# 2017 Space Weather Workshop Agenda (with Presentations)

Omni Interlocken Hotel  
Updated: 5/8/17

### Monday, May 1

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>2:00 - 4:30</td>
<td>Electron Sensor Intercalibration (Alder Boardroom)</td>
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<td>1:30 - 4:30</td>
<td>R2O2R (Research to Operations - Operations to Research) Workshop (Fir Boardroom)</td>
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<td>3:00 - 4:30</td>
<td>Student Workshop - by invitation (Private Dining Room)</td>
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<td>5:00 - 7:00</td>
<td>Welcome Networking Session – Sponsored by Laboratory for Atmospheric and Space Physics (LASP) (Lobby Court)</td>
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### Tuesday, May 2

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tr>
<td>8:30</td>
<td>Conference Welcome</td>
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<tr>
<td></td>
<td>Rodney Viereck, NOAA/SWPC</td>
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<td>8:40 - 10:00</td>
<td>Space Weather Workshop 2017 Kickoff</td>
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<tr>
<td></td>
<td>Chair: Rodney Viereck, NOAA/SWPC</td>
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<tr>
<td>8:40</td>
<td>Current Gaps in Understanding and Predicting Space Weather: An Operations Perspective</td>
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<td></td>
<td>Bill Murtagh, NOAA/SWPC</td>
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<tr>
<td>9:00</td>
<td>Overview of Recent U.S. Government Space Weather Policies</td>
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<td>Seth Jonas, Science and Technology Policy Institute (STPI)</td>
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<td>9:20</td>
<td>Political Perspectives</td>
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<td>Annie Larson, Regional Director- Denver Office of Senator Cory Gardner</td>
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<td>9:40</td>
<td>ESA SSA Space Weather System</td>
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<td>Juha-Pekka Luntama, European Space Agency (ESA)</td>
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<tr>
<td>10:00 - 11:00</td>
<td>Poster Session &amp; Break (Solar and Interplanetary Research and Applications)</td>
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<td>11:00 - 12:30</td>
<td>Economic Impacts</td>
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<td>Chair: Mark Gibbs, UK Met Office</td>
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<td>11:00</td>
<td>Disaster Impact Assessment Methods for Space Weather Critical Infrastructure Failure: Input-Output Approaches and Beyond</td>
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<td>Edward Oughton, Cambridge University</td>
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<tr>
<td>11:15</td>
<td>The Social and Economic Impacts of Space Weather (U.S. Study)</td>
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<td>Stacey Worman, Abt Associates</td>
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<td>11:30</td>
<td>Report on the ESA Space Weather Socio-Economic Study</td>
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<td>Juha-Pekka Luntama, European Space Agency (ESA)</td>
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<tr>
<td>11:45</td>
<td>Quantifying the Daily Economic Impact of Extreme Space Weather Due to Failure in Electricity Transmission Infrastructure</td>
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<td>Edward Oughton, Cambridge University</td>
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<td>12:00 - 12:30</td>
<td>Panel Discussion</td>
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12:30 - 2:00  Lunch SWPC Tour *(Please Note: Tour participants will miss afternoon session talks)*  
*Tour bus departs the Omni Interlocken Lobby at 12:45 PM and returns at 3 PM*

2:00 - 3:40  Executive and Congressional Space Weather Activities  
Chair: Bill Murtagh, NOAA/SWPC

2:00  United States Air Force Space Weather  
Ralph Stoffler, AFW

2:15  The National Weather Service: Agency Update  
Bill Lapenta, NOAA/NWS

2:30  NASA Perspective on R2O: Update  
Steven Clarke, NASA/Heliophysics (Presented by Elsayed Talaat)

2:45  The Office of Infrastructure Protection  
Jack Anderson, DHS

3:00  NSF Perspective on Space Weather R2O  
Paul Shepson, NSF

3:15 - 3:40  Panel Discussion

3:40 - 4:30  Poster Session & Break (Solar and Interplanetary Research and Applications)

