SEASONS 2023 CONFERENCE

Agenda

Tuesday, November 7, 2023 (Held at the **UNCLASSIFIED/Distribution A** level)

0720	Check-in Opens
0720-0810	Continental Breakfast

Session 1: National Perspectives on Operational Space Weather	
0805-1030	**Opening Remarks** *Dr. Matthew Grawe* *SEASONS Conference Chair* *Johns Hopkins Applied Physics Laboratory (JHU/APL)* **JHU/APL Introduction** *Dr. Bobby Braun* *Sector Head, Space Exploration Sector* *Johns Hopkins Applied Physics Laboratory (JHU/APL)* **Keynote: U.S. Commitments to Space Weather** *Dr. Ezinne Uzo-Okoro* *Assistant Director for Space Policy* *Office of Science and Technology Policy* *The White House* **Keynote** *Dr. Genene Fisher* *Program Scientist* *Space Weather Program, Heliophysics Division* *NASA* **Keynote** *Dr. Elsayed Talaat* *Director* *Office of Space Weather Observations* *NOAA* NASA Goddard Space Flight Center Space Weather Priorities and Activities *Antti Pulkkinen, NASA GSFC* Preview of Space Weather Tabletop Exercise *Dipak Srinivasan, JHU/APL*

1030-1050	Break

Tuesday, November 7, 2023 (Held at the **UNCLASSIFIED/Distribution A** level)
Continued

Session 2: Commercial Space and Solar Max: Are we ready for what is coming?	
1050-1200	**Panel Chair:** *Kenneth Rock, Director, Space Network Engineering, Iridium* **Panel Members:** *Sarah Vines, JHU/APL* *Darren McKnight, LeoLabs* *Chris McCormick, PlanetIQ* *Ryan Shepperd, Iridium* *Justin Spurbeck, Maxar*

1200-1300	Lunch

Session 3: Space Weather Tools, Models, and Effects	
1300-1440	SDA Environmental Toolkit for Defense (SET4D) Update *Jeffery Cox, The Aerospace Corporation* The Space Weather Operational Readiness Development (SWORD) Center of Excellence – A new NASA program for orbital and cis-lunar space weather research *Thomas Berger, University of Colorado Boulder* PERIGEON: A Versatile Mission Architecture to Enable Actionable Space Weather Forecasts and Situational Awareness of the near-Earth Space *Angelos Vourlidas, JHU/APL* Satellite Anomaly Forecast and Assessment Tools: the LEAF Suite and the Hazard Assessment Flowcharts *Alexander Boyd, The Aerospace Corporation* A Methodology to Predict the Geomagnetic Field in the Polar Region with Confirmatory Evidence from Greenland *Kevin Forbes, Energy and Environmental Data Science*

1440-1500	Break

Session 3: (continued) Space Weather Tools, Models, and Effects	
1500-1620	On High-latitude GPS Scintillations: Plasma Flows and Operational Effect *Jason Derr, United States Military Academy* Improved Spacecraft Trajectory Prediction Using Physics-based Density Estimates *Author: Sarthak Srivastava, AGI* *Presenter: Alexis Wall, AGI* Center for Geospace Storms: Transforming the Understanding and Predictability of Space Weather *Slava Merkin, JHU/APL* NAIRAS Ionizing Radiation Environment Model *Christopher Mertens, NASA Langley Research Center*

Tuesday, November 7, 2023 (Held at the **UNCLASSIFIED/Distribution A** level) Continued

Session 4: Student Lightning Talks	
1620-1645	Modeling X-ray Interactions on the Solid-state Energetic Electron Detector (FalconSEED) Using OpenMC *Braden Helpling, USAFA* Analysis of Navigation Solution Parameters Affected by High-latitude Ionospheric Scintillation *Mason Bay, Stephen Litterini, and Natane Randall, United States Military Academy*

