2017 Space Weather Workshop Agenda (with Presentations)
Omni Interlocken Hotel
Updated: 5/8/17

Monday, May 1

2:00 - 4:30 Electron Sensor Intercalibration (Alder Boardroom)
1:30 - 4:30 R2O2R (Research to Operations - Operations to Research) Workshop (Fir Boardroom)
3:00 - 4:30 Student Workshop - by invitation (Private Dining Room)

5:00 - 7:00 Welcome Networking Session – Sponsored by Laboratory for Atmospheric and Space Physics (LASP) (Lobby Court)

Tuesday, May 2

8:30 **Conference Welcome**
Rodney Viereck, NOAA/SWPC

8:40 - 10:00 **Space Weather Workshop 2017 Kickoff**
Chair: Rodney Viereck, NOAA/SWPC

8:40 **Current Gaps in Understanding and Predicting Space Weather: An Operations Perspective**
Bill Murtagh, NOAA/SWPC

9:00 **Overview of Recent U.S. Government Space Weather Policies**
Seth Jonas, Science and Technology Policy Institute (STPI)

9:20 **Political Perspectives**
Annie Larson, Regional Director- Denver Office of Senator Cory Gardner

9:40 **ESA SSA Space Weather System**
Juha-Pekka Luntama, European Space Agency (ESA)

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

11:00 - 12:30 **Economic Impacts**
Chair: Mark Gibbs, UK Met Office

11:00 **Disaster Impact Assessment Methods for Space Weather Critical Infrastructure Failure: Input-Output Approaches and Beyond**
Edward Oughton, Cambridge University

11:15 **The Social and Economic Impacts of Space Weather (U.S. Study)**
Stacey Worman, Abt Associates

11:30 **Report on the ESA Space Weather Socio-Economic Study**
Juha-Pekka Luntama, European Space Agency (ESA)

11:45 **Quantifying the Daily Economic Impact of Extreme Space Weather Due to Failure in Electricity Transmission Infrastructure**
Edward Oughton, Cambridge University

12:00 - 12:30 **Panel Discussion**

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**
Chigomezyo Ngwira, NASA/CCMC

     2:10   **How Might the Thermosphere and Ionosphere React to an Extreme Space Weather Event?**

Tim Fuller Rowell, CIRES

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 Occulation**
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**

Special Guest Speaker:

**Dr. Alan Stern, Associate Vice President and
Special Assistant to the President, Southwest Research Institute**
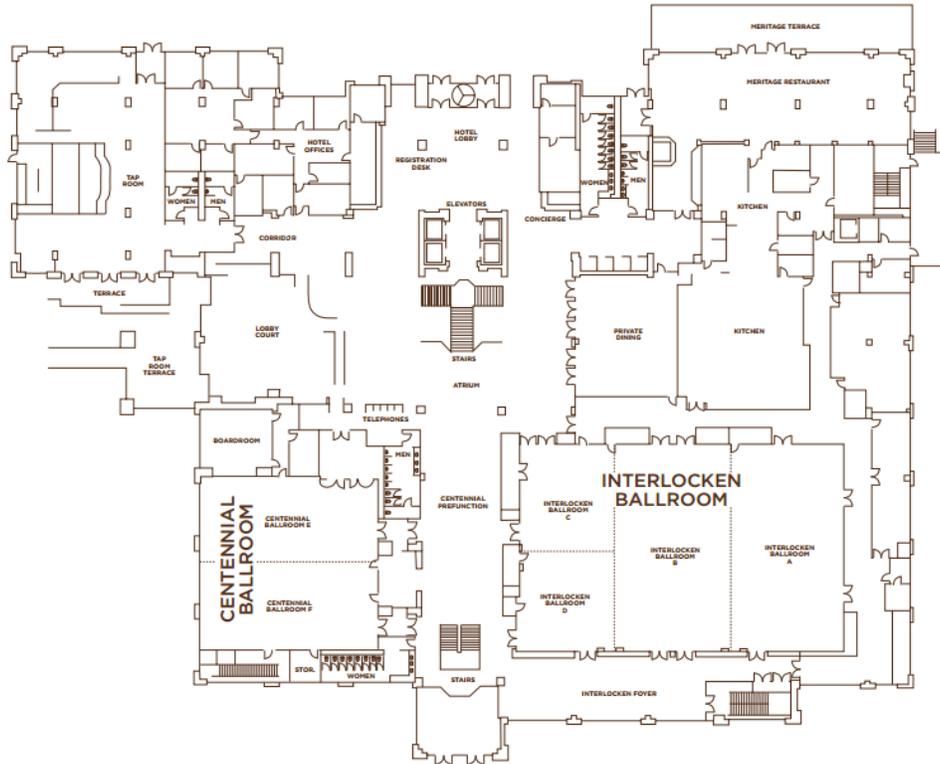
"The Exploration of Pluto by New Horizons"

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   <u>**Satellite Drag**</u>
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

    9:10   **Report on the "L5 in Tandem with L1: Future Space-Weather Missions Workshop" – Steps Toward a L5 Operational SWx Mission**
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**

Interlocken First Floor

MERITAGE TERRACE

MERITAGE RESTAURANT

HOTEL OFFICES

HOTEL LOBBY

REGISTRATION DESK

KITCHEN

TAP ROOM

WOMEN   MEN

WOMEN   MEN

CONCIERGE

CORRIDOR

ELEVATORS

TERRACE

LOBBY COURT

PRIVATE DINING

KITCHEN

TAP ROOM TERRACE

STAIRS

ATRIUM

TELEPHONES

BOARDROOM

MEN

CENTENNIAL BALLROOM E

CENTENNIAL PREFUNCTION

INTERLOCKEN BALLROOM C

INTERLOCKEN BALLROOM

INTERLOCKEN BALLROOM B

INTERLOCKEN BALLROOM A

CENTENNIAL BALLROOM

CENTENNIAL BALLROOM F

INTERLOCKEN BALLROOM D

STOR.   WOMEN

STAIRS

INTERLOCKEN FOYER

Interlocken Garden Level

ELEVATORS

PINE

MOKARA SPA

STAIRS

TO POOL DECK & WATERFALL AREA

CORRIDOR

CONF. OFFICE

WOMEN

MEN

BUSINESS CENTER

HEALTH CLUB

MASSAGE THERAPY

DRY SAUNA

MASSAGE THERAPY

STEAM ROOM

WOMEN

GARDEN FOYER A

ASPEN

FREE WEIGHTS

MEN

SALES OFFICE

A/V ROOM

BIRCH

ALDER

CEDAR

STAIRS

STAIRS

GARDEN FOYER B

STAIRS

SPRUCE

FIR