4:30 - 5:30  Broader Space Weather Community Perspectives  
Chair: Geoff Crowley, ASTRA

4:30  Architecting the Future to Meet the Nation’s Space Weather Needs  
Dan Baker, LASP

4:50  The Space Weather Development Center: A Proposed Space Weather Community Model Solution  
Dan Welling, University of Michigan

5:10  R2O: A Commercial Perspective  
Conrad Lautenbacher, ACSWA

5:30  End of Session

5:45 - 8:00  11th Annual NOAA/ SWPC - Commercial Space Weather Interest Group (CSWIG)/American Commercial Space Weather Association (ACSWA) Summit Meeting – by invitation
Wednesday, May 3

8:30 - 8:40  **Space Weather Morning Forecast**  
Shawn Dahl, NOAA/SWPC Space Weather Forecasting Office

8:40 - 9:55  **R2O Challenges and Successes**  
Chair: Elsayed Talaat, NASA/Heliophysics

8:40  **NASA LWS and Research to Operations**  
Elsayed Talaat, NASA/Heliophysics

8:55  **The Air Force Research Laboratory and Space Weather R2O**  
Michael Starks, AFRL

9:10  **U.S. Commercial Sector is the R2O2R Testbed**  
W. Kent Tobiska, ACSWA

9:25  **NOAA Space Weather Prediction Center Research to Operations Activities**  
Howard Singer, NOAA/SWPC

9:40  **A Hub for Advancing Science, Collaborative Development & R2O Transition**  
Masha Kuznetsova, NASA/CCMC

9:55 - 11:00  **Poster Session & Break (Ionosphere Research and Applications / General Space Weather Services and Education)**

11:00 - 12:20  **R2O – The End User (O) Perspective**  
Chair: Rodney Viereck, NOAA/SWPC

11:00  **Space Weather Research to Ops Transition: An Industry Perspective**  
Jim Jones, Northrup Grumman

11:20  **Power Grid Impacts**  
Robert Arritt, EPRI

11:40  **Space Weather – An Airline Perspective**  
Tom Fahey, Delta Airlines  
Gary Edwards, Flight Control Special Assignment Supervisor

12:00  **Rail Resilience to Space Weather**  
Leslie McCormack, ATKINS

12:20 - 1:30  **Lunch**

1:30 - 2:50  **Extreme Events**  
Chair: Howard Singer, NOAA/SWPC

1:30  **Extreme Space Weather Events: What Can Solar Magnetic Fields Tell Us?**  
Jon Linker, Predictive Science, Inc. (PSI)

1:50  **Modeling and Understanding Extreme Space Weather**  
Chigomezzyo Ngwira, NASA/CCMC

2:10  **How Might the Thermosphere and Ionosphere React to an Extreme Space Weather Event?**
2:30  **Space Weather Action Plan Goal 1: Benchmarks for Extreme Space Weather Events**  
Rodney Viereck, NOAA/SWPC

2:50 - 3:50  **Poster Session & Break (Ionosphere Research and Applications / General Space Weather Services and Education)**

3:50 - 5:10  **GNSS Radio Occultation and COSMIC II**  
Chair: Terry Onsager, NOAA/SPWC

3:50  **FORMOSAT-7/COSMIC-2 Status Update**  
Wei Serafino, NOAA/NESDIS

4:10  **CICERO – Community Initiative for Continuing Earth Radio Occultation**  
Conrad Lautenbacher, GeoOptics

4:30  **Ionosphere Collection Capability from a 3U CubeSat GNSS-RO Constellation**  
Timothy Duly, Spire

4:50  **Space Weather Data from Commercial GNSS RO**  
Robert Kursinski, PlanetIQ

5:10  **End of Session**

6:00 - 9:00  **Banquet Dinner at Omni Interlocken Ballroom**

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**Special Guest Speaker:**

Dr. Alan Stern, Associate Vice President and Special Assistant to the President, Southwest Research Institute

