
Organised by
The United Nations Office for Outer Space Affairs

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10 – 14 June 2024
Neustrelitz, Germany

PROGRAMME

The International Space Weather Initiative (ISWI) is a programme of international cooperation to advance space weather science by a combination of instrument deployment, analysis of space weather data from these instruments in conjunction with other data and the communication of such results.
Monday, 10 June 2024

**VENUE:** Park Hotel Fasanerie, Karbe-Wagner-Straße 59, D-17235 Neustrelitz, Germany

08:00 – 09:00  Registration

**09:00**  Opening and Welcome Remarks

*Moderator: Daniela BANYŚ, Germany*

Aarti HOLLA-MAINI, United Nations Office for Outer Space Affairs

Holger WANDSLEB, State Authority in Science and Research, Mecklenburg-Western Pomerania, Germany

Andreas GRUND, Mayor of Neustrelitz, Germany

Natchimuthukonar GOPALSWAMY, National Aeronautics and Space Administration, United States of America

Jens BERDERMANN, German Aerospace Centre (DLR), Germany

**09:30**  Keynote address

09:30 – 10:00  Solar activity and ionospheric weather, *Norbert JAKOWSKI, Germany*

10:00 – 10:20  Coffee Break

**10:20**  Session 1: Solar eruptions – their sources at the Sun and impact on geospace (magnetosphere, ionosphere, atmosphere, ground)

*Chairperson: Natchimuthukonar GOPALSWAMY, United States of America*

*Rapporteur: Bernhard KLIEM, Germany*

10:20  *(invited)* Coronal Mass Ejections observations – from Sun to impact on Geospace, *Manuela TEMMER, Austria*

10:50  *(invited)* Coronal Mass Ejections observations flux ropes and space weather, *Volker BOTHMER, Germany*

11:20  *(invited)* Numerical modeling of Coronal Mass Ejections, *Tibor TÖRÖK, United States of America*

11:50  *(invited)* Non-force-free magnetic fields and solar eruptions, *Xiaoshuai ZHU, China*

12:20  *(invited)* Space weather impact on polar atmospheric ozone and climate, *Pekka T VERRONEN, Finland*

12:50 – 13:50  Lunch break

**13:50**  *(continued)* Session 1: Solar eruptions – their sources at the Sun and impact on geospace (magnetosphere, ionosphere, atmosphere, ground)

13:50  Models of quasi-discontinuous solar wind streams, *Lukas WESTRICH, Germany*

14:05  Ensemble simulations of Coronal Mass Ejections in interplanetary space with elliptical cone models, *Johan MUHAMAD, Indonesia*

14:20  Move to next session

**14:25**  Session 2: Flares and their impact on ionosphere/atmosphere, flare-Coronal Mass Ejections (CME) relationship

*Chairperson: Daniela BANYŚ, Germany*

*Rapporteur: Giorgio Arlan da SILVA Picanço, Brazil*

14:25  *(invited)* Magnetic field parameters determining the association of solar flares and CMEs, *Ting LI, China*
14:55 Flare production potential of sunspots based on modified Zurich and magnetic classifications, Ali KILCIK, Türkiye

15:10 – 15:30 Coffee Break

15:30 **Session 3: Space Weather Extreme Events**

*Chairperson: Kichang YOON, Republic of Korea*

*Rapporteur: Amira SHIMEIS, Egypt*

15:30 *(invited) Extreme space weather events, Natalia BUZULUKOVA, United States of America*

16:00 Effect of geomagnetic storm on ionosphere over Nepal, Drabindra PANDIT, Nepal

16:15 Move to next session

16:20 **Session 4: Tools and methods for space weather education and outreach**

*Chairperson: Kathleen KRAEMER, United States of America*

*Rapporteur: Drabindra PANDIT, Nepal*

16:20 *(invited) Tools and methods for space weather education and outreach, Maria KUZNETSOVA, United States of America*

16:50 First results from the first low-cost SDR-based ionosonde in equatorial Africa, Babatunde RABIU, Nigeria

