
Space Weather Forecast

Issued on Wednesday, 01 December 2021 at 12:46 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Chance of minor geomagnetic storms.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was very low, with no significant flares detected. There are currently four sunspot regions visible, with the two largest on the sun's southwest quadrant, but all remain magnetically simple. No Earth-directed coronal mass ejections (CMEs) were seen.

Solar Wind / Geomagnetic Activity: The solar wind suggested connection to the fast wind from a coronal hole overnight. Initially slow speeds showed a steady strengthening from 30/1900 UTC, reaching around 500 km/s by 01/0100 UTC, and with a peak of 580 km/s at 01/0624 UTC before ending the period near 520 km/s. The solar wind's magnetic field strengthened to become mostly moderate 20/1600-010500 UTC, and with some more notable negative deflections in the important north-south direction 30/1900-2200 UTC. Resultant geomagnetic activity was Quiet to start, but increased to Minor Storm level 30/2100-2400 UTC. Active intervals were then recorded, until becoming Unsettled by 01/0900 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to remain mostly very low, with a chance of common class flares, mainly from the larger sunspot regions in the southwest.

Solar Wind / Geomagnetic Activity: Continued enhancements from various coronal hole fast winds are expected through the period. A filament eruption which left the Sun on the 29th, may also bring a brief elevation to solar wind speeds during day 2 (2nd) as Earth sees a glancing blow. Geomagnetic activity is expected to be mostly Unsettled, but with some Active spells, and a chance of /Minor Storm intervals, these most likely on 2nd and 3rd Dec.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to persist at background with no solar radiation storms expected.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	20	50	50	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	No	5	5	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)