2018 Space Weather Workshop Agenda
Westin Westminster Hotel

Monday, April 16

8:30-9:30  Satellite Anomaly Database – Michael Bonadonna
9:30-11:30 Air Force Meeting – by invitation – Eric Sutton/Michael Starks
11:30-1:00 Lunch
1:00 - 3:00  Space Weather Policy – Seth Jonas
3:00 - 5:00  O2R-R2O Current Activities and Future Plans – Terry Onsager/Howard Singer
3:00 - 4:30  Student Workshop – by invitation – Alfredo Cruz
5:00 - 7:00  Networking Session for Space Weather Workshop Participants

Tuesday, April 17

8:30  Conference Welcome
Bill Murtagh, NOAA/SWPC

8:45 - 10:00  Space Weather 2018 – In the Spotlight
Chair: Bill Murtagh, NOAA/SWPC

8:45  SWPC – Always Moving Forward
Brent Gordon, NOAA/SWPC

9:00  The USAF Space Weather Operations Center

9:15  MOSWOC – 4 years old! What have we achieved and where are we going?
Mark Gibbs, United Kingdom Meteorological Office

9:30  The Space Weather Enterprise (SWE) - The Time Is Now!
Conrad C.Lautenbacher, Jr., GeoOptics Inc.

9:45  Building Resilience against Space Weather Effects: An update from the Office of Science and Technology Policy
Steven Clarke, Office of Science and Technology Policy

10:00 - 11:00  Break and Poster Session (Solar and Interplanetary Research and Applications)

11:00 - 12:15  Panel Session: September 2017 Storm - Discussion on User Needs and Science Capabilities
Chair: Howard Singer, NOAA/SWPC
11:00  **Overview of September 2017 Space Weather Period**  
Rob Redmon, NOAA/NCEI  
Bob Rutledge, NOAA/SWPC

11:20  **The Effects of the 10 SEP 17 Solar Event on HF Voice Comms Over the Atlantic**  
Anthony Abate, Rockwell Collins

11:30  **NOAA SWPC Operational Model Performance during the September 2017 Storms**  
Michele Cash, NOAA/SWPC

11:40  **September 2017 Space Weather Impacts**  
Capt John Ross, US Air Force

11:50-12:15  Panel/Audience Discussion

12:15 - 2:00  **SWPC Lunch Tour** *(Please Note: Tour participants must have signed up and will miss early afternoon session talks) *Tour bus departs the Westin Lobby at 12:30 PM and returns at 3 PM*

2:00 - 3:30  **Space Weather Policy**  
Chair: Tamara Dickinson, Science Matters Consulting

  2:00  **EMP, Natural and Adversarial; A Policy Perspective**  
Seth Jonas, Science and Technology Policy Institute

  2:15  **Reducing GMD Risks to Reliability of the North American Electricity Grid**  
Mark Olson, North American Electric Reliability Corporation

  2:30  **Provision of the Space Weather Advisory for International Air Navigation**  
William Bauman III, Federal Aviation Administration

  2:45  **Space Weather Services for Australia’s Critical Infrastructure**  
Richard Marshall, Australia Bureau of Meteorology

  3:00  **Asia Oceania Space Weather Alliance (AOSWA)**  
Yuki Kubo, Japan’s National Institute of Information and Communications Technology

  3:15  **European Space Agency Space Situational Awareness Lagrange Mission to L5 Point**  
Juha-Pekka Luntama, European Space Agency

  3:30 - 4:30  Break and Poster Session *(Solar and Interplanetary Research and Applications)*

  4:30 - 5:15  **Economic Impact Assessment**  
Chair: Chris Cannizzaro, US State Department

    4:30  **The Canadian Space Weather Socioeconomic Impact Study**  
Pierre Langlois, Canadian Space Agency

    4:45  **The Social and Economic Impacts of Space Weather (US Project)**  
Susan Taylor, Abt Associates

    5:00  **Testing Realistic Scenarios for Space Weather: The Economic Impacts of Electricity Transmission Infrastructure Failure in the UK**  
Mark Gibbs, United Kingdom Meteorological Office
### Special Presentation: Parker Solar Probe: A NASA Mission to Touch the Sun
Nicola Fox, Johns Hopkins University Applied Physics Laboratory

### 12th Annual NOAA - Commercial Space Weather Interest Group (CSWIG)/American Commercial Space Weather Association (ACSWA) Summit Meeting – by invitation

**Wednesday, April 18**

**8:30 - 8:40**  
**Air Force Space Weather – The Way Ahead**  
Col. Jeff Jarry and Dr. Mark Pesses, US Air Force

**8:40 – 10:00**  
**Panel Session: Space Weather Action Plan Implementation – Challenges and Opportunities**  
Chair: Steven Clarke, Office of Science and Technology Policy

