MIT HAYSTACK OBSERVATORY

AGU 2024 FALL MEETING HAYSTACK PROGRAM

MONDAY 9 DECEMBER 2024

08:30-12:20 Board 2650, Hall B-C (Poster Hall)

AE11A-2650: CASPER Toolflow Based FPGA Design for Lightning Radio Interferometers

Authors: Ningyu Liu, University of New Hampshire Main Campus (First Author, Presenting Author) Stephen Horn, University of New Hampshire Main Campus **Frank Lind, MIT Haystack Observatory** Mark Stanley, New Mexico Institute of Mining and Technology Joseph Dwyer, University of New Hampshire

08:30-12:20 Board 2710, Hall B-C (Poster Hall)

SA11E-2710: Beyond F10.7: Advantage of using FISM2 over F10.7 for empirical modelling of F2 peak electron density

Authors: **Dupinder Singh, MIT Haystack Observatory** (First Author, Presenting Author)**Larisa Goncharenko, MIT Haystack Observatory** Ivan Galkin, Space Science Laboratory, University of Massachusetts Lowell Phillip Chamberlin, University of Colorado Fermin Redondo, Clemson University

08:30-12:20 Board 2721, Hall B-C (Poster Hall)

SA11E-2721: Making Amateur Radio Data Available for Ionospheric Research

Authors: William Engelke, University of Alabama (First Author, Presenting Author)Nathaniel Frissell, The University of Scranton Travis Atkison, The University of Alabama **Philip Erickson, MIT Haystack Observatory William Rideout, MIT Haystack Observatory Katherine Cariglia, MIT Haystack Observatory**

08:52-09:02 Liberty L

SA11A-03: A Low-Cost Low-Power Chirp Ionosonde for Studying Eclipse Ionospheric Impacts

Authors: Gerard Piccini, The University of Scranton (First Author, Presenting Author)Robert McGwier, The University of Scranton Robert Spalletta, The University of Scranton Nathaniel Frissell, The University of Scranton Majid Mokhtari, University of Scranton **Philip Erickson, MIT Haystack Observatory**

13:40-17:30 Board 0503, Hall B-C (Poster Hall)

C13A-0503: Atmospheric turbulence on the Ross Ice Shelf, Antarctica, during the January 2016 melting event

Authors: **Dhiman Mondal, MIT Haystack Observatory** (First Author, Presenting Author) **Pedro Elosegui, MIT Haystack Observatory** Scott Paine, Harvard-Smithsonian Center for Astrophysics

16:58-17:08 Liberty M

SM14A-06: Traveling Ionospheric Disturbances (TIDs) pattern recognition using Deep Learning models

Authors: Purbita Chatterjee, University of Texas at Arlington (First Author, Presenting Author)Mingwu Jin, University of Texas Arlington **Shunrong Zhang, MIT Haystack Observatory** Yue Deng, University of Texas Arlington

17:20-17:30 Ballroom A

U14A-08: HamSCI Festivals of Eclipse Ionospheric Science: Creating an International Community of Volunteers to Study the Ionospheric Impacts of the 2023/2024 North American Solar Eclipses and Beyond (invited)

Authors: Nathaniel Frissell, The University of Scranton (First Author, Presenting Author)Devin Diehl, University of Scranton Rachel Frissell, The University of Scranton Majid Mokhtari, University of Scranton Robert McGwier, The University of Scranton Cuong Nguyen, The University of Scranton Gerard Piccini, The University of Scranton Alexandros Papadopoulos, The University of Scranton Jonathan Rizzo, The University of Scranton Simal Sami, The University of Scranton Rachel Boedicker, Case Western Reserve University Robert Spalletta, The University of Scranton John Gibbons, Case Western Reserve University Adam Goodman, Case Western Reserve University David Kazdan, Case Western Reserve University Laura Schwartz, Case Western Reserve University Shashank Sastry, Case Western Reserve University Maris Usis, Case Western Reserve University Christian Zorman, Case Western Reserve University William Engelke, The University of Alabama Travis Atkison, The University of Alabama Hyomin Kim, New Jersey Institute of Technology Gareth Perry, New Jersey Institute of Technology Kuldeep Pandey, New Jersey Institute of Technology Kristina Collins, Space Science Institute David McGaw, Dartmouth College **Philip Erickson, MIT Haystack**

