Risks of Space Weather
The National Space Weather Strategy

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What is space Weather
Space weather refers to the variable conditions on the Sun and in space that can influence performance and reliability of space and ground-based technological systems, and endanger life or health.

Geomagnetic Storms
Coronal Mass Ejections (CMEs) create geomagnetic storms

Severe Space Weather – Societal and Economic Impacts

Impacts occur even with relatively minor activity...


- US population at risk of extended power outage: 20-40 mil
- Duration: 16 days to 1-2 years
- Economic cost: $0.6-2.6 trillion USD
- Highest Risk: DC-NYC corridor
- Gulf Coast states, including Florida, identified as a "high risk" area.

National Space Weather Strategy

A cohesive all-of-government strategy was necessary to ensure the federal government was positioned to mitigate, respond to and recover from a major space weather storm

Nov 2014 – Space Weather Operations, Research, and Mitigation (SWORM) Task Force is established

Tasked to develop:
- National Space Weather Strategy (NSWS)
- Space Weather Action Plan

National Space Weather Strategy – Structure

Strategy articulates six high-level goals

1. Establish Benchmarks for Space-Weather Events
2. Enhance Response and Recovery Capabilities
3. Improve Protection and Mitigation Efforts
4. Improve Assessment, Modeling, and Prediction of Impacts on Critical Infrastructure
5. Improve Space-Weather Services through Advancing Understanding and Forecasting
6. Increase International Cooperation

Risks of Space Weather

- **Mark MacAlester**, FEMA, Washington, DC - Preparing the Nation for the Risks of Extreme Space Weather
- **Thomas H. Fahey III**, Delta Airlines, Atlanta, GA - Risks of Space Weather: A Commercial Aviation Perspective
- **Sten Odenwald**, NASA Goddard Spaceflight Center - Severe Space Weather and Satellite Vulnerability
- **Frank Koza**, PJM, PA - Space Weather Power System Impacts and PJM Response