Space Weather Safety
Know Your Risk
Take Action
Be a Force of Nature
Space Weather Safety

Understanding Space Weather:

• The sun is the main source of space weather.
• Bursts of plasma called coronal mass ejections (CMEs) can be directed towards the Earth.
• CMEs can produce large geomagnetic storms, potentially causing disruptions and anomalies to satellites, power grids, and air traffic communications.
• An important thing to remember; Earth’s magnetosphere, ionosphere, and atmosphere do a great job of protecting us from the most hazardous effects.
• Storms large enough to cause the disruptions listed above are very rare.
Space Weather Safety

Impacts include the Potential loss of:

- Water and wastewater distribution systems.
- Perishable foods and medications.
- Heating/air conditioning and electrical lighting systems.
- Computer systems, telephone systems, and communications systems.
- Public transportation systems.
- Fuel distribution systems and fuel pipelines.
- All electrical systems that do not have back-up power.
Space Weather Safety

Preparation for an extreme space weather storm...

- Ensure adequate water supply is available.
- Maintain proper medication supply.
- Keep gas tank at least half full.
- Keep extra batteries for phone (or have solar power/hand crank charger).
- Maintain at least one non-cordless phone.
- Prepare family contact sheet. Have a plan.
- Keep important documents in non-powered safe/lock box.
- Have key to house.
Space Weather Safety

During an extreme space weather storm...

- Follow energy conservation measures.
- Restrict telephone usage to emergency situations only.
- Avoid using elevators.
- Review evacuation plans, supply lists (including medication), and family contact list.
- Avoid unnecessary travel. Power outages can affect public transportation as well as traffic signals.
Space Weather Safety

Following an extreme space weather storm:

- Listen to Local Officials.
- Follow any emergency plans established by state and local government.
- Monitor emergency broadcast radios for EAS updates.
- Inventory supplies, medications, water levels, etc.
- Follow evacuation orders.
- Replenish (if needed) to prepare for future use.
- Maintain energy conservation efforts until power can be restored.
Amazing side effect...the Aurora!

- Aurora Borealis, or Northern Lights, are more perceptible in the winter months in the northern hemisphere, due to longer periods of darkness.
- They are a result of collisions between atmospheric gases and precipitating charged particles.
- Each gas (oxygen, nitrogen molecules, and atoms) emits a particular color depending on the energy of the precipitating particles.
- The patterns and forms of the aurora include quiescent arcs, rapidly moving rays, curtains, patches, and veils.
- Check the [Aurora 30 minute forecast](https://weather.gov/safety) to see if viewing is favorable in your area.