17:05 Adjourn

**Tuesday, 11 June 2024**

09:00 **Session 5: Coronal holes and high-speed streams that lead to stream interaction regions**

*Chairperson: Yihua YAN, China*

*Rapporteur: Jean UWAMAHORO, Rwanda*

09:00 *(invited) A benchmark community data set for the evaluation of solar coronal hole boundaries, Karin MUGLACH, United States of America*

09:30 *(invited) Coronal holes and high-speed streams that lead to stream interaction regions, Sergio DASSO, Argentina*

10:00 Tracking a near-ecliptic merged interaction region, Claire FOULLON, United Kingdom

10:15 Move to next session

10:20 **Session 6: Solar energetic particles and the associated phenomena such as coronal/interplanetary radio bursts**

*Chairperson: Sergio DASSO, Argentina*

*Rapporteur: Mary DUSABE, Kenya*

10:20 *(invited) Solar energetic particles and the associated phenomena such as coronal/interplanetary radio bursts, Natchimuthukonar Gopalswamy, United States of America*

10:50 - 11:10 Coffee Break

11:10 *(continued) Session 6: Solar energetic particles and the associated phenomena such as coronal/interplanetary radio bursts*

11:10 Magnetic connectivity between low and higher corona as seen from solar type-III radio bursts, Malte BRÖSE, Germany
11:25  An assessment of solar cycle 25 progress through observation of SRBs and associated geomagnetic storms, Jean UWAMAHORO, Rwanda

11:40  The correlation between fluctuations in the fluxes of energetic protons and cosmic rays during Forbush decrease events, Mihailo SAVIĆ, Serbia

11:55 – 12:00  Move to next session

12:00  Session 7: Spacecraft anomaly, impact on GNSS, ionospheric irregularities

Chairperson: Pekka T VERRONEN, Finland
Rapporteur: Mmatjie Sarah MALATJI, South Africa

12:00  (invited) Spacecraft anomaly, impact on GNSS, ionospheric irregularities, Anthea COSTER, United States of America

12:30 – 13:30  Lunch Break

13:30  (continued) Session 7: Spacecraft anomaly, impact on GNSS, ionospheric irregularities

13:30  (invited) Characteristics of ionospheric irregularities during geomagnetic storms using long-term worldwide GNSS data, Takuya SORI, Japan

14:00  Multi-index analysis of ionospheric disturbances driven by internal and external physical mechanisms during space weather events, Giorgio Arlan da SILVA PICANÇO, Brazil

14:15  Response of the equatorial ionosphere over Accra, Ghana, to a moderate geomagnetically-induced storm using the low-cost global navigation satellite system, Solomon Otoo LOMOTENY, Ghana

14:30  A glance on the monitoring network for evil waveform and ionospheric characterization H037-MoNEWIC, David WENZEL, Germany

14:45  A study on the low-latitude ionospheric scintillation using datasets from GNSS SCINDA receivers and ionosonde instruments in Kenya, Mary DUSABE, Kenya

15:00  Climate governance - a state-of-the art, Yvette RAMOS, France

15:15 – 15:30  Group photo

15:30 – 15:45  Coffee Break

16:15  Bus for City tour Neustrelitz

18:00 – 21:00  Dinner at Orangertes

Wednesday, 12 June 2024

09:00  Session 8: Geomagnetic storms and radiation belt variability due to CMEs and SIRs

Chairperson: Shing FUNG, United States of America
Rapporteur: Johan MUHAMAD, Indonesia

09:00  (invited) Geomagnetic storms and radiation belt variability due to CMEs and SIRs, Drew TURNER, United States of America

09:30  (invited) Results of EU H2020 project: Prediction of adverse effects of geomagnetic storms and energetic radiation – PAGER, Yuri SHPRITS, Germany

