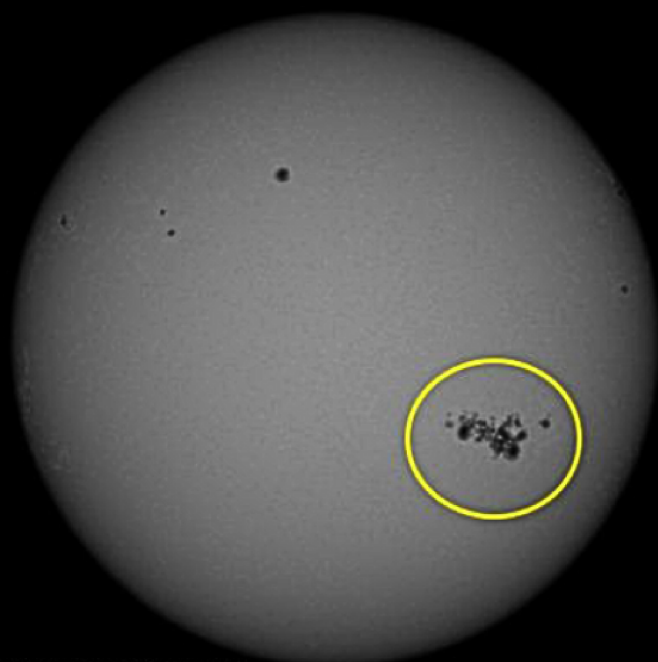




Active Space Weather Conditions Through Weekend

WHAT: Large Sunspot Groups and Flares Lead to First G4 Watch Since 2005



2024-05-09 19:28:00 UTC

- On Thursday, May 9, the NOAA Space Weather Prediction Center issued a Severe (G4) Geomagnetic Storm Watch – the first since January 2005.
- At least five earth-directed coronal mass ejections (CMEs) were observed and expected to arrive as early as midday Friday, May 10, 2024, and persist through Sunday, May 12, 2024. This is an unusual event.
- Several strong flares have been observed over the past few days and were associated with a large and magnetically complex sunspot cluster (NOAA region 3664), which is 16 times the diameter of Earth. Additional solar activity is expected from the region.
- Only three Severe geomagnetic storms have been observed during this solar cycle which began in December 2019. The last G4 (Severe) was on March 23, 2024, and the last G5 (Extreme) was the Halloween Storms in October 2003. That G5 resulted in power outages in Sweden and damaged power transformers in South Africa.



Safeguarding Society with Actionable Space Weather Information

Space Weather Prediction Center; Boulder, CO

G4 (Severe) Geomagnetic Storm Impacts



Power systems: Possible widespread voltage control problems and some protective systems will mistakenly trip out key assets from the grid.

Spacecraft operations: May experience surface charging and tracking problems, corrections may be needed for orientation problems.

Other systems: Induced pipeline currents affect preventive measures, HF radio propagation sporadic, satellite navigation degraded for hours, low-frequency radio navigation disrupted, and aurora has been seen as low as Alabama and northern California (typically 45° geomagnetic lat.).

[More about the NOAA Space Weather Scales](#)

95% chance of an R1-R2 (Minor) Radio Blackout



This is the forecast probability of a Radio Blackout of magnitude R1 or R2 on the NOAA Space Weather Scales. For information on the expected impacts should an R1 or R2 Radio Blackout occur, see:

[More about the NOAA Space Weather Scales](#)

75% chance of an R3-R5 (Major) Radio Blackout



This is the forecast probability of a Radio Blackout of magnitude R3, R4, or R5 on the NOAA Space Weather Scales. For information on the expected impacts should an R3, R4, or R5 Radio Blackout occur, see:

[More about the NOAA Space Weather Scales](#)

55% chance of an S1 or greater Solar Radiation Storm



This is the forecast probability of a Solar Radiation Storm occurring, meaning proton levels exceed the S1 (Minor) threshold on the NOAA Space Weather Scales. For information on the expected impacts should a Solar Radiation Storm occur, see:

[More about the NOAA Space Weather Scales](#)



**National Weather Service
Gray-Portland, ME**