

**Space Weather Forecast**

Issued on Sunday, 05 December 2021 at 12:43 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>

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**Space Weather Forecast Headline: No significant activity.**

**Analysis of Space Weather Activity over past 24 hours**

**Solar Activity:** Solar activity was moderate, with several Common-class flares, and one long duration Moderate flare at 05/0718 UTC, with all activity likely emanating from a sunspot region now out of view over the sun's southwest horizon. The start of a coronal mass ejection (CME) associated with the Moderate flare was observed, updated imagery is awaited for analysis, but this unlikely to be heading for Earth. No further Earth-directed CMEs were seen. There are currently three sunspot regions visible, all small and magnetically simple.

**Solar Wind / Geomagnetic Activity:** The solar wind speed showed continuing coronal hole high speed stream influences, with speeds of 410-510 km/s. Its magnetic field was weak, with no significant negative deflections in the important north-south direction. Resultant geomagnetic activity was generally Quiet, with just the one Unsettled interval 04/1800-2100 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 be low reducing to very low, with a 50% chance of Common-class flares and a 10% chance of Moderate flares at first from the sunspot region around the southwest horizon. The flare risk will reduce by 6th Dec as this region moves further into the far side of the sun.

**Solar Wind / Geomagnetic Activity:** There are currently no Earth-directed CMEs forecast. A very weak CME from a filament eruption on 3rd Dec may graze Earth on day 3 (7th), but this is low confidence and minimal impacts are expected. Wind speeds are currently slightly elevated under coronal hole influences, but expected to gradually decline to background levels through days 2 and 3 (6th and 7th). Geomagnetic activity is expected to be mainly Quiet to Unsettled with a chance of isolated Active intervals on days 1-3 (5th-7th), especially if any weak CME influence occurs.

**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	10	5	5	1
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	10	2	1	1
Very Active	R3 to R5 X	No	1	1	1	1

**Solar Radiation Storms - (High Energy Protons):**

Radiation Storms	Level (cm <sup>-2</sup> sr <sup>-1</sup> s <sup>-1</sup> )	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<sup>-2</sup>sr<sup>-1</sup>s<sup>-1</sup>)