Observatory Joseph Huba, Syntek Technologies Mary West, Montclair State University Philip Gladstone, PSKReporter John Ackermann, HamSCI Steve Cerwin, HamSCI William Blackwell, HamSCI Cameron Cushing, HamSCI McKenzie Denton, HamSCI Edward Efchak, HamSCI Paul Elliott, HamSCI Gwyn Griffiths, HamSCI Phil Karn, Past President, Amateur Radio Digital Communications Nick Hall-Patch, HamSCI David Larsen, HamSCI George Kavanagh, HamSCI William Liles, HamSCI Thomas McDermott, HamSCI Jesse McMahan, HamSCI Gary Mikitin, HamSCI Peter Nordberg, HamSCI Adarsh Pashikanti, HamSCI Gregory Popelas, HamSCI Stanley Pozerski, HamSCI Robert Reif, HamSCI Rob Robinett, HamSCI H. Silver, HamSCI Jay Schwartz, HamSCI Franco Venturi, HamSCI David Witten, WWR Development Ronald Wilcox, HamSCI Gamal Zayed, HamSCI

TUESDAY 10 DECEMBER 2024

08:30-12:20 Board 3557, Hall B-C (Poster Hall)

G21C-3557: Mixed-mode VLBI Observations: Implications for Terrestrial Reference Frame Stability

Authors: **Dhiman Mondal, MIT Haystack Observatory** (First Author, Presenting Author) **Pedro Elosegui, MIT Haystack Observatory Chester Ruszczyk, MIT Haystack Observatory** Frank Lemoine, NASA Goddard GSFC Dirk Behrend, NVI, Inc./ NASA GSFC

08:30-12:20 Board 2592, Hall B-C (Poster Hall)

SA21B-2592: A Multi-Year Climatology of 14 MHz Amateur Radio Large-Scale Traveling Ionosphere Disturbances Made Using a Novel Automated Detection Technique

Authors: Diego Sanchez, The University of Scranton (First Author, Presenting Author)Nathaniel Frissell, The University of Scranton Mary West, Montclair State University V Lynn Harvey, Laboratory for Atmospheric and Space Physics Sharon Vadas, NorthWest Research Associates Erich Becker, NorthWest Research Associates **Larisa Goncharenko, MIT Haystack Observatory** Gareth Perry, New Jersey Institute of Technology William Engelke, The University of Alabama Nicholas Callahan, University of Alabama Travis Atkison, The University of Alabama **Philip Erickson, MIT Haystack Observatory** Robert Gerzoff, HamSCI

08:30-12:20 Board 2599, Hall B-C (Poster Hall)

SA21B-2599: Observing Plasma Disturbances using Incoherent Scatter Radar Techniques and the Modern Millstone Hill L-band Radar

Authors: Amoree Hodges, MIT Lincoln Laboratory (First Author)Jonathan Parham, MIT Lincoln Laboratory Mark Dickson, MIT Lincoln Laboratory **Philip Erickson, MIT Haystack Observatory Frank Lind, MIT Haystack Observatory Ryan Volz, MIT Haystack Observatory John Swoboda, MIT Haystack Observatory** (Presenting Author)

08:30-12:20 Board 2632, Hall B-C (Poster Hall)

SA21D-2632: Low Earth Orbit Satellite Constellation Effects on Large Aperture Ionospheric Radar Space Weather Observations: Impacts and Mitigation

Authors: **Ryan Volz, MIT Haystack Observatory** (First Author)Juha Vierinen, The Arctic University of Norway **Philip Erickson, MIT Haystack Observatory** (Presenting Author)**William Rideout, MIT Haystack Observatory**

08:30-12:20 Board 2697, Hall B-C (Poster Hall)

SM21C-2697: Isolating Geospace Responses to the April 8th, 2024 Solar Eclipse Using High-Resolution Machine Learning Models and Geophysical Indices

Authors: Mateo Cardona Serrano, **MIT Haystack Observatory** (First Author, Presenting Author) **Sevag Derghazarian, MIT Haystack Observatory** **Larisa Goncharenko, MIT Haystack Observatory** **Shunrong Zhang, MIT Haystack Observatory** **Dupinder Singh,** Indian Institute of Geomagnetism

11:40-11:50 Independence E

SA22A-09: Exploring Gravity Waves and Lamb Waves in the Upper Atmosphere Induced by the Tonga Volcanic Eruption

Authors: Ruoxi Li, USTC University of Science and Technology of China (First Author, Presenting Author)Jiuhou Lei, Univ. of Sci. & Tech. of Chin **Shunrong Zhang, MIT Haystack Observatory**

