

18th European Space Weather Week

Program Book

Zagreb, October 2022

Monday, 24 October 2022

09:00 **Registration desk open**

10:00 **Tutorial**
Room: Water Hall

11:30-12:15 **Opening Keynotes and Live SWx Forecast**
Room: Water Hall

12:15-13:45 **Lunch Break**

Session CD1: Artificial intelligence in the service of space weather (part 1)

Chairs: Elena Popova (Centro de Investigación de Astronomía, Universidad Bernardo O'Higgins, Chile), Robertus Erdelyi (University of Sheffield, Sheffield, UK), Marianna Korsos (Aberystwyth University, Aberystwyth, UK), Giovanni Lapenta (KU Leuven, Belgium)

Room: Earth Hall

13:45 Automatic Detection of Interplanetary Coronal Mass Ejections in Solar Wind In Situ Data
Hannah T. Rüdissler, Andreas Windisch, Ute V. Amerstorfer, Christian Möstl, Rachel L. Bailey, Tanja Amerstorfer

14:00 Advanced Image Preprocessing and Feature Tracking for Remote CME Characterization with Convolutional Neural Network
Oleg Stepanyuk, Kamen Kozarev

14:15 Probing the coronal magnetic field with physics informed neural networks
Robert Jarolim, Julia Thalmann, Astrid Veronig, Tatiana Podladchikova

14:30 Using Neural Networks to improve the performance and forecasting skill of a solar wind model

Filipa S. Barros, Rui F. Pinto, J. J. G. Lima, André Restivo

Session CD7: Space Weather Effects on Aviation (part 1)

Chairs: Alex Hands (University of Surrey, UK), Erwin De Donder (Royal Belgian Institute for Space Aeronomy, Belgium), Marcin Latocha, onsite (Seibersdorf Labor GmbH, Austria)

Room: Fire Hall

13:45 Impact of space weather driven absorption to high frequency communication - risk assessment

Robyn Fiori

14:00 The New MAIRE+ Model for Nowcasting the Aviation Radiation Environment

K Ryden , A Hands , F Lei , C Davis , B Clewer and C Dyer

14:15 Potential Impact of GNSS Positioning Errors on the Satellite-navigation-based Air Traffic Management

Dabin Xue, Jian Yang, and Zhizhao Liu

14:30 First steps towards space weather advisory validation for PECASUS

Kasper van Dam, Eelco Doornbos, Bert van den Oord

14:45 Aviation end user engagement and feedback

Krista Hammond

Session SWR2: Interplanetary Coronal Mass Ejections and Solar Energetic Particles (part 1)

Chairs: Camilla Scolini, onsite (University of New Hampshire, USA), Luciano Rodriguez, onsite (Royal Observatory of Belgium, Belgium), Sergio Dasso (Universidad de Buenos Aires, Argentina)

Room: Water Hall

13:45 Predicting the Bz magnetic field component in solar coronal mass ejections

C. Möstl , A. J. Weiss , R. L. Bailey , M. A. Reiss , T. Amerstorfer , U.V. Amerstorfer , M. Bauer , H. T. Rüdissler , D. Barnes , J. A. Davies , R. A. Harrison , R. Laker , T. Horbury , D. Heyner , S. Bale

14:00 Influence of the coronal mass ejection orientation on its propagation

Karmen Martinic , Mateja Dumbovic , Manuela Temmer , Astrid Veronig , Bojan Vršnak

14:15 Estimating the magnetic vextors of ICMEs observed by radially aligned multiple spacecraft using INFROS model

Nandita Srivastava, Ranadeep Sarkar, Emilia Kilpua

14:30 Propagation of a magnetised ICME in minimum and maximum of solar activity

Barbara Perri , Brigitte Schmieder , Pascal Démoulin , Stefaan Poedts

14:45 Refined halo CME forecast

Emiliya Yordanova , Mateja Dumbović , Manuela Temmer , Camilla Scolini , Evangelos Paouris , Elisabeth Werner and Andrew P. Dimmock

15:00-16:00 Posters I & Refreshments

Session CD1: Artificial intelligence in the service of space weather (part 2)

Chairs: Elena Popova (Centro de Investigación de Astronomía, Universidad Bernardo O'Higgins, Chile), Robertus Erdelyi (University of Sheffield, Sheffield, UK), Marianna Korsos (Aberystwyth University, Aberystwyth, UK), Giovanni Lapenta (KU Leuven, Belgium)

Room: Earth Hall

16:00 Probabilistic ensemble learning for flare forecasting and value-weighted assessment

Sabrina Guastavino, Francesco Marchetti, Michele Piana, Federico Benvenuto, Cristina Campi

16:15 A prototype for a PCA-NN model for TEC with space weather parameters as predictors: selection of a NN algorithm and a set of predictors

Anna Morozova, Ricardo Gafeira, Teresa Barata, Tatiana Barlyaeva

16:30 Temporal Convolutional Network for Local Forecast of Precipitated Electron Energy Flux

