

Space Weather Operations and Research Infrastructure: A Workshop in Two Parts

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

Space Studies Board

Part 2—Virtual: September 9-11, 2020

Zoom Link (Public) to Join the Meeting (good for all days):

<https://nas-sec.zoomgov.com/j/1604710344?pwd=bW82TmJQVG5Wi8yRFVZMUVP50Zz09>

Link for the Poster Session:

<https://app.smartsheet.com/b/publish?EQBCT=aa3ca07ea0e64872867b784f50ce082e>

Day 1: Wednesday, September 9, 2020

10:00 [Eastern Daylight Time](#)

Welcome/Introductory Remarks

Mary Hudson and Janet Luhmann, Organizing Committee Co-chairs

10:15 **Workshop Objectives for Phase II and Update on U.S. SpaceWx Plans** (15 min each)

Tammy Dickinson, Science Matters Consulting, Session Chair

10:20 Agency Presentations-I (~ 15 min each)

NOAA (Elsayed Talaat), NASA (Nicky Fox) and NSF (Mike Wiltberger, GEO/AGS-Geospace)

11:10 National and International Plans (~ 15 min each)

- Space Weather Operations, Research, and Mitigation (SWORM)
Louis Uccellini, NWS
- US Air Force Plans Lt Col Omar A. Nava, Headquarters, Air Force Weather

- Discussion of pending Congressional legislation to promote space weather research, observations, and forecasting -- Jeff O'Neil, Legislative Director, Rep. Ed Perlmutter, D-CO (to be reconfirmed closer to date)
- Collaboration on Space Weather – David Turner, Acting Director, Office of Space and Advanced Technology, U.S. State Dept.

12:10 Roundtable discussions of morning session presentations

12:50 Break/Lunch/Brunch

01:45 National Priorities

Bill Murtagh, NOAA SWPC, Session Chair - 15 min per person

01:50 Nicole Kinsman, Alaska Regional Advisor, NOAA/NOS/National Geodetic Survey

02:05 Mitigating the Effects of Geomagnetic Storms on the Nation's Bulk Power System
Mark Lauby, Senior Vice President and Chief Engineer, North American Electric Reliability Corporation (NERC)

02:20 Space Weather in NASA's Exploration Campaign
Steve Clarke, Deputy AA, Aeronautics Research Mission Directorate, NASA

02:35 Roundtable discussions on afternoon sessions

03:15 Break

03:40 Poster lightning round -- Ron Turner

Link to the Posters and Short Videos:

<https://app.smartsheet.com/b/publish?EQBCT=aa3ca07ea0e64872867b784f50ce082e>

05:10 Adjourn for day

Day 2, Thursday, September 10, 2020

10:00 [Eastern Daylight Time](#)
Recap/Plans for Day 2

Janet Luhmann and Mary Hudson

10:15 Agency Presentations-II (~ 25 min total)
Steve Volz, NOAA Assistant Administrator for Satellite and Information Services

10:40 The Impact of Space Weather on Space Traffic Management in the NewSpace Era
Ted Muelhaupt, Principal Director,
Center for Orbital and Reentry Debris Studies, The Aerospace Corp. (25 min inc.
discussion)

11:05 Break/Breakfast/Bruch

11:45 Keynote Address: "Space Weather: An Emergency Manager's Perspective"
W. Craig Fugate, Former FEMA Administrator

12:30 Space-based Architectural Framework Panel

Harlan Spence, Univ. of New Hampshire, Session Chair – 20 min/speaker

Topics to include data buys, resiliency, distributed vs. single measurements, and availability of real time measurements to NOAA

12:40 Session Keynote, Space Weather Observing Architectures: A Systems View
Dan Baker, University of Colorado Boulder and Laboratory for
Atmospheric and Space Physics (LASP)

01:10 VADM (ret) Conrad C. Lautenbacher, GeoOptics - Leveraging the Commercial Sector

01:30 Justin Kasper, Director of R&D at BWX Technologies - solar wind particle measurements

01:50 Jerry Goldstein, SwRI - ENA and EUV imaging

02:10 Robyn Millan, Dartmouth College - distributed LCAS, cubesats

02:30 David Malaspina, Univ. of Colorado, Boulder - fields and waves measurements

02:50 Roundtable Discussions

03:30 Break

03:50 Ground-based Measurements Panel

Introductory Remarks by Session Chair, Anthea Coster, MIT Haystack
Observatory

Topics to include data buys, resiliency, distributed vs. single point measurements

04:10 Daniel Eleuterio, ONR Marine Meteorology and Space

04:30 David Boteler, Head, Canadian Space Weather Forecasts Centre (CSWFC)

04:50 Recap/Plans for Day 3 - Janet Luhmann and Mary Hudson

05:10 Adjourn for the day

Day 3, Friday, September 11, 2020

10:00 [Eastern Daylight Time](#)

Ground-based Measurements Panel – Continued from Day 2

Anthea Coster, MIT Haystack Observatory, Session Chair

Topics to include data buys, resiliency, distributed vs. single point measurements

10:10 Michael Starks, AFRL (VLF and RF propagation)

10:30 Valentin Pillet, Director NSO (inc. NSO synoptic programs, DKIST)

10:50 Tim Bastian, NRAO (inc. solar radio)

11:10 Josh Semeter, Boston Univ. (inc. ionosondes, optical, GNSS)

11:30 Jenn Gannon, Computational Physics, Inc. (inc. ground-based magnetometers)

11:50 Roundtable discussion

12:30 Break/Brunch/Lunch

01:15 **Architectural framework panel—supporting R&A**

Opening remarks by session chair, Pete Riley, PSI Inc.

01:20 Modeling, ensemble modeling and data assimilation, and OSSEs

Brian Gross, Dir. NOAA Environmental Modeling

01:40 Machine learning in Heliophysics - Monica Bobra, Stanford Univ.

02:00 Techniques for data-model comparison - Leila Mays, Dep. Director, CCMC

02:20 Transitioning research models to operations - Gabor Toth, Univ. of Michigan

02:40 Roundtable Discussion

03:10 Break

03:20 Summary of panel led discussions, prioritization and value to society

Group Discussion and Q&A with all participants

04:00 Open meeting adjourns; Committee continues discussion in closed session

05:30 Meeting Adjourns