11:40-11:50 Liberty I-K

SM22A-09: Observations of Ion Populations from the KiNET-X Sounding Rocket Mission

Authors: Magdalina Moses, Dartmouth College (First Author, Presenting Author)Kristina Lynch, Dartmouth College Peter Delamere, University of Alaska Fairbanks Robert Pfaff, NASA/GSFC Donald Hampton, University of Alaska Fairbanks Marc Lessard, University of New Hampshire Nathan Barnes, University of Alaska Fairbanks **Philip Erickson, MIT Haystack Observatory**

13:40-17:30 Board 2683, Hall B-C (Poster Hall)

SA23C-2683: Non-local Connections Between Stratospheric Gravity Waves, Stratospheric and Mesospheric Winds and Medium Scale Traveling Ionospheric Disturbances

Authors: **Sevag Derghazarian, MIT Haystack Observatory** (First Author, Presenting Author) **Larisa Goncharenko, MIT Haystack Observatory** **Shunrong Zhang, MIT Haystack Observatory** **Anthea Coster, MIT Haystack Observatory** V Lynn Harvey, Laboratory for Atmospheric and Space Physics Cora Randall, University of Colorado at Boulder

15:00-15:10 Independence E

SA23D-05: Separation of Disturbances from Natural and Anthropogenic Sources in the Ionosphere above Ukraine

Authors: **Larisa Goncharenko, MIT Haystack Observatory** (First Author, Presenting Author) **Sevag Derghazarian, MIT Haystack Observatory** **Nestor Aponte, MIT Haystack Observatory** Sergii Panasenko, Institute for Near-Earth Space Research, National Technical University 'Kharkiv Polytechnic Institute' Dmytro Kotov, Institute for Near-Earth Space Research, National Technical University 'Kharkiv Polytechnic Institute' Oleksandr Bogomaz, Institute for Near-Earth Space Research, National Technical University 'Kharkiv Polytechnic Institute' **Shunrong Zhang, MIT Haystack Observatory** **Anthea Coster, MIT Haystack Observatory** Larry Paxton, The Johns Hopkins University Applied Physics Laboratory Vadym Skipa, Institute for Near-Earth Space Research, National Technical University 'Kharkiv Polytechnic Institute' Maryna Reznychenko, Institute for Near-Earth Space Research, National Technical University 'Kharkiv Polytechnic Institute' V Lynn Harvey, Laboratory for Atmospheric and Space Physics Sharon Vadas, NorthWest Research Associates

15:10-15:20 Independence E

SA23D-06: Impacts of Thunderstorm-Generated Gravity Waves on the Ionosphere-Thermosphere using TIEGCM-NG/MAGIC Simulations and Comparisons with GNSS TEC, ICON and COSMIC-II Observations

Authors: Xian Lu, Clemson University (First Author, Presenting Author) Haonan Wu, National Center for Atmospheric Research Christopher Heale, Embry-Riddle Aeronautical University Scott England, Virginia Polytechnic Institute and State University **Shunrong Zhang, MIT Haystack Observatory**

16:42-16:52 Liberty L

SH24B-05: Scintillation Forecast Products from the SPAce weather Research and Technology Applications (SPARTA) Center of Excellence and Transition to Operations

Authors: Keith Groves, Boston College, Institute for Scientific Research (First Author, Presenting Author) **Anthea Coster, MIT Haystack Observatory** Timothy Fuller-Rowell, Univ of Colorado/CIRES David Hysell, Cornell University P. T. Jayachandran, University of New Brunswick, Faculty of Science Jade Morton, University of Colorado Boulder Toshi Nishimura, Boston University John Retterer, Boston College Endawoke Yizengaw, The Aerospace Corporation

16:52-17:02 Liberty L

SH24B-06: Scintillation Measurements in the CEDAR Madrigal Database in support of SPARTA

Authors: **Anthea Coster, MIT Haystack Observatory** (First Author, Presenting Author) **Nestor Aponte, MIT Haystack Observatory** Yang Wang, University of Colorado Boulder Keith Groves, Boston College, Institute for Scientific Research Kathleen Kraemer, Boston College Jade Morton, University of Colorado Boulder **Shunrong Zhang, MIT Haystack Observatory**

17:06-17:16 Independence E

SA24A-06: DYNAMIC—A Mission Concept to Reveal Critical Link Between Earth‚Äôs Atmosphere and Space