Simon Bouriat, Mathieu Barthélémy, Jocelyn Chanussot

16:45 Forecasting hazardous geomagnetically induced currents for Spanish critical infrastructures by using AI

Daniel Conde Villatoro, Florencia Luciana Castillo, Veronica Sanz González, Carmen García García, Bryan Zaldivar Montero, Jose Enrique García Navarro, Carlos Escobar Ibáñez

Session CD6: Near Earth Space Radiation and Plasma Environment: Science and Space Weather Applications (part 1)

Chairs: Yihua Zheng, onsite (NASA Goddard Space Flight Center, USA), Ian Mann (University of Alberta, Canada), Natalia Yu Ganushkina (Finnish Meteorological Institute, Finland/University OF Michigan, USA)

Room: Fire Hall

16:00 International Radiation Environment Near Earth (IRENE) - collaboration developments

Piers Jiggins, Paul O'Brien, Ingmar Sandberg, William Johnston, Sigiava Aminalragia-Giamini, Stuart Huston, Constantinos Papadimitriou, Alexander Boyd, Matteo Martucci, Tim Guild

16:15 Applications of RAM-SCB to Advance Space Weather Forecasting

Vania Jordanova, Steven Morley, Miles Engel, Humberto Godinez, Kateryna Yakymenko, and Michael Henderson

16:30 SHELLS Model: Specifying High-altitude Electrons using Low-altitude LEO Systems

Alexander Boyd, Janet Green, Paul O'Brien, Seth Claudepierre

16:45 Mitigation of satellite surface charging by means of ionic liquid coating

Mirco Wendt , Regina Lange , Franziska Dorn , Jens Berdermann, Ingo Barke , Sylvia Speller

Session SWR2: Interplanetary Coronal Mass Ejections and Solar Energetic Particles (part 2)

Chairs: Camilla Scolini, onsite (University of New Hampshire, USA), Luciano Rodriguez, onsite (Royal Observatory of Belgium, Belgium), Sergio Dasso (Universidad de Buenos Aires, Argentina)

Room: Water Hall

16:00 Spheromak tilting and drifting in the context of coronal mass ejection reconstruction

Eleanna Asvestari, Tobias Rindlisbacher, Jens Pomoell, Emilia Kilpua, Ranadeep Sarkar

16:15 On the role of spheromak density to mitigate its rotation effect in global MHD models for space weather forecasting

Ranadeep Sarkar, Jens Pomoell, Emilia Kilpua, Eleanna Asvestari, Nicolas Wijsen, Anwesha Maharana, Stefaan Poedts

16:30 Propagation of a flux rope in the coronal model COCONUT

Luis Linan, Florian Regnault, Barbara Perri, Michaela Brchneleva, Blazej Kuzma, Andrea Lani, Stefaan Poedts

16:45 Global MHD simulations of solar wind structures in the inner heliosphere

Chin-Chun Wu, Kan Liou, Brian E. Wood

17:15-18:45 E-SWAN General Assembly

Room: Water

19:00-21:00 Welcome Reception

Coffee Area of the Venue

Tuesday, 25 October 2022

Session P1: Ground-Based Space Weather Monitoring Networks (part 1)

Chairs: Pietro Zucca, onsite (ASTRON - Nederlands institute for radio astronomy), Eoin Carley (Dias - Dublin Institute for advanced studies), Monica Laurenza (INAF- Istituto di Astrofisica e Planetologia Spaziali Area di Ricerca Roma Tor Vergata)

Room: Water Hall

08:45 Introduction

08:50 The Solar Activity Monitor Network - SAMNet

Robertus Erdelyi and SAMNet Team

09:00 US Ground based Observations from the National Science Foundation

Lisa Winter

09:10 The new Kp-like, open-ended, high-cadence, global geomagnetic Hpo indices

Guram Kervalishvili, Jürgen Matzka, Jan Rauberg, Yosuke Yamazaki, Claudia Stolle

09:20 Incremental development of LOFAR for spaceweather

Peijin Zhang, Pietro Zucca, Kamen Kozarev, Mohamed Nedal

09:30 Status and future of the worldwide network of neutron monitors

Christian T. Steigies, Rolf Bütikofer, Danislav Sapundjiev, Karl-Ludwig Klein, Olga Kryakunova, the NMDB consortium

09:40 Pre-operational Space Weather Services at the DLR Institute for Solar-Terrestrial Physics

Martin Kriegel, Paul David, Dmytro Vasylyev, David Wenzel, Youssef Tagargouste, Jens Berdermann

09:50 Discussion

10:10 Summary

10:15-10:20 Live SWx Forecast
Water Hall

10:20-10:45 Refreshments

10:45-12:00 Topical Discussion Meetings

Water Hall	Fire Hall	Air Hall
<p>T2: Open discussion: Building the European Space Weather and Space Climat Association (E-SWAN)</p> <p><i>Jean Lilensten (Univ de Grenoble), Sophie Chakanski (BIRA-IASB), Luca Spogli (INGV)</i></p>	<p>T1: Space Weather impacts to Low-Earth Orbit satellite operations</p> <p><i>Tom Berger (Univ of Colorado), Sean Elvidge (Univ of Birmingham)</i></p>	<p>T13: The prototype SafeSpace space weather service</p> <p><i>Ioannis Daglis (Univ of Athens), Sebastien Bourdarie (ONERA), Christos Katsavrias (Univ of Athens)</i></p>

