

Space Weather activities at BGS



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What is Space Weather?

The term 'Space Weather' refers to the conditions in space which can affect us here on Earth, influencing satellites and ground based technological infrastructure, such as power grids and communication systems.

Why does Space Weather matter?

Under certain space weather conditions **geomagnetic storms** can occur, causing the Earth's magnetic field to become very active and highly variable. When this happens strong electric currents flow high in the atmosphere leading to the beautiful phenomenon of the **northern lights** (called the *aurora borealis*).

These strong electric currents in the atmosphere can, however, have more **damaging** effects on technology. For example, 6 million people were without power for around 12 hours in Quebec in 1989, following damage to transformers caused by a severe geomagnetic storm.

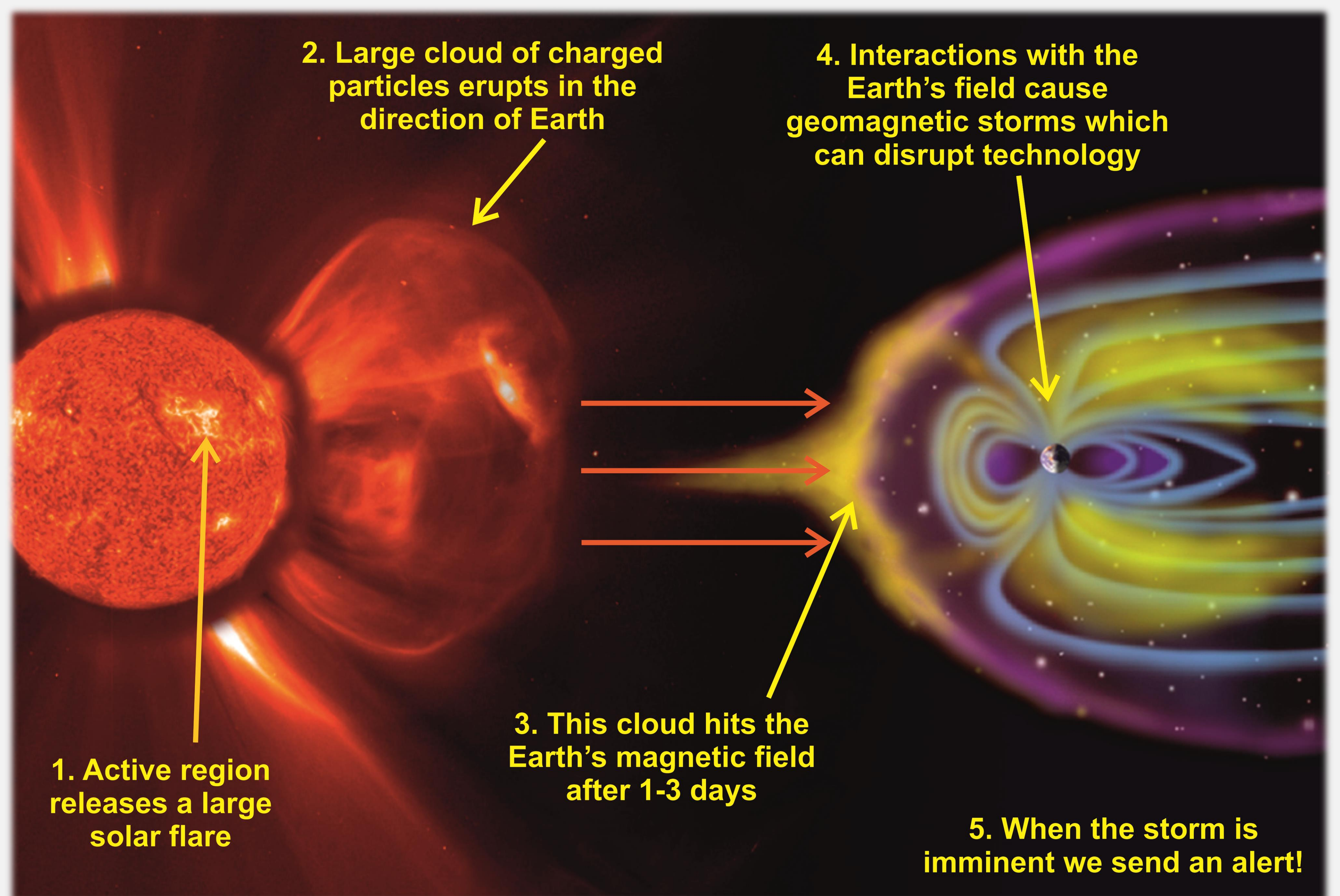


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What causes storms?

The biggest geomagnetic storms are associated with Coronal Mass Ejections (CMEs), which are large clouds of charged particles thrown from the Sun, often triggered by large solar flares.


When we see a CME directed towards the Earth we expect geomagnetic activity and auroras to follow around 1-3 days later, when the CME hits the Earth's magnetic field.



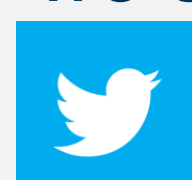
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We study the impacts of space weather on the ground, which includes modelling electrical currents that can flow through power grids.

We also write a daily space weather forecast which we send to the government and companies like National Grid Ltd. to help them prepare for space weather. Our forecast is publicly available on our website and we tweet it to  @BGSSpaceWeather

When we're expecting a storm big enough to make aurora visible in the UK we send out an aurora alert to everyone on our mailing list and tweet at

 @BGSAuroraAlert



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