



## When Space Weather Hits Your Everyday Life

### Imagine This....



- Your phone GPS stops working
- Google maps can't find your location
- No electricity = no phone charging
- No Wi-Fi or internet
- No social media



- Flights are delayed

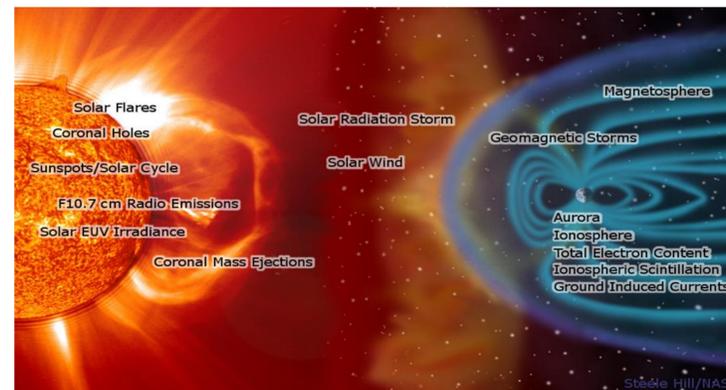


- Satellites stop sending data
- Internet and radio signals become unreliable

**What if this happened because of something happening on the Sun?**

## So... What is Space Weather?

- Space weather comes from activity on the Sun
- Solar flares and solar storms release energy
- The Sun sends charged particles toward Earth
- Space weather is like weather, but in space
- Instead of rain or wind, it involves energy and particles



Credit: NOAA

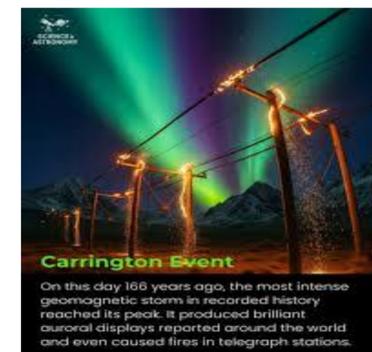
## Notable storm events



May 2024 storm



St. Patrick's Storm 2015



Carrington Event  
(Sept 1-2, 1859)

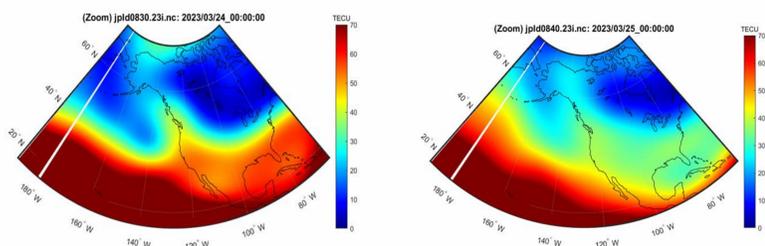


2003 Halloween solar storm

## How Do We Measure Space Weather?

Space weather change charged particles high above Earth. **We track these changes using:**

- **Total Electron Content (TEC):** how many electrons affect radio signals
- **Magnetic Indices (Kp/DST):** how disturbed Earth's magnetic field is.
- **Satellites (e.g., SWARM):** direct measurements of particles and electron density etc.



Global Ionospheric Map

## You Can Be a Space Weather Hero!

Space weather research needs curious minds in science, engineering, computing, and more!

Your skills could help protect our planet and push the boundaries of space exploration.

**How would you help us solve the mysteries of space weather?**



Credit: <https://thenortheastaffairs.com/digantara>

**You want to know more?**



Scan me!

LoCSST