12:00-13:30 Lunch Break
Observe the partial solar eclipse

Session CD2: Ways to improve our space weather forecasting capabilities (part 1)

Chairs: Ioannis Dagleis, onsite (University of Athens), Stefaan Poedts (KU Leuven), Yuri Shprits (GFZ Potsdam)

Room: Fire Hall

13:30 CHRONNOS archive: a comprehensive catalog of solar coronal holes from multi-instrument data

Robert Jarolim, Astrid Veronig, Stefan Hofmeister, Tataiana Podladchikova

13:45 An inner boundary condition for solar wind models based on coronal density

Kaine Bunting, Huw Morgan

14:00 Modeling of the Earth-directed CME on 2021 October 28

Angelo Valentino, Jasmina Magdalenic

14:15 Real-time modelling and forecasting of solar wind disturbances from cradle to Earth

Rui F. Pinto, R. Kieokaew, B. Lavraud, V. Génot, A. Rouillard, E. Samara, S. Poedts, A. Brunet, S. Bourdarie, Ioannis A. Dagleis

14:30 Visualizing Enlil and EUHFORIA CME Propagation Models using an Accessible Interactive 3-Dimensional Data Visualization Tool

Christopher Pankratz, Greg Lucas, Jenny Knuth, Thomas E Berger

Session SWR2: Interplanetary Coronal Mass Ejections and Solar Energetic Particles (part 3)

Chairs: Camilla Scolini, onsite (University of New Hampshire, USA), Luciano Rodriguez, onsite (Royal Observatory of Belgium, Belgium), Sergio Dasso (Universidad de Buenos Aires, Argentina)

Room: Water Hall

13:30 Energetic electron event on October 9, 2021 observed by Solar Orbiter

Immanuel. C. Jebaraj, Athanasios Kouloumvakos, Nina Dresing, Alexander Warmuth, Jan Gieseler, Christian Palmroos, Thomas Wiegemann, Nicolas Wijsen, Jens Pomoell, Vratislav Krupar, Jasmina Magdalenic, Rami Vainio

13:45 Simulating the gradual SEP event of 15 March 2013 with PARADISE

Antonio Niemela, Nicolas Wijsen, Angels Aran, Luciano Rodriguez, Jasmina Magdalenic, Stefaan Poedts

14:00 Modelling the early acceleration of SEPs with STAT and multi-spacecraft validation

Erika Palmerio, Jon Linker, Ronald Caplan, Matthew Young, Nathan Schwadron, Tibor Török, Cooper Downs, Christina Cohen

14:15 Relationship Between Proton Flux Fluence Spectra at L1 and Selected Parameters of Associated ICMEs and Forbush Decreases

Mihailo Savić, Nikola Veselinović, Aleksandar Dragić, Dimitrije Maletić, Dejan Joković, Vladimir Udovičić, Radomir Banjanac, David Knežević

14:30 An upgrade of the ESPERTA forecast model for Solar Proton Events through machine learning

Laurenza Monica, Stumpo Mirko, Benella Simone, Alberti Tommaso; Consolini Giuseppe, Marcucci Maria Federica

Session SWR4: Magnetosphere, Ionosphere and Thermosphere Coupling (part 1)

Chairs: Lucilla Alfonsi, onsite (Istituto Nazionale di Geofisica e Vulcanologia, Italy), Yaqi Jin, onsite (University of Oslo, Norway), Eelco Doornbos, onsite (Royal Netherlands Meteorological Institute (KNMI), The Netherlands)

Room: Earth Hall

13:30 A novel technique to identify scale-dependent lags and application to ionospheric science

Jaroslav Urbář, Luca Spogli, Antonio Cicone, Claudio Cesaroni and Lucilla Alfonsi

13:45 Forecasting the Orbit Decay of low Earth orbiting satellites

Lukas Drescher, Sofia Kroisz, Manuela Temmer, Sandro Krauss, Barbara Suesser-Rechberger, Saniya Behzadpour, Torsten Mayer-Guerr

14:00 Local Joule heating profile near small scale auroral features estimated using high resolution electric fields measurements

Patrik Krcelic, Robert Fear, Daniel Whiter, Betty Lanchester

14:15 Swarm-VIP: a model for Variability of Ionospheric Plasma based on data from the Swarm satellites

Alan G. Wood, Elizabeth Donegan-Lawley, Gareth Dorrian, James Rawlings, Golnaz Sahtahmassebi, Lucilla Alfonsi, Luca Spogli, Jaroslav Urbář, Claudio Cesaroni, Antonio Cicone, Lasse B.N. Clausen, Yaqi Jin, Daria Kotova, Per Høeg, María José Brazal Aragón, Paweł Wojtkiewicz, Wojciech J. Miloch