10:00  Variations in the ionospheric parameters over midlatitude Europe region during September 6 – 10, 2017 geomagnetic storm caused by coronal mass ejections, Kateryna AKSONOVA, Czech Republic
10:15 Drivers of intense geomagnetic field variations, Chigomezyo NGWIRA, United States of America

10:30 - 10:50 Coffee Break

10:50 Lunch to go

11:00 Bus for excursion to Peenemünde (Historical Technical Museum)

15:00 Café at Baltic Sea

16:30 Bus back to hotels

Thursday, 13 June 2024

09:00 Session 9: Space weather prediction using various techniques including Machine Learning

Chairperson: Aderonke AKERELE, Nigeria
Rapporteur: Claire FOULLON, United Kingdom

09:00 (invited) Space weather prediction using various techniques including machine learning, Dario DEL MORO, Italy

09:30 (invited) AI with large model for solar activity forecasting, Long XU, China

10:00 Prediction of the geomagnetic K index at Hermanus based on its previous value, Mmatjie Sarah MALATJI, South Africa

10:15 Detection and analysis of solar prominences in extreme ultraviolet wavelengths, William BECKWITH-CHANDLER, United Kingdom

10:30 Predicting daily foF2 over Pakistan using machine learning, Muhammad Ayyaz AMEEN, Pakistan

10:45 - 11:05 Coffee Break

11:05 Session 10: Space weather instrumentation (ISWI instruments and other instruments)

Chairperson: Sharafat GADIMOVA, Office for Outer Space Affairs
Rapporteur: Manjula RANASINGHE, Sri Lanka

11:05 (invited) Aditya solar wind particle experiment (ASPEX) on-board India’s aditya-L1 mission, Dibyendu CHAKRABARTY, India

11:35 (invited) Natural Language Processing for an AI-driven Ionosphere Forecast by Historical Analogy, Ivan GALKIN, United States of America

12:05 – 13:35 Lunch Break

13:35 (continued) Session 10: Space weather instrumentation (ISWI instruments and other instruments)

Chairperson: Germany
Rapporteur: Solomon Otoo LOMOTYEY, Ghana

13:35 Solar eruptive events as observed by radio imaging-spectroscopic facilities, Yihua YAN, China

13:50 The evolution of interplanetary Coronal Mass Ejections in the heliosphere, Yutian CHI, China

14:05 Application of IAP CAS continuous HF Doppler sounding to the improvement of GNSS positioning accuracy, Jaroslav URBAR, Czech Republic

14:20 Recent developments in ground-based space weather monitoring: GIFDS and CALLISTO approaching event analysis, Daniela BANYŠ, Germany
Investigating the effect of solar flare events on the geomagnetic field and ionosphere based on multi-instruments, Amira SHIMEIS, Egypt

Coffee Break

Poster Session

Solar eruptions – their sources at the Sun and impact on geospace (magnetosphere, ionosphere, atmosphere, ground)

POSTER 1 A study of solar flare effects on the geomagnetic field components during solar cycles 23 and 24, Oswald Didier Franck GRODJI, Ivory Coast

Spacecraft anomaly, impact on GNSS, ionospheric irregularities

POSTER 2 Phase gradient screen approach for the modeling of ionospheric scintillation, Dmytro VASYLYEV, Germany

POSTER 3 Characteristics on large-scale wave structure in Southeast Asia, Yu Yi LIOW, Malaysia

POSTER 4 Different plasma bubble dynamics over the EIA: a comparative study of geomagnetic storm responses in two distinct regions of South America, Gilda GONZÁLEZ, United States of America

Space weather instrumentation (ISWI instruments and other instruments)

POSTER 5 Application of the relativistic electron alert system (REleASE) to instruments on board of STEREO-A, Henrik DRÖGE, Germany

POSTER 6 The eSWua upper atmosphere observing infrastructure: a comprehensive facility for space weather monitoring, Massimo VIOLA, Italy

POSTER 7 Equatorial plasma bubble (EPB) detection and analysis using 2-D ROTI map and VHF radar images during the upcoming solar maximum, Pornchai SUPNITHI, Thailand

