



Spring MIST 2023

University of Birmingham

Programme

 #SpringMIST2023



UNIVERSITY OF
BIRMINGHAM



Spring MIST 2023 Programme

Monday 3 April 2023

Time	Title
10 - 12 PM	Arrival and Registration
12 - 1 PM	Delegate Lunch
1 - 2:30 PM	<u>Session</u> : Solar / Heliosphere / Solar Wind
2:30 - 3 PM	Coffee Break
3 - 5 PM	<u>Session</u> : Magnetosphere
5 - 7 PM	<u>Poster Session</u> & Drinks Reception

Tuesday 4 April 2023

Time	Title
8:50 - 10:30 AM	<u>Session</u> : Ionosphere
10:30 - 11 AM	Coffee Break
11 - 12:15 PM	<u>Session</u> : Thermosphere
12:15 - 12:45 PM	Delegate Lunch
12:45 - 1:15 PM	MIST Awards Taskforce (lunch session)
1:15 - 2:15 PM	MIST Business Meeting
2:15 - 3:15 PM	<u>Session</u> : Planetary
3:15 - 3:45 PM	Coffee Break
3:45 - 4:45 PM	<u>Session</u> : Mesosphere and Lower Thermosphere
5:15 - 6:30 PM	MIST Cup
7:30 - 11 PM	Conference Banquet

Wednesday 5 April 2023

Time	Title
9 - 10:30 AM	<u>Session</u> : EISCAT
10:30 - 11 AM	Coffee Break
11 - 12:30 PM	<u>Session</u> : SWIMMR
12:30 - 1:30 PM	Delegate Lunch

Session 1 “Solar, Heliosphere and the Solar Wind”

Monday, 3 April: 1300 - 1430

Chairs: Matthew Owens & Harriet Turner

1300	The Vigil space weather mission and development of in situ instrumentation for space weather measurements at the L5 Sun-Earth Lagrange point – <i>J. Eastwood</i>
1315	Wavelet determination of scaling exponents and intermittency seen by Solar Orbiter – <i>A. Bendt</i>
1330	Reduced-physics modelling of the solar wind: Prospects for operational forecasting – <i>M. Owens</i>
1345	Statistics of solar wind parameters and geomagnetic indices associated with southward IMF turnings – <i>C. Lazzeri</i>
1400	Non-Maxwellian electrons as messengers of the solar-wind expansion – <i>D. Verscharen</i>
1415	An Empirical Relationship between Coronal Density and Solar Wind Velocity in the Middle Corona with Applications to Space Weather – <i>K. Bunting</i>

Session 2 “Magnetosphere”

Monday, 3 April: 1500 - 1700

Chairs: Robert Fear & Jasmine Sandhu

1500	Resolving Multiscale Magnetospheric and Radiation Belt Dynamics using Global MHD, Test Particle and Fokker Planck Simulations – <i>R. Desai</i>
1515	Using Machine Learning to Diagnose Relativistic Electron Distributions in the Van Allen Radiation Belts - <i>S. Killey</i>
1530	Generation and Decay of Reconnecting Current Structures Downstream of the Bow Shock: 3D Hybrid Simulations - <i>I. Gingell</i>
1545	Generalised Ohm’s Law in the Magnetosheath: How do plasma conditions impact turbulent electric fields? - <i>H. Lewis</i>

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1600	A Three-Dimensional Field Line Resonance at a Plasmaspheric Plume - <i>J. Sandhu</i>
1615	Exploring different substorm behaviours using distributions from SOPHIE – <i>C. Lao</i>
1630	Radiation belt particle diffusion, drift and advection via cyclotron interactions – <i>O. Allanson</i>
1645	Space Weather Effects on Ireland – <i>A. Fogg</i>

Session 3 “Ionosphere”

Tuesday, 4 April: 0850 - 1030

Chairs: David Themens & Maria Walach

0850	Royal Astronomical Society Techniques and Instruments – <i>C. Watt</i>
0900	Modelling and Forecasting Global Ionospheric HF Radio Wave Absorption in Real Time – <i>N. Rogers</i>
0915	Power law behaviour in fine scale auroral structure – <i>N. Brindley</i>
0930	The association of cusp-aligned arcs with plasma in the magnetotail – <i>S. Milan</i>
0945	Identifying Ionospheric Waves using LOFAR Calibration Solutions – <i>B. Boyde</i>
1000	Improving empirical estimates of ionospheric height – <i>C. Scott</i>
1015	A Probabilistic Auroral Location Forecast derived from Far-Ultraviolet Auroral Boundaries and Geomagnetic Activity – <i>C. Forsyth</i>