Authors: Tomoko Matsuo, Ann and H.J. Smead Aerospace Engineering Sciences, University of Colorado Boulder (First Author, Presenting Author)**Larisa Goncharenko, MIT Haystack Observatory** Olga Verkhoglyadova, NASA Jet Propulsion Laboratory Jeng-Hwa Yee, Johns Hopkins University Applied Physics Laboratory Larry Paxton, Johns Hopkins University Applied Physics Laboratory Jens Oberheide, Clemson University Hanli Liu, National Center for Atmospheric Research Brian Drouin, NASA Jet Propulsion Laboratory Mark Conde, University of Alaska Fairbanks Clayton Cantrall, Johns Hopkins University Applied Physics Laboratory Katrina Bossert, Arizona State University

WEDNESDAY 11 DECEMBER 2024

08:30-12:20 Board 2466, Hall B-C (Poster Hall)

SA31D-2466: Quantitative Analysis on the Role of Downward Plasma Diffusion in the Ionospheric Winter Nighttime Enhancement and Weddell Sea Anomaly

Authors: Quanhan Li, National Space Science Center, Chinese Academy of Sciences (First Author, Presenting Author) Maosheng He, National Space Science Center, Chinese Academy of Sciences Wenbin Wang, National Center for Atmospheric Research **Shunrong Zhang, MIT Haystack Observatory** Liying Qian, National Center for Atmospheric Research **Ercha Aa, MIT Haystack Observatory**

08:30-12:20 Board 2472, Hall B-C (Poster Hall)

SA31E-2472: Amateur Radio Communications Showed the Tonga Blast, a Driver from Below

Authors: Mary West, Montclair State University (First Author, Presenting Author)Diego Sanchez, The University of Scranton Nathaniel Frissell, The University of Scranton William Engelke, The University of Alabama Rob Robinett, HamSCI **Sevag Derghazarian, MIT Haystack Observatory**

08:30-12:20 Board 2476, Hall B-C (Poster Hall)

SA31E-2476: First Observations Linking Large-Scale Traveling Ionospheric Disturbances to Polar Vortex Strength

Authors: Nathaniel Frissell, The University of Scranton (First Author, Presenting Author) V Lynn Harvey, Laboratory for Atmospheric and Space Physics Erich Becker, NorthWest Research Associates Sophie Phillips, Arizona State University Katrina Bossert, Arizona State University **Sevag Derghazarian, MIT Haystack Observatory** **Larisa Goncharenko, MIT Haystack Observatory** **Philip Erickson, MIT Haystack Observatory** Mary West, Montclair State University Gareth Perry, New Jersey Institute of Technology Diego Sanchez, The University of Scranton William Engelke, The University of Alabama Nicholas Callahan, University of Alabama Travis Atkison, The University of Alabama Robert Gerzoff, HamSCI Devin Diehl, University of Scranton Richard Collins, University of Alaska Fairbanks Sharon Vadas, NorthWest Research Associates J. Michael Ruohoniemi, Virginia Polytechnic Institute and State University Joseph Baker, Virginia Tech

08:30-12:20 Board 2478, Hall B-C (Poster Hall)

SA31E-2478: Global GNSS Observations of Medium Scale Ionospheric Irregularities over a Full Solar Cycle

Authors: **Shunrong Zhang, MIT Haystack Observatory** (First Author, Presenting Author)**Jing Liu, MIT Haystack Observatory** **Philip Erickson, MIT Haystack Observatory** **Anthea Coster, MIT Haystack Observatory** **Larisa Goncharenko, MIT** **Sevag Derghazarian, MIT Haystack Observatory**

08:30-12:20 Board 2485, Hall B-C (Poster Hall)

SA31E-2485: Poleward Motion of Nighttime Medieum-scale Ionospheric Disturbances at Middle Latitudes over China, North America, and Europe

Authors: Wei Wang, National Space Science Center, Chinese Academy of Sciences (First Author, Presenting Author) Jiaojiao Zhang, National Space Science Center, Chinese Academy of Sciences **Shunrong Zhang, MIT Haystack Observatory** Chi Wang, NSSC, CAS

08:30-12:20 Board 2488, Hall B-C (Poster Hall)

SA31E-2488: Statistical Analysis of the Medium-Scale Traveling Ionospheric Disturbances over the American Longitude Sector

Authors: **Jing Liu, MIT Haystack Observatory** (First Author, Presenting Author)**Shunrong Zhang, MIT Haystack Observatory** Hanli Liu, NCAR