**8:40**  
**NASA’s Role and Current Efforts for SWAP**  
Jim Spann, NASA

**8:50**  
**NSF's Contributions to SWAP Implementation**  
Michael Wiltberger, National Science Foundation

**9:00**  
**NOAA Progress on SWAP Activities**  
Bill Lapenta, NOAA

**9:10**  
**Space Weather Action Plan – Air Force Update**  

**9:20**  
**Goal 6: International Activities**  
Chris Cannizzaro, US State Department

**9:30**  
**USGS Role in SWAP Implementation**  
Carol Finn, USGS

**9:40-10:00**  
Panel/Audience Discussion

**10:00 - 11:00**  
Break and Poster Session (Ionosphere Research and Applications and General Space Weather Services and Education)

**11:00 - 12:15**  
**Research and Services Supporting Satellite Operations**  
Chair: Rob Redmon, NOAA/NCEI

**11:00**  
**Spacecraft Anomalies and Failures Workshop 2017 Summary**  
Alec Engell, NextGen Federal Systems

**11:15**  
**Summaries for the 2017 Applied Space Environments Conference (ASEC) and the Space Environment Engineering and Science Applications Workshop (SEESAW)**  
Linda Neergaard Parker, Universities Space Research Association

**11:30**  
**Tools for Understanding On-Orbit Satellite Anomalies**  
Janet Green, Space Hazards Applications, LLC

**11:45**  
**AF9/AP9/SPM (IRENE) Commercial Deployment and Use**  
Richard Quinn, Atmospheric and Environmental Research
12:00   **GPS Energetic Particle Data and their Use for Space Weather, Climatology, and Anomaly Assessment**  
Steven Morley, Los Alamos National Laboratory

12:15 - 1:30   **Lunch**

1:30 - 2:45   **Building Resilience to Geomagnetic Induced Currents on the Electric Power Grid**  
Chair: Christopher Balch, NOAA/SWPC

1:30   **Impacts of Extreme Space Weather Events on Power Grid Infrastructure: Physics-Based Modelling of Geomagnetically-Induced Currents (GICs) During Carrington-Class Geomagnetic Storms**  
Michael G. Henderson, Los Alamos National Laboratory

1:45   **CHARGED: An NSF-Funded Initiative to Understand the Physics of Extreme GICs**  
Mike Liemohn, University of Michigan

2:00   **GMD Vulnerability Assessment**  
Emanuel Bernabeu, PJM Interconnection

2:15   **DOE’s Recommended Monitoring Approach for GMDs and DOE’s Pilot Program to Test and Evaluate Devices that can Mitigate GMD Impacts on the Grid**  
John Ostrich, Department of Energy

2:30   **Magnetic-Storm Geoelectric Hazard Maps and the Induction of Voltages on Power Grids**  
Jeffrey Love, USGS

2:45 - 3:45   **Break and Poster Session (Ionosphere Research and Applications and General Space Weather Services and Education)**

3:45 - 5:15   **Panel Session: Space Weather and Aviation - Making the Connection between Operations and Research**  
Chair: Robert Rutledge, NOAA/SWPC

3:45   **United Airlines Space Weather Procedures and Needs**  
Mike Stills, United Airlines

3:57   **Real-time Radiation Weather for Commercial Aviation on the Horizon**  
W. Kent Tobiska, Space Environment Technologies

4:09   **The Effects of the 10 SEP 17 Solar Event on HF Voice Comms Over the Atlantic**  
Anthony Abate, Rockwell Collins

4:21   **SWPC Challenges and Opportunities for Supporting Aviation**  
Robert Rutledge, NOAA/SWPC  
Bill Murtagh, NOAA/SWPC

4:33   **AFRL Next-Gen Dose Rate Specification and Prediction**  
Shawn Young, Air Force Research Laboratory

4:45-5:15   **Panel/Audience Discussion**

6:00 - 9:00   **Banquet Dinner at Westin Lake House**
**Special Guest Speaker:** Thomas Zurbuchen, NASA Associate Administrator  
Science Mission Directorate

Thursday, April 19

8:30 - 10:00 **Space Weather Observations**  
Rodney Viereck, NOAA/SWPC

8:30 **Status of the GOES-R Series Space Weather Observations**  
Juan Rodriguez, NOAA/NCEI

8:45 **The GOLD Mission – Real-time Imaging of the Space Weather in Earth’s Ionosphere and Thermosphere from Geostationary Orbit**  
Richard Eastes, University of Colorado, Laboratory for Atmospheric and Space Physics

9:00 **DSCOVR – Status Update and Comparing Data from L1**  
Doug Biesecker, NOAA/SWPC

9:15 **Activities of Korean Space Weather Center**  
Jinwook Han, Korean Space Weather Center

9:30 **The FORMOSAT-7/COSMIC-2 Satellite Mission: Expanding the Observational Capabilities for the Space Weather Community**  
John Braun, University Corporation for Atmospheric Research

9:45 **Update from Spire Global, GeoOptics and PlanetIQ**  
Timothy Duly, Spire Global, Inc.  
Rob Kursinski, PlanetIQ  
Conrad Lautenbacher Jr., GeoOptics, Inc.