Session 4 “Thermosphere”

Tuesday, 4 April: 1100 - 1215

Chairs: Mervyn Freeman & Matthew Brown

1100	Investigating Space Weather influences on the failure of Starlink satellites – <i>A. Aruliah</i>
1115	Methods of adding helium to WACCM-X as a minor constituent post-run – <i>M. Brown</i>
1130	Electrodynamic coupling from the high to middle latitudes: Observations in the Context of Whole Atmosphere Modelling – <i>M-T. Walach</i>
1145	Forecasting High-Latitude Ionospheric Convection and Electric Potential Using SuperDARN Data – <i>M. M. Lam</i>
1200	The Impact of Perturbations on Low Earth Orbit Satellite Orbits: An Investigation of Solar Radiation Pressure – <i>E. George</i>

Session 5 “Planetary”

Tuesday, 4 April: 1415 - 1515

Chairs: Caitriona Jackman & Henrik Melin

1415	Ionopause detections in the Martian ionosphere – <i>K. Stergiopoulou</i>
1430	Exploring the Effects of Asymmetries in Ionospheric Parameters on the Ionospheric Outflow Rate at Jupiter - <i>H. Joyce</i>
1445	Using radio emissions to diagnose magnetospheric dynamics at Earth, Jupiter and Saturn – <i>C. Jackman</i>
1500	Mapping of H ₃ ⁺ and H ₂ Temperatures in Jovian Northern Aurora – <i>R. Wang</i>

Session 6 “Mesosphere and Lower Thermosphere”

Tuesday, 4 April: 1545 - 1645

Chairs: Dan Whiter & Lakshmi Viswanathan

1545	Investigating seasonal to decadal variability in the electron density of the mesosphere using historical EISCAT data - <i>J. Reidy</i>
1600	The height of green 557.7 nm and blue 427.8 nm aurora - <i>D. Whiter</i>
1615	A study on the mesospheric gravity waves forced by geomagnetic activity – <i>V. Lakshmi</i>
1630	LOFAR observations of atmospheric gravity wave damping – <i>G. Dorrian</i>

Session 7 “EISCAT”

Wednesday, 5 April: 0900 - 1030

Chairs: Andrew Kavanagh & Steve Milan

0900	EISCAT and EISCAT 3D: The road ahead – <i>A. Steuwer</i>
0915	Multi-scale observations with the EISCAT-3D ionospheric radar – <i>A. Kavanagh</i>
0930	Large-scale plasma structures and scintillation in the high-latitude ionosphere – <i>S. Maguire</i>
0945	Extreme Birkeland currents are more likely during geomagnetic storms on the dayside of the Earth – <i>J. Coxon</i>
1000	Intensity and variability of the local Joule heating near small scale auroral features – <i>P. Krcelic</i>
1015	Substorm auroral beads in the EISCAT3D era – <i>J. Rae</i>

Session 8 “SWIMMR”

Wednesday, 5 April: 1100 - 1230

Chairs: Ian McCrea & David Jackson

0900	SWIMMR: Past. Present and Future – <i>I. McCrea</i>
0915	Improving Sun-to-Earth forecasting with new empirical constraints and large ensembles: The Space Weather Empirical Ensemble Package (SWEEP) – <i>H. Morgan</i>
0930	Building an operational system for nowcasting and forecasting space weather impact on UK power, pipeline and rail networks – <i>G. Richardson</i>
0945	Producing Near-Real-Time Forecasts of the Severe Ground Level Space Weather – <i>A. Smith</i>
1000	A new model for pitch angle distributions and loss timescales in the radiation belts – <i>S. Glauert</i>
1015	Temporal variability of waves and wave-particle interactions in Earth’s magnetosphere – <i>C. Watt</i>