14:30 Predictability of Large Scale Travelling Ionospheric Disturbances During Ionosphere Storm Conditions

Claudia Borries, Arthur Amaral Ferreira, Renato Alves Borges

14:45-15:45 Posters I & Refreshments

Session CD2: Ways to improve our space weather forecasting capabilities (part 2)

Chairs: Ioannis Daglis, onsite (University of Athens), Stefaan Poedts (KU Leuven), Yuri Shprits (GFZ Potsdam)

Room: Water Hall

15:45 Utilizing far-side active regions detected by helioseismology as input to magnetograms for 360° synchronic solar wind forecasting

Stephan G. Heinemann, Dan Yang, Jens Pomoell

16:00 EUHFORIA simulation using AI generated farside magnetogram

Senthamizh Pavai Valliappan, Jasmina Magdalenic, Luciano Rodriguez

16:15 Expected operational solar wind forecast gains from assimilation of in situ L5 observations

Harriet Turner, Mathew Owens, Matthew Owens, Siegfried Gonzi

16:30 Coordinated observations of relativistic and ultra-relativistic electron enhancements following the arrival of consecutive Corotating Interaction Regions

Afroditi Nasi, Christos Katsavrias, Ioannis A. Daglis, Ingmar Sandberg, Sigiava Aminalragia-Giamini, Wen Li, Yoshizumi Miyoshi, Hugh Evans, Takefumi Mitani, Ayako Matsuoka, Iku Shinohara, Takeshi Takashima, Tomoaki Hori, Georgios Balasis

Session CD6: Near Earth Space Radiation and Plasma Environment: Science and Space Weather Applications (part 2)

Chairs: Yihua Zheng, onsite (NASA Goddard Space Flight Center, USA), Ian Mann (University of Alberta, Canada), Natalia Yu Ganushkina (Finnish Meteorological Institute, Finland/University OF Michigan, USA)

Room: Earth Hall

15:45 Assessing and Predicting Lunar Charging Environments Using THEMIS

L. Parker, J. Green, J. Likar, A. Turner, D. Pitchford, C. Keys

- 16:00 Solar Particle Radiation Storms Forecasting and Analysis within ESA/SSA- The HESPERIA SEP Real-Time Forecasting products
Olga Malandraki, Michalis Karavolos, Dimitris Kokkinis, Nikolaos Milas, Norma Crosby, Mark Dierckxsens
- 16:15 Prediction of electron fluxes in the outer radiation belts using neural networks with PROBA-V/EPT data
Edith Botek and Viviane Pierrard
- 16:30 Electron flux measurements from ESA Next Generation Radiation Monitor on-board GEO EDRS-C satellite and LEO Sentinel-6 satellite
Sigiava Aminalragia-Giamini, Ingmar Sandberg, Constantinos Papadimitriou, Wojciech Hajdas, Radoslaw Marcinkowski, Daniel Heynderickx, Rian van Gijlswijk, Melanie Heil, Hugh Evans

Session SWR5: Geomagnetic Activity on Earth's Surface and Effects on Ground-Based Technological Systems (part 1)

Chairs: Audrey Schillings, onsite (Department of Physics, Umeå University, Umeå, Sweden), Liisa Juusola, online (Finnish Meteorological Institute, Helsinki, Finland), Chigomezyo Ngwira, online (Orion Space Solutions, Louisville, USA)

Room: Fire Hall

- 15:45 Fast moving auroral structures as a cause for large GIC - **Invited**
S. Apatenkov, D. Sheveleva, E. Gordeev, Ya. Sakharov, V. Selivanov
- 16:00 Investigation of ionospheric and ground level signatures of space weather over Turkey
Ezgi Gülay, Zerefşan Kaymaz, Emine Ceren Kalafatoğlu Eyigüler
- 16:15 Monitoring the ionospheric polar electrojet boundaries and impact on GNSS disturbances
Marie Vigger Eldor
- 16:30 Large and localized geomagnetic disturbances at mid-latitudes: the double H-spike
Antonio Guerrero , Elena Saiz , Consuelo Cid

Session CD2: Ways to improve our space weather forecasting capabilities (part 3)

Chairs: Ioannis Daglis, onsite (University of Athens), Stefaan Poedts (KU Leuven), Yuri Shprits (GFZ Potsdam)

Room: Water Hall

17:00 On the statistics of the radial diffusion coefficients in the outer radiation belt

Christos Katsavrias, Sigiava Aminalragia-Giamini, Afroditi Nasi, Constantinos Papadimitriou, Ioannis A. Daglis, Nourallah Dahmen, Antoine Brunet, and Sebastien Bourdarie

17:15 Nowcasting radial diffusion coefficients from solar wind: The EMERALD model in the framework of the SafeSpace project

S. Aminalragia-Giamini, Christos Katsavrias, Constantinos Papadimitriou, Ioannis A. Daglis, Afroditi Nasi, Antoine Brunet, Nourallah Dahmen, Sebastien Bourdarie