08:40-08:50 Independence E

SA31B-02: Imaging the May 2024 Extreme Aurora with Ionospheric Total Electron Content and Distributed Ground-Based Instrumentation (invited)

Authors: John Foster, MIT Haystack Observatory (First Author) Anthea Coster, MIT Haystack Observatory Philip Erickson, MIT Haystack Observatory (Presenting Author)Toshi Nishimura, Boston University Shunrong Zhang, MIT Haystack Observatory Daniel Bush, Missouri Skies

09:40-09:50 Independence E

SA31B-08: Interhemispheric asymmetries in low latitude plasma distribution as seen in observations and models

Authors: Astrid Maute, University of Colorado, Boulder (First Author, Presenting Author) **Dupinder Singh,** Indian Institute of Geomagnetism Joseph Huba, Syntek Technologies **Anthea Coster, MIT Haystack Observatory** Chihoko Cullens, University of California Berkeley Jeffrey M Forbes, University of Colorado at Boulder Garima Malhotra,

10:20-11:50 Screen 0008, eLightning Theater 1

A32H-08: Long-term trends in NmF2/hmF2 related to secular variation of Earth's main magnetic field

Authors: **Dupinder Singh, MIT Haystack Observatory** (First Author, Presenting Author)**Shunrong Zhang, MIT Haystack Observatory Larisa Goncharenko, MIT Haystack Observatory**

10:30-10:40 Independence E

SA32A-02: Simulation of Nighttime Medium-Scale Traveling Ionospheric Disturbances in the Midlatitude Ionosphere During Stormtime

Authors: Xiaochuan Wang, University of Science and Technology of China (First Author)Jiuhou Lei, Univ. of Sci. & Tech. of Chin (Presenting Author) **Shunrong Zhang, MIT Haystack Observatory** Zezhong Li, University of Science and Technology of China Tong Dang, University of Science and Techonology Xiaoli Luan, University of Science and Tech Xiankang Dou, USTC University of Science and Technology of China

11:10-11:20 Independence E

SA32A-06: Southward Flow in Subauroral Region Observed from Newly Constructed Chinese SuperDARN Radars

Authors: Jiaojiao Zhang, National Space Science Center, Chinese Academy of Sciences (First Author, Presenting Author)Wei Wang, National Space Science Center, Chinese Academy of Sciences Jiyao Xu, National Space Science Center, Chinese Academy of Sciences Chi Wang, National Space Science Center, Chinese Academy of Sciences J. Michael Ruohoniemi, Virginia Polytechnic Institute and State University Nozomu Nishitani, ISEE, Nagoya University **Shunrong Zhang, MIT Haystack Observatory** Tong Dang, University of Science and Techonology Xiang-Yu Wang, Institute of Space Sciences, Shandong University Qing-He Zhang, Institute of Space Sciences

13:40-17:30 Board 3360, Hall B-C (Poster Hall)

G33A-3360: Monitoring Atmospheric Water Vapor Cost-Effectively Using GNSS Tomographic Methods (highlighted)

Authors: Pedro Mateus, Instituto Dom Luiz, Faculdade de Cincias, Universidade de Lisboa (First Author, Presenting Author)Virgilio Mendes, Instituto Dom Luiz, Faculdade de Cincias, Universidade de Lisboa Pedro Miranda, Instituto Dom Luiz, Faculdade de Cincias, Universidade de Lisboa **Dhiman Mondal, MIT Haystack Observatory Pedro Elosegui**

13:40-17:30 Board 2501, Hall B-C (Poster Hall)

SA33A-2501: Electromagnetic Vector Sensor Ionospheric Sounder (EMVSIS)

Authors: **John Swoboda, MIT Haystack Observatory** (First Author, Presenting Author)**Ryan Volz, MIT Haystack Observatory** Juha Vierinen, The Arctic University of Norway **Frank Lind, MIT Haystack Observatory**

13:40-17:30 Board 2523, Hall B-C (Poster Hall)

SA33B-2523: The high latitude ionospheric response to the major May 2024 geomagnetic storm: A synoptic view