Poster Session

Monday, 3 April: 1700 - 1900

Poster Board	Title + Presenting Author
01	Nonlinear wave-particle interactions in Whistler-Mode Chorus waves: modulation as a route to rising and falling tones – <i>D. Ratliff</i>
02	Investigating different methods of chorus wave identification within the radiation belts – <i>R. Black</i>
03	The role of interactions between turbulence and instabilities in regulating the ion-scale energetics of the solar wind – <i>S. Opie</i>
04	Statistics of flow shears and field aligned currents associated with transpolar arcs – <i>G. Bower</i>
05	The balance between turbulent and convection-driven plasma vorticity in the Earth's ionosphere – <i>G. Chisham</i>
06	Radial Diffusion Benchmarking: How do initial conditions affect ensemble modelling? – <i>S. Bentley</i>
07	Wavelet analysis determination of scaling exponents and ranges in the magnetohydrodynamic range of solar wind turbulence seen by Parker Solar Probe – <i>X. Wang</i>
08	Investigate the Electrostatic Instability In the Solar Wind – <i>J. Liu</i>
09	New Features for the Empirical Canadian High Arctic Ionospheric Model (E-CHAIM) v4.0.0 – <i>D. Themens</i>
10	On the use of SuperDARN Ground Backscatter Measurements for Ionospheric Propagation Model Validation – <i>J. Ruck</i>
11	GCS-based Large Statistics of Multi-viewpoint CME Observations and Machine Learning Perspective – <i>H. Gandhi</i>
12	The Influence of Upstream Transients on Magnetic Reconnection in Collisionless Shock Waves – <i>K. Steinvall</i>
13	GICs, AMPERE and the Electric Circuit of Geomagnetic Storms – <i>A. Fleetham</i>
14	Reconstructing Jupiter's Ionosphere in 3D with Juno Observations – <i>P. Tiranti</i>
15	Comparison of simulated and observed XMM-Newton lightcurves of SWCX emissions – <i>S. Nitti</i>
16	Rapid changes in Harmonic Frequency Separation of Ionospheric Alfvén Resonances observed at Eskdalemuir, UK – <i>R. Hodnett</i>
17	Determining the polytropic index of solar wind protons observed by Solar Orbiter – <i>C. Ioannou</i>

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18	Sunward electron deficit as a source of whistler waves in the near-Sun solar wind – <i>A. Micera</i>
19	Using STEREO HI data to investigate solar wind interaction with minor planetary bodies – <i>S. Watson</i>
20	Intense chorus waves result in the limitation of electron fluxes in the heart of the outer radiation belt – <i>S. Chakraborty</i>
21	The upper atmosphere of Uranus as characterised by JWST – <i>H. Melin</i>
22	Rapidly changing ionospheric structures inferred by the International LOFAR Telescope – <i>A. Wood</i>
23	Drivers of the variability of ionospheric plasma observed by the Swarm satellites – <i>A. Wood</i>
24	Approximating solar activity; implications for ionospheric modelling – <i>E. Donegan-Lawley</i>
25	DRivers and Impacts of Ionospheric Variability with EISCAT_3D (DRIIVE) – <i>A. Kavanagh</i>
26	Characteristics of Jupiter’s equatorward UV auroral features – <i>D. Pombo</i>
27	Strong diffusion as an acceleration process – <i>T. Daggitt</i>
28	A number density/temperature description of the Earth’s outer radiation belt – <i>D. Rasinskaite</i>
29	The Evolution of Turbulence Through the Inner Heliosphere: Insights from a Radial Alignment between Parker Solar Probe and Solar Orbiter – <i>J. Stawarz</i>
30	Do geomagnetic storm lists measure the same processes? – <i>S. Bentley</i>
31	Energy Partition in Magnetic Reconnection in the Earth’s Magnetotail using MMS Data – <i>C. Waters</i>
32	Development of the Gorgon global magnetospheric model for science and the GorgonOps implementation for space weather applications – <i>J. Eastwood</i>
33	The effect of ion composition on wave particle interactions with ion cyclotron waves at Saturn and Jupiter – <i>E. Woodfield</i>
34	Investigating electron energisation across interplanetary shocks in the Solar Wind – <i>A. Razavi</i>
35	The Occurrence of High-m ULF Waves in SuperDARN Radar – <i>S. Rennie</i>
36	Estimating Fresnel scales from radio occultation observations for near-real time geolocation of plasma irregularities – <i>L. Nugent</i>
37	A New Four-Component L*-dependent Model for Radial Diffusion based on Solar Wind and Magnetospheric Drivers of ULF Waves – <i>K. Murphy</i>
38	Predicting Swarm Equatorial Plasma Bubbles via Machine Learning – <i>A. Aruliah</i>