17:30 Towards a flexible framework for community-wide forecasting tailored for major space environment impacts

Masha Kuznesova

17:45 The ESA Virtual Space Weather Modelling Centre-Part 3

Stefaan Poedts and the VSWMC-P3 team

Session CD1: Artificial intelligence in the service of space weather (part 3)

Chairs: Elena Popova (Centro de Investigación de Astronomía, Universidad Bernardo O'Higgins, Chile), Robertus Erdelyi (University of Sheffield, Sheffield, UK), Marianna Korsos (Aberystwyth University, Aberystwyth, UK), Giovanni Lapenta (KU Leuven, Belgium)

Room: Earth Hall

17:00 Decontamination of proton flux measurements in the radiation belts with machine learning

Guillaume Bernoux, Victor Le Couteur, Antoine Brunet

- 17:15 Convolutional Neural Networks for Automated ULF Wave Classification in Swarm Time Series
Alexandra Antonopoulou, Georgios Balasis, Constantinos Papadimitriou, Adamantia Zoe Boutsis, Athanasios Rontogiannis, Konstantinos Koutroumbas, Ioannis A. Daglis, Omiros Giannakis
- 17:30 Ensemble Learning for Accurate and Reliable Uncertainty Quantification
Enrico Camporeale
- 17:45 Short-term forecasting of Total Electron Content in South America
Dinibel Perez, Ma Paula Natali, Amalia Meza, Luciano Mendoza
- 18:00 A method to choose a mother wavelet for feature detection of VLF signals for Machine learning
Shivali Verma, Sonendra Gupta

Session SWR5: Geomagnetic Activity on Earth's Surface and Effects on Ground-Based Technological Systems (part 2)

Chairs: Audrey Schillings, onsite (Department of Physics, Umeå University, Umeå, Sweden), Liisa Juusola, online (Finnish Meteorological Institute, Helsinki, Finland), Chigomezoyo Ngwira, online (Orion Space Solutions, Louisville, USA)

Room: Fire Hall

- 17:00 Geomagnetically Induced Currents and Harmonic Distortion Monitoring using VLF Observations
Mark A. Clilverd, Craig J. Rodger, James B. Brundell, Michael Dalzell, Ian Martin, Daniel H. Mac Manus, and Neil R. Thomson*
- 17:15 Real-time forecasting of geomagnetic conditions using the Gorgon global magnetosphere model
Joseph Eggington, Mike Heyns, Martin Archer, Christopher Cave-Ayland, Jeremy Chittenden, Ravindra Desai, Jonathan Eastwood, Harley Kelly, Lars Mejnertsen, the SAGE Consortium, the VSWMC Consortium
- 17:30 GIC extreme storm modelling in New Zealand
Daniel H. Mac Manus, Craig J. Rodger, Michael Dalzell, Andrew Renton, Tanja Petersen, Gemma S. Richardson, and Mark A. Clilverd

17:45 Real-time challenges for space weather predictions:
October-November 2021 solar and geomagnetic events for
Scandinavia

*Peter Wintoft , Magnus Wik, Ari Viljanen , Magnar G. Johnsen , Kristian
Solheim Thinn , Luciano Rodriguez*

Public Lecture: An eclipse: when the Sun disappears

By: Petra Vanlommel

Hours: 18:15 - 18:45

A solar eclipse is an impressive and breathtaking event in the sky. It might be even scary. In early times, humans thought that gods or mystic creatures made the sun disappear. Until one found out that it was a perfect sized moon on her monthly trip around the earth that blocked the sun and forced the day to temporarily exchange with the night. When the moon eclipses the sun completely, you get an extraordinary glimpse of the surroundings of the sun, revealing some solar secrets and science.

Everybody, all ages are welcome to come and listen to solar eclipse stories.

Music Night

Starting at: 19:00

Location: Bar 'Hard place'

We got you a place to hang out, it has a stage, some basic instruments and DJ Manuela Temmer to entertain you when you are not performing yourself. Drinks are on you.

Wednesday, 26 October 2022

Session P4: Space Weather Effects on ground-level systems: Industrial and Other End users (part 1)

Chairs: Ciaran Beggan (British Geological Survey), Juliane Huebert (British Geological Survey), Aziza Bounhir (University of Marrakech), Mario Bisi, onsite (UKRI STFC RAL Space)

Room: Water Hall

- 08:45 Preparing for Space Weather impacts - GB Rail - **Invited**
Guy Yeomans
- 09:05 Impacts of common disturbances in the auroral zone - Study of time-and distance-dependent degradations of network RTK performance
Knut Stanley Jacobsen , Nadezda Sokolova , Anders Martin Solberg , Mohammed Ouassou
- 09:17 Off-Great Circle Propagation at High Latitudes Caused by Polar Cap Patches
T. G. Cameron, R. A. D. Fiori, T. Thayaparan, A. Spicher, G. W. Perry
- 09:29 Study of Solar Flare-Induced Very Low Frequency Signals Perturbations
Elista Bayramova, Famil Mustafa, Namig Jalilov, Ilgar Alakbarov
- 09:41 GIC-associated corrosion on pipelines
L. Trichtchenko, A.P. Trishchenko, P. Hejda
- 09:53 Discussion
- 10:13 Closing remarks
- 10:15-10:20 Live SWx Forecast**
Water Hall