Authors: David Themens, University of Birmingham (First Author, Presenting Author)Sean Elvidge, University of Birmingham Anthony McCaffrey, University of New Brunswick P. T. Jayachandran, University of New Brunswick, Faculty of Science **Anthea Coster, MIT Haystack Observatory** Roger Varney, National Center for Atmospheric Research Ivan Galkin, Borealis Global Designs Lindsay Goodwin, New Jersey Institute of Technology Christopher Watson, University of New Brunswick Sophie Maguire, University of Birmingham Andrew Kavanagh, NERC British Antarctic Survey **Shunrong Zhang, MIT Haystack Observatory** **Larisa Goncharenko,** MIT Asti Bhatt, SRI International Gareth Dorrian, University of Birmingham Keith Groves, Boston College, Institute for Scientific Research Benjamin Reid, University of New Brunswick Alan Wood, University of Birmingham

THURSDAY 12 DECEMBER 2024

10:20-11:50 Independence E

Authors: Primary Convener:Sana Salous, Durham UniversityConvener:**Anthea Coster, MIT Haystack Observatory**D. Sarah Stamps, Virginia TechJohn Bosco Habarulema, South African National Space AgencyChair:Sana Salous, Durham University**Anthea Coster, MIT Haystack Observatory**D. Sarah Stamps, Virginia TechJohn Bosco Habarulema, South African National Space Agency

13:40-17:30 Board 2797, Hall B-C (Poster Hall)

SA43B-2797: The Role of Ionospheric and Magnetospheric Processes in the Formation and Intensification of SAPS

Authors: Banafsheh Ferdousi, Air Force Research Laboratory (First Author, Presenting Author)Joachim Raeder, University of New Hampshire William Cramer, University of New Hampshire **Philip Erickson, MIT Haystack Observatory** Naomi Maruyama, University of Colorado **Ercha Aa, MIT Haystack Observatory**

13:40-17:30 Board 2810, Hall B-C (Poster Hall)

SA43C-2810: High-Latitude L-band Scintillation Characteristics during the 2024 Gannon Storm

Authors: Sebastijan Mrak, Johns Hopkins University Applied Physics Laboratory (First Author, Presenting Author)Toshi Nishimura, Boston University **Anthea Coster, MIT Haystack Observatory** Jade Morton, University of Colorado Boulder Jim Conroy, Applied Physics Laboratory Johns Hopkins Clayton Cantrall, University of Colorado Boulder Patrick Dandenault, Johns Hopkins University Robert Schaefer, Johns Hopkins University Applied Physics Laboratory Cathryn Mitchell, University of Bath

13:40-17:30 Board 2816, Hall B-C (Poster Hall)

SA43C-2816: Observations of ionospheric irregularities and scintillation made by ScintPi monitors distributed over the US during the 10-11 May 2024 superstorm

Authors: Fabiano Rodrigues, University of Texas at Dallas (First Author, Presenting Author)Isaac Wright, University of Texas at Dallas Josemaria Gomez Socola, University of Texas at Dallas Nathaniel Frissell, The University of Scranton Simon Shepherd, Dartmouth College **Philip Erickson, MIT Haystack Observatory** Dan Layne, Deep Space Exploration Society Jonathan Makela, University of Illinois Urbana-Champaign Ludger Scherliess, Utah State Univ Jan Sojka, Center for Atmospheric and Space Sciences, Utah State University Kshitija Deshpande, Embry-Riddle Aeronautical University Michael Hauan, Citizen Scientist

16:17-16:32 Independence E

SA44A-02: Multi-Instrument Analysis of Ionospheric Perturbations Caused by the April 8, 2024 Solar Eclipse (invited)

Authors: **Larisa Goncharenko, MIT Haystack Observatory** (First Author, Presenting Author)**Shunrong Zhang, MIT Haystack Observatory Anthea Coster, MIT Haystack Observatory Philip Erickson, MIT Haystack Observatory Nestor Aponte, MIT Haystack Observatory Sevag Derghazarian, MIT Haystack Observatory Dupinder Singh, MIT Haystack Observatory** Mateo Cardona Serrano, University of California Berkeley Juha Vierinen, The Arctic University of Norway **Ercha Aa, MIT Haystack Observatory William Rideout, MIT Haystack Observatory**

16:32-16:42 Independence E

SA44A-03: Results from the Atmospheric Perturbations around Eclipse Path (APEP) Sounding Rocket Campaign

