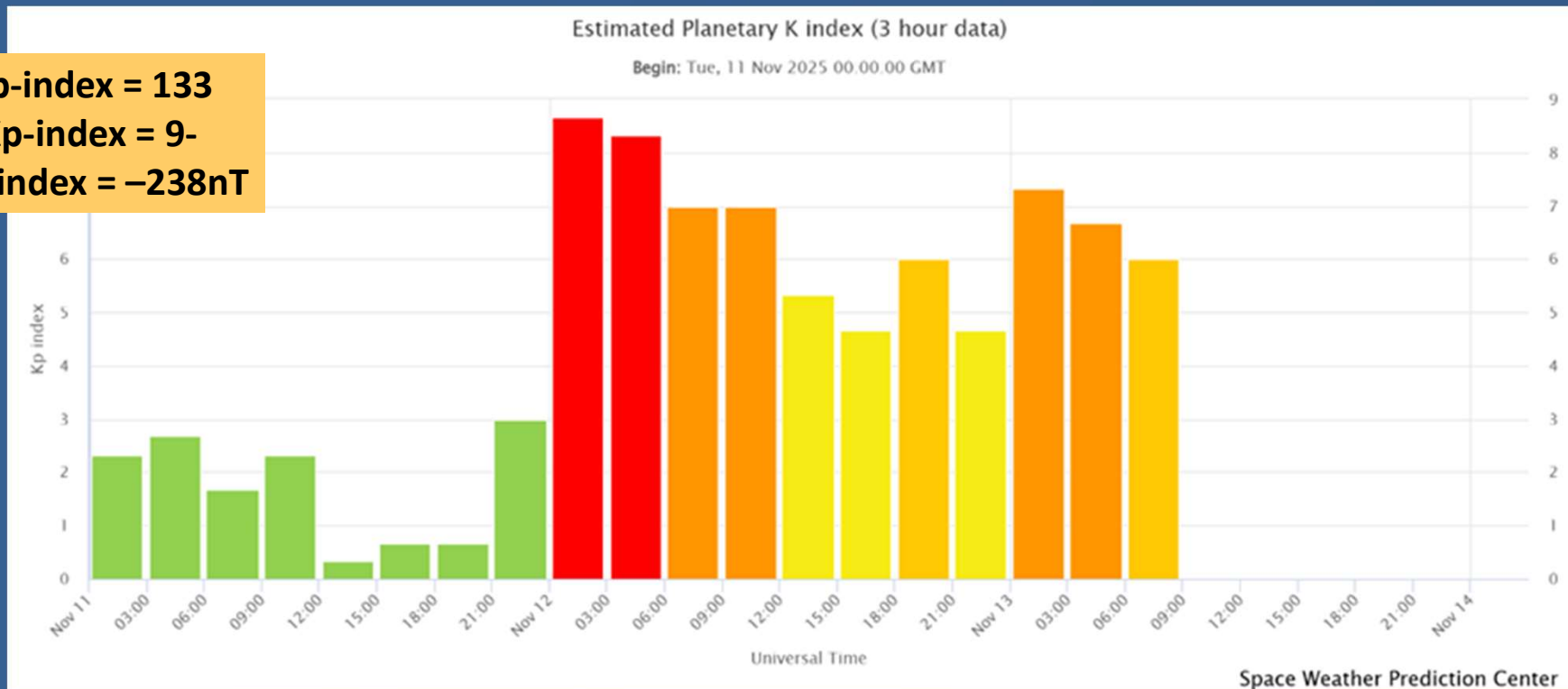
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Geomagnetic activity