10:00 - 11:00 **Break and Poster Session (Magnetosphere Research and Applications)**

11:00 - 12:00 **Space Weather Observation Cont’d**  
Chair: Michael Bonadonna, Office of the Federal Coordinator for Meteorological Services and Supporting Research

11:00 **Implementation of Solar Irradiance Measurements on the International Space Station (ISS): The TSIS-1 Mission of Total and Spectral Solar Irradiance Observational Continuity**  
Erik Richard, University of Colorado, Laboratory for Atmospheric and Space Physics

11:15 **Deployment of Magnetic and Electric Field Sensors for GIC Hazard Mitigation**  
Jennifer Gannon, Computational Physics Inc.

11:30 **OWS The Industrialization and Democratization of Space**  
Tony Gingiss, OneWeb

11:45 **Five and One-Half Years of Radiation Belt Measurements: Space Weather in Earth’s Neighborhood**  
Daniel Baker, University of Colorado, Laboratory for Atmospheric and Space Physics

12:00 - 2:00 **SWPC Lunch Tour (Please Note: Tour participants must have signed up and will miss early afternoon session talks) *Tour bus departs the Westin Lobby at 12:30 PM and returns at 3 PM***

2:00 – 2:15 **Keynote: Alice Bunn - Director of Policy, UK Space Agency**
2:15 - 3:30  **Research to Operations**  
Chair: Terry Onsager, NOAA/SWPC

2:15  **University of Colorado Space Weather Technology, Research, and Education Center**  
Jeffrey Thayer, University of Colorado

2:30  **Space Weather Forecasting Advancements at the University of Michigan**  
Daniel Welling, University of Michigan

2:45  **Extending Terrestrial Weather R2O/O2R to Space Weather at NASA’s SPoRT Center**  
Brad Zavodsky, NASA

3:00  **Community Coordinated Modeling Center as a Hub for R2O and O2R: Capabilities, Challenges and Opportunities**  
Maria Kuznetsova, NASA GSFC, Community Coordinated Modeling Center

3:15  **Air Force Research Laboratory Space Weather Open Standards and Data Repository Initiatives**  
Michael Starks, Air Force Research Laboratory

3:30 - 4:30  **Break and Poster Session (Magnetosphere Research and Applications)**

4:30 - 5:30  **Space Weather Services for Human Space Exploration**  
Chair: Scott McIntosh, National Center for Atmospheric Research, High Altitude Observatory

4:30  **NASA's Near Term Human Exploration Plans**  
John Guidi, NASA

4:50  **Space Radiation Protection for NASA Exploration Class Missions**  
Kerry Lee, NASA

5:10  **Update on the Worsening Particle Radiation Environment Observed by CRaTER and Implications for Future Human Deep-Space Exploration**  
Nathan Schwadron, University of New Hampshire

Friday, April 20

8:30 – 10:00  **Ionosphere and Thermosphere Modeling and Prediction**  
Chair: Michael Wiltberger, NSF, Geospace Section

8:30  **Why the WAM in WAM-IPE?**  
Tim Fuller-Rowell, University of Colorado, Cooperative Institute for Research in Environmental Sciences

8:45  **Whole Atmosphere Community Climate Model with Thermosphere and Ionosphere Extension (WACCM-X): Model Capabilities and Validation**  
Han-Li Liu, National Center for Atmospheric Research, High Altitude Observatory

9:00  **Global Modeling of Metal Ions in the Ionosphere with SAMI3**  
Joseph Huba, Naval Research Laboratory

9:15  **Private Sector Contributions to Ionospheric Monitoring**  
Geoff Crowley, Atmospheric and Space Technology Research Associates
9:30  **USU GAIM Data Assimilation Models for Space Weather Specifications and Forecasts**  
Robert Schunk, Utah State University

9:45  **OpenGGCM Modeling of SAPS and Related Ionosphere-Thermosphere Phenomena**  
Jimmy Raeder, University of New Hampshire

10:00 - 10:30  **Break**

10:30 – 12:00  **Solar and Magnetosphere Modeling and Prediction**  
Chair: Michele Cash, NOAA/SWPC

10:30  **Toward a New Space Weather Model Suite**  
Slava Merkin, Johns Hopkins University Applied Physics Laboratory

10:45  **NASA GSFC Heliophysics Science Division and Space Weather**  
Antti Pulkkinen, NASA GSFC, Heliophysics Science Division

11:00  **CIMI - Modeling the Inner Magnetosphere**  
Mei-Ching Fok, NASA GSFC, Heliophysics Science Division

11:15  **Geoelectric Field Maps: Progress on NOAA’s Operational Near Real-Time Geoelectric Field Estimation Capability**  
Chris Balch, NOAA/SWPC

11:30  **Forecasting the Arrival Time of Coronal Mass Ejections: Current Capabilities and Uncertainties**  
Peter Riley, Predictive Science Inc.

11:45  **Will There Even Be Sunspot Cycle 25?**  
Scott McIntosh, National Center for Atmospheric Research, High Altitude Observatory

12:00  **Conference Closing Remarks**  
Howard Singer, NOAA/SWPC