Patrick
Dandenault
JHU/APL
1. Ruth Vogel, JHU/APL
2. John Hiucks, JHU/APL
3. Larry Paxton, JHU/APL
4. Angelos Vourlidas, JHU/APL
5. Athanasios Kouloumvakos, JHU/APL
6. Evangelos Paouris, JHU/APL
7. Aaron Ridley, U of Michigan
8. Chen Wu, U of Michigan
9. Chris Cannizzaro, DHS/CISA
10. Pauline Paki, DHS S&T
11. Brent Talbot, DHS S&T
Poster
Space Weather (SWx) events can severely damage critical infrastructure, resulting in direct or cascading failures across key services such as electric power, communications, transportation water supply, healthcare, and more. Official SWx Benchmark reports were released in 2018 and 2019, with the goal of enhancing awareness of space weather threats to critical infrastructure. The goals of this new program are to (1) review the existing SWx benchmarks and recommendations, (2) develop new benchmarks for a specific set of SWx phenomena, and (3) recommend possible new benchmarks and relevant future modeling and observational data to improve critical infrastructure protection. The APL-led research team will use state-of-the-art first-principles modeling and global observational datasets (from ground- and space-based instruments) to simulate diverse high-consequence events (1-in- 30-year events; 1-in-100-year events; 1-in-300-year events; and 1-in-1000-year events), with a focus on these five SWx phenomena:
1. Induced Geo-Electric Fields
2. Ionizing Radiation
3. Ionospheric Disturbances
4. Solar Radio Bursts
5. Upper Atmospheric Expansion
The science team will communicate regularly with DHS, Sector Risk Management Agencies (SRMA), Commercial Industry, and other relevant Users who may be affected by SWx. This 2-year program will generate inputs for developing vulnerability assessments and risk estimates, help establish decision points and thresholds for action, improve mitigation procedures, and enhance response and recovery planning for our nation’s critical infrastructure owners and operators. This presentation will focus on the basic research component of the effort and also on how the scientific findings and deliverables will ensure meaningful actionable outcomes for Critical Infrastructure Users and Stakeholders.
Poster session day
Tuesday, April 28, 2026
Poster location
49
Meeting homepage
2026 Space Weather Workshop
Download to PDF