A G4 (severe storm) geomagnetic storm was registered on November 12, 2025

Ap-index = 133
Kp-index = 9-
Dst-index = -238nT

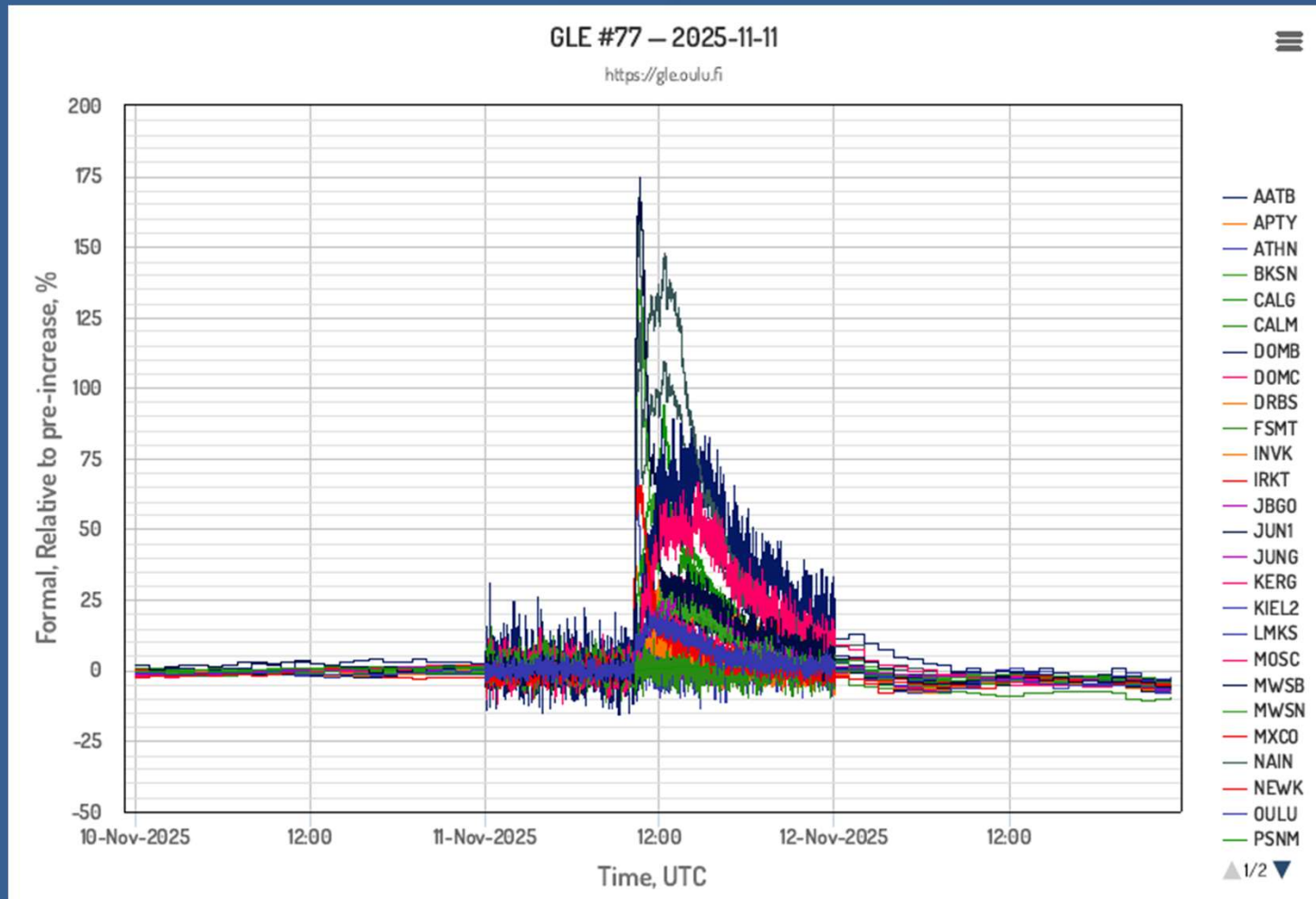


(Credit: <https://www.swpc.noaa.gov/products/planetary-k-index>)

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Cosmic rays activity



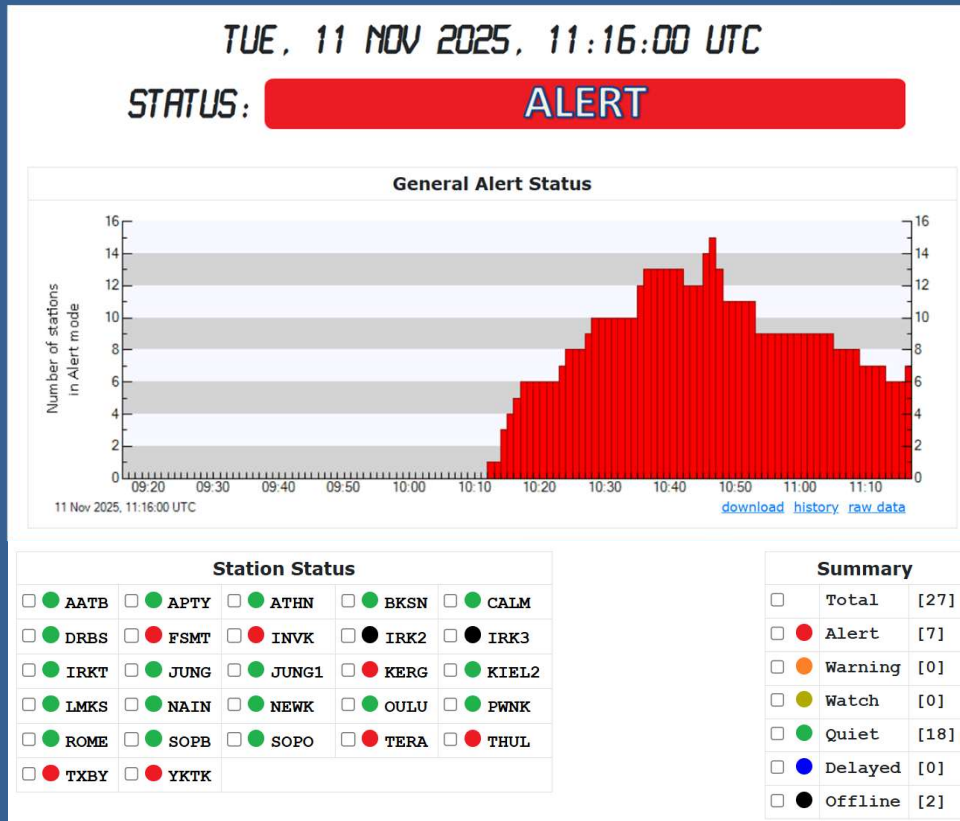
(Credit: <https://gle oulu.fi/#/>)

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The GLE Alert ++ system's response

<https://swe.ssa.esa.int/anemosfederated>



- ❖ The GLE Alert++ system responded successfully.
- ❖ A total of 16 neutron monitors, used by the application, went into alert mode.
- ❖ Due to the nature of the event, the GLE Alert++ system issued three alerts:

- ✓ 1st alert at 10:14UT (NEWK SOPB SOPO)
- ✓ 2nd alert at 11:56UT (FSMT PWNK THUL)
- ✓ 3rd alert at 12:16UT (PWNK SOPB SOPO)

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G4 Geomagnetic Storm on November 12, 2025



The ap prediction tool's response

https://swe.ssa.esa.int/web/guest/ap_Prediction-federated

apmax expected = 300nT on
November 12, 2025 at 09:00UT
apmax real = 300nT on
November 12, 2025 at 03:00UT

(Credit: https://www.esa.int/Space_Safety/Space_weather/ESA_actively_monitoring_severe_space_weather_event)

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November 2025

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