Authors: Aroh Barjatya, Embry-Riddle Aeronautical University (First Author, Presenting Author)Robert Clayton, Embry-Riddle Aeronautical University Shantanab Debchoudhury, Embry-Riddle Aeronautical University Henry Valentine, Embry-Riddle Aeronautical University Nathan Graves, Embry-Riddle Aeronautical University Rachel Conway, Embry-Riddle Aeronautical University Matthew Zettergren, Embry-Riddle Aeronautical University Joshua Milford, Embry-Riddle Aeronautical University Peter Ribbens, Embry-Riddle Aeronautical University Sebastijan Mrak, Boston University Jeffrey Holmes, Air Force Research Laboratory Kenneth Obenberger, Air Force Research Laboratory Haley Calderon, Space Dynamics Laboratory Kristina Lynch, Dartmouth College Magdalina Moses, Dartmouth College Jorge Chau, Leibniz Institute of Atmospheric Physics at the University of Rostock Juan Miguel Urco, Leibniz Institute of Atmospheric Physics **Philip Erickson, MIT Haystack Observatory** Terence Bullett, CIRES - NOAA/NCEI

FRIDAY 13 DECEMBER 2024

08:30-12:20 Hall B-C (Poster Hall)

Authors:Primary Convener:Quan Gan, University of Colorado at BoulderConvener:**Shunrong Zhang, MIT Haystack Observatory**Nicholas Pedatella, NSF National Center for Atmospheric ResearchYen-Jung Wu, UC BerkeleyWenbin Wang, National Center for Atmospheric ResearchEarly Career Convener:Bea Gallardo-Lacourt, University of California Los AngelesChair:Quan Gan, University of Colorado at BoulderNicholas Pedatella, NSF National Center for Atmospheric ResearchYen-Jung Wu, UC Berkeley

08:30-12:20 Board 2728, Hall B-C (Poster Hall)

SA51D-2728: GNSS Analysis of Temporal and Spatial Changes in the Total Electron Content during 8 April 2024: Data Collection, Real-Time Analysis, and Final Analysis

Authors: **Anthea Coster, MIT Haystack Observatory** (First Author, Presenting Author)**Shunrong Zhang, MIT Haystack Observatory Larisa Goncharenko, MIT Haystack Observatory Nestor Aponte, MIT Haystack Observatory Dupinder Singh, MIT Haystack Observatory Philip Erickson, MIT Haystack Observatory** Aroh Barjatya, Embry-Riddle Aeronautical University

08:30-12:20 Board 2933, Hall B-C (Poster Hall)

SH51D-2933: Mid-latitude Ionospheric Variations above the Eastern U.S. during the April 2024 Solar Eclipse using Millstone Hill ISR

Authors: **Sevag Derghazarian, MIT Haystack Observatory** (First Author, Presenting Author)**Larisa Goncharenko, MIT Haystack Observatory** Mateo Cardona Serrano, University of California Berkeley **Shunrong Zhang, MIT Haystack Observatory Anthea Coster, MIT Haystack Observatory Philip Erickson, MIT Haystack Observatory Dupinder Singh, MIT Haystack Observatory William Rideout, MIT Haystack Observatory**

08:30-12:20 Board 2944, Hall B-C (Poster Hall)

SH51E-2944: Multi-Modal Observation of Traveling Ionospheric Disturbances During the October 2023 and April 2024 Solar Eclipses: Insights from OVRO-LWA Radio Imaging and GPS Data

Authors: Lindsay Goodwin, New Jersey Institute of Technology (First Author, Presenting Author)Sijie Yu, New Jersey Institute of Technology Peijin Zhang, New Jersey Institute of Technology Katarzyna Beser, New Jersey Institute of Technology Bin Chen, New Jersey Institute of Technology Dale Gary, New Jersey Institute of Technology Surajit Mondal, New Jersey Institute of Technology Gareth Perry, New Jersey Institute of Technology **Shunrong Zhang, MIT Haystack Observatory**

11:30-11:40 Marquis 1-2

G52A-08: VGOS: The Becoming of an Operational System

Authors: Dirk Behrend, NVI, Inc./NASA GSFC (First Author, Presenting Author)**Chester Ruszczyk, MIT Haystack Observatory** **Pedro Elosegui, MIT Haystack Observatory** Alexander Neidhardt, TU Munich

13:40-17:30 Board 2769, Hall B-C (Poster Hall)

SA53C-2769: Open Questions and Future Directions in Subauroral Ionosphere Research

Authors: Bea Gallardo-Lacourt, NASA Goddard Space Flight Center (First Author, Presenting Author)**Shunrong Zhang, MIT Haystack Observatory** **Philip Erickson, MIT Haystack Observatory**