“The Exploration of Pluto by New Horizons”
Thursday, May 4

8:40 - 9:00  Keynote: The Great Space Weather Storm of May 1967: It’s role in Space Weather as We Know It
Delores Knipp, University of Colorado

9:00 - 10:00  GPS/GNSS and Space Weather I
Chair: Mihail Codrescu, NOAA/SWPC

9:00  Space Weather Impacts on GPS/GNSS
Keith Groves, Boston College

9:20  WAAS Ionospheric Algorithms and Threats
Eric Altschuler, Sequoia Research Center (Presented by Keith Groves)

9:40  GPS/GNSS and Space Weather - Commercial Perspective
Geoff Crowley, ASTRA

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

11:00 - 12:00  GPS/GNSS and Space Weather II
Chair: Keith Groves, Boston College

11:00  Equatorial Scintillation Impact on GNSS Precise Positioning Services
Yahya Memarzedeh, Fugro

11:20  The Positioning Services of the Norwegian Mapping Authority
Knut Jacobsen, NMA

11:40  Ionospheric services for GNSS applications and related research at DLR
Jens Berdermann, DLR (German Aerospace Center)

12:00 - 2:00  Lunch SWPC Tour (Please Note: Tour participants will miss afternoon session talks)
*Tour bus departs the Omni Interlocken Lobby at 12:20 PM and returns at 2:30 PM*

2:00 - 3:40  Space Weather Impacts on Satellites
Chair: Rob Redmon, NOAA/NCEI

2:00  Impact of Space Weather on the Satellite Industry
Janet Green, Space Hazards Applications, LLC

2:20  The AE9/AP9 Radiation and Plasma Environment Models
Bob Johnston, AFRL

2:40  SKYNET - SpaceWx in Operational Practice
Ewan Haggarty, Airbus

3:00  2d Weather Squadron Space Weather Anomaly Assessment Support
Capt Maclane Townsend, DOD

3:20  Space Weather and Launch Vehicles
Ben Griffiths, Ball Aerospace

3:40 - 4:40  Poster Session & Break (Magnetosphere Research and Applications)
4:40 - 5:40  **Satellite Drag**  
Chair: W. Kent Tobiska, Space Environment Technologies (SET)

4:40  **Satellite Tracking and Collision Avoidance (DOD)**  
Capt Fred Schmidt, DOD

5:00  **Reducing Conjunction Analysis Errors with an Assimilative Tool for Satellite Drag Specification**  
Geoff Crowley, ASTRA

5:20  **Neutral Atmospheric Density Modeling and the Conjunction Assessment Problem**  
Matthew Hejduk, Astorum Consulting, LLC

5:40  **End of Session**
Friday, May 5

8:30 - 9:50  **New Data and Missions I**  
Chair: Howard Singer, NOAA/SWPC

8:30  **SafeSky: Developing an Enterprise Strategy for Aviation Radiation Risk Management**  
W. Kent Tobiska, Space Environment Technologies (SET)

8:50  **Space Weather Platforms and Future Capabilities**  
Larry Zanetti, NOAA/NESDIS

Mario Bisi, Science & Technology Facilities Council / RAL Space

9:30  **Space Radiation Crew Protection and Operations for Exploration Missions**  
Ramona Gaza, NASA/SRAG

9:50 - 10:20  **Break**

10:20 - 11:40  **New Data and Missions II**  
Chair: Rodney Viereck, NOAA/SWPC

10:20  **Finally! GOES-16**  
Bill Denig, NOAA/NCEI

10:40  **Advanced Technology in Small Packages Enables Space Weather Nanosatellites**  
Tom Woods, LASP

11:00  **International Space Environment Service – the Global Space Weather Service Network**  
Terry Onsager, NOAA/SWPC

11:20  **Solar Cycle Update**  
Doug Biesecker, NOAA/SWPC

11:40  **Closing Remarks**  
Bill Murtagh, NOAA/SWPC

11:50  **End of Conference**