10:20-11:30 Posters I & Refreshments

11:30-12:45 Topical Discussion Meetings

Earth Hall	Fire Hall	Air Hall	Water Hall
<p>T6: Steps to improve user access to space weather observation data</p> <p><i>Juha-Pekka Luntam (ESA), Tsutomu Nagatsuma (NICT), Elsayed Talaat (NOAA), Andrew Monham (EUMETSAT)</i></p>	<p>T10: Probabilistic Data Assimilative Forecast of the Near-Earth Radiation Environment</p> <p><i>Yuri Shprits (GFZ University of Potsdam, Germany), Melanie Burns (GfZ University of Potsdam, Germany)</i></p>	<p>T11: Space Radiation Monitor Measurements: high-level datasets and availability</p> <p><i>Ingmar Sandberg (SPARC), Mark Dieckxsens (BIRA-IASB), Hugh Evans (ESA)</i></p>	<p>T12:International Space Weather Action Teams: Community-Driven Effort to Advance Space Weather Capabilities</p> <p><i>Mash Kuznetsova (NASA), Rui Pinto (IRAP), Suzy Bingham (Met Office)</i></p>

12:45-14:15 Lunch Break

Session CD5: The Ensemble Method in Space Weather Forecasting: bridging the gap between expectation and reality (part 1)

Chairs: Siegfried Gonzi (UK Met Office), Vic Pizzo (SWPC Boulder, USA), Eric Adamson (SWPC Boulder, USA), Emiliya Yordanova, onsite (Swedish Institute of Space Physics), Rachel Bailey, onsite

Room: Fire Hall

14:15 OSPREI: A Coupled Ensemble Approach to Modeling CME-Driven Space Weather With Automatically Generated, User-Friendly Outputs

Christina Kay , M. L. Mays , Y. M. Collado-Vega

14:30 Title: Deep Learning models in confronting ADAPT and satellite observations.

Y. Zhou , S. Gonzi, D. Jackson, C. Budd, T. Fincham-Haines

14:45 Reduced-physics solar wind models for large ensemble forecasting

Mathew J. Owens , Luke A. Barnard , Huw Morgan , Anthony Yeates ,Shaun Bloomfield

15:00 Solar Predict: a tool to forecast the solar activity cycle: a Cycle 25 update

A.S. Brun , C.P. Hung , L. Jouve , A. Strugarek

Session CD8: Measuring and modelling geoelectric fields for GIC studies (part 1)

Chairs: Juliane Huebert (British Geological Survey, UK), Joana Alves Ribeiro (University of Coimbra, Portugal), Ciaran Beggan (British Geological Survey, UK), Ellen Clarke, on-site (British Geological Survey, UK)

Room: Earth Hall

14:15 3-D modelling of the geoelectric field and geomagnetically induced currents in Fennoscandia with laterally nonuniform inducing sources

Elena Marshalko, Ari Viljanen, Mikhail Kruglyakov, Alexey Kuvshinov

14:30 European-wide geo-electric field and geomagnetically induced current modelling developments

Gemma Richardson, Ciarán Beggan, Guanren Wang, Ewelina Florczak and Ellen Clarke

14:45 The assessment of GICs based on time-domain transfer functions

Mikhail Kruglyakov, Craig J. Rodger, Daniel H. Mac Manus, Michael Dalzell, Tanja Petersen

15:00 Nowcasting Geoelectric Fields in Ireland using Magnetotelluric Transfer Functions

John Malone-Leigh, Joan Campanya, Peter T. Gallagher, Maik Neukirch, Colin Hogg, Jim Hodgson

Session SWR4: Magnetosphere, Ionosphere and Thermosphere Coupling (part 2)

Chairs: Lucilla Alfonsi, onsite (Istituto Nazionale di Geofisica e Vulcanologia, Italy), Yaqi Jin, onsite (University of Oslo, Norway), Eelco Doornbos, onsite (Royal Netherlands Meteorological Institute (KNMI), The Netherlands)

Room: Water Hall

14:15 A new method to monitor LEO satellite drag in near real time

Michael Kosch and Emma Bland

14:30 Reconstruction of precipitated electron fluxes using auroral data

Elisa Robert, Mathieu Barthelemy, Gael Cessateur, Hervé Lamy, Simon Bouriat, Angélique Woelfflé, Lionel Birée, Urban Brändstöröm and Magnar Gullikstad Johnsen

14:45 Study on the NeQuick-G ionospheric model efficiency on navigation positioning based on Galileo observations

Anna Świątek , Paulina Woźniak

15:00 Statistical studies of plasma structuring in the auroral ionosphere by in-situ measurements

Lisa Buschmann , Andres Spicher , Sigvald Marholm , Lasse B.N. Clausen , Wojciech J. Miloch