14:20-14:30 Liberty I-K

SH53F-02: Results from the 2023/2024 HamSCI Festivals of Eclipse Ionospheric Science and What Comes Next

Authors: Nathaniel Frissell, The University of Scranton (First Author, Presenting Author)Devin Diehl, University of Scranton Rachel Frissell, The University of Scranton Robert McGwier, The University of Scranton Majid Mokhtari, University of Scranton Cuong Nguyen, The University of Scranton Alexandros Papadopoulos, The University of Scranton Gerard Piccini, The University of Scranton Jonathan Rizzo, The University of Scranton Simal Sami, The University of Scranton Robert Spalletta, The University of Scranton Rachel Boedicker, Case Western Reserve University John Gibbons, Case Western Reserve University Adam Goodman, Case Western Reserve University David Kazdan, Case Western Reserve University Laura Schwartz, Case Western Reserve University Shashank Sastry, Case Western Reserve University Maris Usis, Case Western Reserve University Christian Zorman, Case Western Reserve University Travis Atkison, The University of Alabama William Engelke, The University of Alabama Hyomin Kim, New Jersey Institute of Technology Gareth Perry, New Jersey Institute of Technology Kuldeep Pandey, New Jersey Institute of Technology Kristina Collins, Space Science Institute **Philip Erickson, MIT Haystack Observatory** David McGaw, Dartmouth College Joseph Huba, Syntek Technologies Mary West, Montclair State University Philip Gladstone, PSKReporter John Ackermann, HamSCI William Blackwell, HamSCI Steve Cerwin, HamSCI Cameron Cushing, HamSCI McKenzie Denton, HamSCI Edward Efchak, HamSCI Paul Elliott, HamSCI Gwyn Griffiths, HamSCI Nick Hall-Patch, HamSCI Phil Karn, Past President, Amateur Radio Digital Communications George Kavanagh, HamSCI David Larsen, HamSCI William Liles, HamSCI Jesse McMahan, HamSCI Thomas McDermott, HamSCI Gary Mikitin, HamSCI Peter Nordberg, HamSCI Adarsh Pashikanti, HamSCI Gregory Popelas, HamSCI Stanley Pozerski, HamSCI Robert Reif, HamSCI Rob Robinett, HamSCI Jay Schwartz, HamSCI H. Silver, HamSCI Franco Venturi, HamSCI Ronald Wilcox, HamSCI David Witten, WWR Development Gamal Zayed, HamSCI

15:15-15:25 Liberty M

SH53D-07: Terrestrial Ionospheric Radio/ Radar Remote Sensing: Using Single and Networked Systems for Geospace Science (invited)

Authors: **Philip Erickson, MIT Haystack Observatory** (First Author, Presenting Author)**Ryan Volz, MIT Haystack Observatory** **John Swoboda, MIT Haystack Observatory** **Anthea Coster, MIT Haystack Observatory** **Frank Lind, MIT Haystack Observatory** **Shunrong Zhang, MIT Haystack Observatory** **Larisa Goncharenko, MIT Haystack Observatory**

15:22-15:31 Independence F-H

SA53D-09: Global ionospheric disturbances during the 10-11 May 2024 superstorm

Authors: **Shunrong Zhang, MIT Haystack Observatory** (First Author, Presenting Author)**Philip Erickson, MIT Haystack Observatory** **Nestor Aponte, MIT Haystack Observatory** **Anthea Coster, MIT Haystack Observatory** **Larisa Goncharenko,** MIT **Ercha Aa, MIT Haystack Observatory**

16:00-16:10 Liberty I-K

SH54B-01: Combined Observational and Modeling Analysis of Three-Dimensional Ionospheric Electron Density Variations During the April 2024 Total Solar Eclipse

Authors: **Philip Erickson, MIT Haystack Observatory** (First Author, Presenting Author)**Ercha Aa, MIT Haystack Observatory** Joseph Huba, Syntek Technologies **Shunrong Zhang, MIT Haystack Observatory** **Anthea Coster, MIT Haystack Observatory** **Larisa Goncharenko, MIT Haystack Observatory** Juha Vierinen, The Arctic University of Norway **William Rideout, MIT Haystack Observatory**

17:10-17:18 Independence E

SA54A-09: Exploring the Interhemispheric Symmetry in Storm-time TEC Responses

Authors: Gang Lu, National Center for Atmospheric Research (First Author, Presenting Author) **Anthea Coster, MIT Haystack Observatory** **Nestor Aponte, MIT Haystack Observatory**