ARMOUR-X Demonstration	
1645-1700	*Ralph Siegrist, JHU/APL*

Session 5: Poster Session and Reception	
1700-1800	SFS: A Solar SEP Prediction Tool *Kevin Lind* *AER/Verisk* Indices and Geomagnetic Storm Identification *Jack Brewster, Furman University* *Eric Rodriguez, United States Military Academy* Geostationary VLEO relay of VHF/UHF Signals From Any Latitude With the Ground-based Enhanced Thermo-Scatter System (ETSS) *Christopher Fallen* *Fourth State Communications, LLC* Internal Charging versus the Electron Environment as Seen by Van Allen Probes *Tom Sotirelis, JHU/APL* *Kiley Yeakel, MIT/LL* *Mike Kelly, JHU/APL* *Justin Likar, JHU/APL* Sun Radio Interferometer Space Experiment (SunRISE): Targeting Solar Maximum for Scientific Observations with a Constellation of Small Satellites *Ryan Martineau and Tim Neilsen* *Space Dynamics Laboratory*

Banquet	
1800-2000	**Speaker:** *Dr. James Spann* *Senior Scientist for Space Weather* *NOAA NESDIS*

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Wednesday, November 8, 2023 (Held at the **SECRET//NOFORN** level)

0730	Check-in Opens
0730-0825	Continental Breakfast

Session 6: DoD Space Weather Operations	
0820-1010	**Opening Remarks** *Dr. Matthew Grawe* *SEASONS Conference Chair* *Johns Hopkins Applied Physics Laboratory (JHU/APL)* **JHU/APL Welcome** *Dr. Patrick Binning* *Mission Area Executive, National Security Space* *Johns Hopkins Applied Physics Laboratory (JHU/APL)* **Keynote: USAF Space Weather Priorities and Opportunities** *Col. Patrick Williams,* *Director of Weather, Deputy Chief of Staff for Operations, Headquarters U.S. Air Force* Ionospheric Prediction and Sensing for Naval Applications *Clayton Coker and Sarah McDonald, NRL* USSPACECOM Environmental Monitoring Effects *Joseph Johnson, USSPACECOM J85*

1010-1030	Break

Session 7: SET4D / UDL	
1030-1200	**Panel Moderator:** *John Hicks, JHU/APL* **Panel Chair:** *Bryan Davis* **Panel Members:** *Sage Andorka, USSF SSC* *Bryan Davis, USSF SSC* *Jeffery Cox, The Aerospace Corporation* *Jennifer Benson, USAF 2 WS* *Aaron Lucas, PERATON*

1200-1300	Lunch

Wednesday, November 8, 2023 (Held at the **SECRET//NOFORN** level)
Continued

Session 8: Sensing and Forecasting (Arctic and Launch Applications)	
1300-1440	Modeling OTHR at High Latitudes *Brian Tennyson, The MITRE Corporation* U.S. Navy Polar Regional Ionospheric Sensing & Modeling (PRISM) Overview *Bruce Fritz, Office of Naval Research* Auroral Modeling for Satellite Drag Prediction *Tom Sotirelis, JHU/APL* Forecasting Solar Energetic Particle Events *Stephen White, AFRL* Planning REACH Data Products *Kerry Lee, Aerospace*

1440-1500	Break

Session 9: Space Weather Operations to Research	
1500-1700	Designing Space Weather Resilience into Warfighter Kill Chains *James Griffin, AER* Single-Pass Drag Perturbation Measurements on a Cooperative VLEO Satellite *Lulu Liu, MIT Lincoln Laboratory* HF Propagation Studies Enabled by VLEO Measurements *Ethan Miller, STR* Effects of the Arctic Environment on RF Propagation *Thomas Hanley, JHU/APL*

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Thursday, November 9, 2023 (Held at the **TOP SECRET//SI/TK//NOFORN** level)

0730	Sign-in
0730-0830	Continental Breakfast

Session 10: Operationalizing vLEO: Benefits, Challenges and the Threat	
0830-1000	**Panel Chair**: *Dr. Matthew Zuber, JHU/APL* **Panel Members:** *Dr. Iain Boyd, Center for National Security Initiatives, University of Colorado* *Mr. Stephen Forbes, DARPA* *Mr. Christopher Petersen, NSIC* *Mr. Craig Gravelle, General Atomics*

1000-1020	Break

Session 11: SCI Topics	
1020-1300	Pizza lunch served at 12:00 PM