15:30-17:00 SWWT

Room: Water Hall

17:00-20:00 Fair & Observation Forum

Thursday, 27 October 2022

Session P3: Multi-techniques to monitor the Sun and solar wind for space weather (part 1)

Chairs: Stephan G. Heinemann, onsite (Max-Planck-Institut für Sonnensystemforschung, Göttingen, Germany), Eleanna Asvestari, onsite (University of Helsinki, Helsinki, Finland), Camilla Scolini, onsite (Institute for the Study of Earth, Oceans, and Space, University of New Hampshire, US)

Room: Water Hall

08:45 Connecting the Observed Solar Wind to its Solar Origin -
Invited

Samantha Wallace, Charles N. Arge, Nicholeen M. Viall, Shaela Jones, Carl Henny

09:10 Helioseismic far-side imaging: An empirical approach to
model active-region magnetic fields

Dan Yang and Stephan G. Heinemann

09:25 Solar wind acceleration at the inner Heliosphere

C. Larrodera, C. Cid, M. Flores-Soriano

09:40 Studying dynamics of the fast solar wind, through
observations and modelling

Jasmina Magdalenic, Senthamizh Pavai Valliappan, Luciano Rodriguez

09:55 WHPI: Recent campaigns and future opportunities

Stefan J. Hofmeister for the WHPI team

10:10 Wrap-up

10:15-10:20 Live SWx Forecast

Water Hall

10:20-11:30 Posters II & Refreshments

11:30-12:45 Topical Discussion Meetings

Fire Hall	Earth Hall	Water Hall	Air Hall
<p>T3: Utilisation of Real-time Solar Wind Data for Forecasting: Challenges and Possible Solutions</p> <p><i>Norah Kwagala (Univ of Bergen), Andy Smith (UCL/MSSL), Joseph Eggington (Imperial College London)</i></p>	<p>T5: Coronal model validation for space-weather applications</p> <p><i>Stefaan Poedts (KULeuven), Barbara Perri (CEA)</i></p>	<p>T8: The SEP Scoreboards - a discussion on improving the scoreboards with input from the community</p> <p><i>Philip Quinn (NASA), Mark Dierckxsens (BIRA-IASB), Mike Marsh (Met Office)</i></p>	<p>T14: Coordination of international space weather activities</p> <p><i>Kenneth Holmlund (WMO), Kirsti Kauristi (FMI), Mash Kuznetsova (NASA), Jesse Andries (ROB)</i></p>

12:45-14:15 Lunch Break

Session SWR1: Solar Sources of Space Weather (part 1)

Chairs: Judith de Patoul, onsite (Royal Observatory of Belgium, Belgium), Hebe Cremades (Uni. Mendoza and CONICET, Argentina), Barbara Perri, onsite (KU Leuven, Belgium)

Room: Water Hall

14:15 Investigating the Evolution of Flux Rope Properties in the Low Corona via Data-Driven Modelling on the Example of AR12473

Andreas Wagner, Emilia K. J. Kilpua, Daniel J. Price, Jens Pomoell, Anshu Kumari, Farhad Daei, Ranadeep Sarkar

14:30 Partially Open Fields and Solar Eruptions

Jon A. Linker, Cooper Downs, Ronald M. Caplan, Tibor Torok, Viacheslav Titov, Pete Riley

- 14:45 Coronal Waves Observed in EUV Images and Solar Energetic Particles
Nariaki Nitta, Neal Hurlburt, Steve Petrinec
- 15:00 Operational flare forecasting with video-based deep learning
Michele Piana, Sabrina Guastavino, Francesco Marchetti, Cristina Campi, Federico Benvenuto
- 15:15 A DEFT way to forecast solar flares
Larizza Krista, Matthew Chih

Session SWR3: Radiation Belts Forecast Applications for End-Users: from current achievements and needs to future requirements (part 1)

Chairs: Vincent Maget, onsite (ONERA, France), Ingmar Sandberg, onsite (SPARC, Greece), Alexi Glover, onsite (ESA/ESOC, Germany)

Room: Fire Hall

- 14:15 A prototype service for the prediction of the outer Van Allen Belt dynamics
Ioannis A. Daglis, Stefanos Doulfis, Christos Katsavrias, Afroditi Nasi, Antoine Brunet, Nour Dahmen, and Sebastien Bourdarie
- 14:30 Radiation belt forecasts from the SaRIF and Sat-Risk projects
Sarah Glauert, Richard Horne, Peter Kirsch
- 14:45 Forecasting the Source/Seed Electron Population at GEO
Christos Katsavrias, Sigiava Aminalragia–Giamini, Constantinos. Papadimitriou, Antoine Brunet, Nourallah Dahmen, Ingmar Sandberg, Piers Jiggins, Ioannis A. Daglis, Sebastien Bourdarie and Hugh Evans
- 15:00 Reconstructing the dynamics of the outer electron radiation belt by means of the standard and ensemble Kalman filter with the VERB-3D code
Angelica Maria Castillo Tibochoa, Jana de Wiljes, Yuri Y. Shprits, Nikita A. Aseev