POSTER 8 Low-Cost GNSS receiver system for space weather data, Sharafat GADIMOVA, Office for Outer Space Affairs

Spacecraft anomaly, impact on GNSS, ionospheric irregularities

POSTER 9 Examining the mid-latitude ionospheric trough with high-resolution IGS ionospheric maps, Kateryna LUBYK, Germany

POSTER 10 Ionospheric scintillation observations: A multi-sensor approach over low-latitude equatorial region, Shradha MOHANTY, Germany

POSTER 11 Characterization of travelling ionospheric disturbances in relation to the occurrence of equatorial plasma bubble, Arthur Amaral FERREIRA, Germany

POSTER 12 Intense Spread-F event at a low latitude station and its possible relationship with a geomagnetic storm and substorms, Graciela MOLINA, Argentina

Tools and methods for space weather education and outreach

POSTER 13 AISStorm 2.1 - Atmospheric Ionization during substorms model, Jan Maik WISSING, Germany

POSTER 14 Long-term analysis of inter-hemispheric field-aligned currents and seasonal and disturbance time variations in dawn, noon, and dusk sectors utilizing equatorial magnetic fields at Davao Station, Philippines, Manjula RANASINGHE, Sri Lanka

POSTER 15 Ground level muon detectors response to extreme space weather events during solar Cycle 25, Nikola VESELINOVIC, Serbia
POSTER 16  GlowC Ost-global network of cosmic ray muon detectors for monitoring space and terrestrial weather, Nikola VESELINOVIC, Serbia

POSTER 17  Transient variation of Doppler frequency shift of ionospheric signal within the equatorial region, Aderonke AKERELE, Nigeria

POSTER 18  Ionosphere monitoring and prediction center (impc), Martin KRIEGEL, Germany

17:00  Adjourn

Friday, 14 June 2024

09:00  Session 11: Operational Space Weather
Chairperson: Babatunde RABIU, Nigeria
Rapporteur: Oswald Didier Franck GRODJI, Ivory Coast

09:00  (invited) Space weather radiation impacts on aviation, Rendani NNDANGANENI, South Africa

09:30  (invited) Space weather within ESA’s space safety programme, Alexi GLOVER, France

10:00  (invited) Operational space weather in Norway, Wojciech Jacek MILOCH, Norway

10:30 - 10:50  Coffee Break

10:50  (continued) Session 11: Operational Space Weather
Chairperson: Graciela MOLINA, Argentina
Rapporteur: Kateryna AKSONOVA, Czech Republic

10:50  (invited) Forecasting and analysis of solar energetic particle radiation storms, Olga E. MALANDRAKI, Greece

11:20  (invited) Progress of MUSER and Chinese IPS telescope for space weather, Wei WANG, China

11:50  (invited) Japanese activities for operational space weather, Takuya TSUGAWA, Japan

12:20 – 13:20  Lunch Break

13:20  (continued) Session 11: Operational Space Weather
Chairperson: Ali KILCIK, Türkiye
Rapporteur: Mihailo SAVIĆ, Serbia

13:20  (invited) Sun Earth connections: impact of space weather events at low latitudes, Christine AMORY, France

13:50  (invited) Forecasting ionospheric irregularities, Kathleen KRAEMER, on behalf of Keith GROVES, United States of America

14:20  National space weather strategy and action plan to solar cycle 25, Yoon KICHANG, Republic of Korea

14:35 – 14:50  Coffee Break

14:50  Announcement of the ISWI Workshop in 2025, Babatunde RABIU, Nigeria

14:55  Announcement of the ISWI Workshop in 2026, Hyon Jun NAH, Republic of Korea

15:00  Closing remarks
Sharafat GADIMOVA, United Nations Office for Outer Space Affairs
Natchimuthukonar GOPALSWAMY, National Aeronautics and Space Administration, United States of America

Daniela BANYŚ, German Aerospace Centre, Germany

15:30 – 16:00  Farewell