Daily Space Weather
vs.
Extreme Events

Workshop on the Impacts of Space Weather
on Economic Vitality and National Security

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outline

- Space Weather 24/7
- Range of Space Weather
- Impact of ‘Daily’ Space Weather
- What is needed to minimize impacts?

Space Weather 24/7

- Space weather everyday, all the time
- Weather is more than storms

Range of Space Weather

- Just like terrestrial weather
- All weather impacts decisions – even if the decision is to do nothing different

Impact of Daily Space Weather

- Constant monitoring – always vigilant
- Navigation and positioning: patchiness on a daily basis
- Some regions are worse than others – SAA
- Storms occur when we don’t expect them

What is needed to minimize impacts?

Three primary challenges for advancement in space weather prediction

1. Recognize precursor signatures for solar flares and coronal mass ejections

2. Understand what causes an event to be geoeffective

3. Identify the conditions for ionospheric disturbances

Range of Space Weather

- Carrington Event – DST range -850 to -1050 nT
- 1921 Event: DST ~-900 nT
- 1989 Quebec: DST -600nT