15:15 Operational model (IMPTAM) for keV electrons in the inner Earth's magnetosphere

Natalia Ganushkina , Stepan Dubyagin

Session SWR4: Magnetosphere, Ionosphere and Thermosphere Coupling (part 3)

Chairs: Lucilla Alfonsi, onsite (Istituto Nazionale di Geofisica e Vulcanologia, Italy), Yaqi Jin, onsite (University of Oslo, Norway), Eelco Doornbos, onsite (Royal Netherlands Meteorological Institute (KNMI), The Netherlands)

Room: Earth Hall

14:15 Long Term Statistical Space Weather Analysis

Pascal Sado, Lasse B. N. Clausen, Wojciech J. Miloch, Hannes Nickisch

14:30 Polarisation of auroral emissions: confirmations and case studies

Léo Bosse¹, Gael Cessateur¹, Hervé Lamy¹, Jean Lilensten^{2, 6}, Nicolas Gillet³, Colette Brogniez⁴, Olivier Pujol⁴, Sylvain Rochat², Stéphane Curaba², Alain Delboulb  ², Magnar G. Johnsen⁵

14:45 Interhemispheric investigation of variability of ionospheric parameters measured by the Swarm satellites for quiet geomagnetic conditions

Daria Kotova, Yaqi Jin, Wojciech Miloch

15:00 Atmospheric drag effects on modelled low Earth orbit (LEO) satellites during the July 2000 Bastille Day event in contrast to an interval of geomagnetically quiet conditions

Victor U. J. Nwankwo, William Denig, Sandip K. Chakrabarti, Muiyiwa P. Ajakaiye, Johnson Fatokun, Adeniyi W. Akanni, Jean-Pierre Raulin, Emilia Correia, John E. Enoch, and Paul I. Anekwe

15:15 Statistical Properties of 102 SPA Events

Andreas Keiling

15:30-16:30 Posters II & Refreshments

Session CD3: Lessons from Space Climate: Extreme solar events (part 1)

Chairs: Ilya Usoskin, onsite (University of Oulu, Finland), Silvia Dalla (University of Central Lancashire, UK), Florian Mekhaldi (University of Lund, Sweden)

Room: Fire Hall

16:30 Nature of extreme solar events: Black swans vs. Dragon kings

Ilya Usoskin

16:45 Archival reanalyses of the Carrington event in 1859

Hisashi Hayakawa, Heikki Nevanlinna, Ciaran Beggan, Yusuke Ebihara, Sabrina Bechet, Ellen Clarke, Ankush Bhaskar, Sean P. Blake, Yoshizumi Miyoshi

17:00 Ground-Level Enhancements and the Solar Cycle

Mathew J. Owens, Luke A. Barnard, Benjamin J. S. Pope, Mike Lockwood, Ilya Usoskin, Eleanna Asvestari

17:15 Reconstructing the Sunspot Number's history: a necessary challenge to learn lessons from past solar activity

Laure Lefevre, Shreya Bhattacharya, Frédéric Clette

17:30 New reconstruction of extreme solar particle events fluences

Sergey Koldobskiy, Florian Mekhaldi, Gennady Kovaltsov, Ilya Usoskin

Session CD4: Recent advances in VLF observations of the ionosphere during space weather events (part 1)

Chairs: Carine Briand, onsite (LESIA, Observatoire de Paris-PSL), Mark Clilverd (British Antarctic Survey), Peter Gallagher (Dublin Institute for Advanced Studies)

Room: Earth Hall

16:30 The North American VLF array and polarization observations during space weather events

Robert Moore, Joshu Covey

- 16:45 Improvements on the GIFDS' VLF network and its use for detecting solar flares
M. Hansen, D. Banyś, D. Wenzel, L. Heinrich, M. Hoque
- 17:00 Probing geo-storm driven ionospheric irregularities in the upper and lower ionosphere
Victor U. J. Nwankwo, William Denig, Sandip K. Chakrabarti, Olanike Akinola, Olugbenga Ogunmodimu
- 17:15 Lower-ionosphere Electron Density from Multi-instrument Satellite Observations and Ground VLF Measurements during Solar Flares
Vida Žigman, Marie Dominique, Davorka Grubor, Craig J. Rodger, Mark A. Clilverd
- 17:30 Numerical modeling of the solar flare impact on lower ionosphere as monitored by VLF propagation effects
Tamal Basak

Session SWR1: Solar Sources of Space Weather (part 2)

Chairs: Judith de Patoul, onsite (Royal Observatory of Belgium, Belgium), Hebe Cremades (Uni. Mendoza and CONICET, Argentina), Barbara Perri, onsite (KU Leuven, Belgium)

Room: Water Hall

- 16:30 Deciphering the evolution of pre-eruptive CME structures during the slow rise
Chen Xing, Guillaume Aulanier, Xin Cheng, Mingde Ding
- 16:45 Multi-wavelength observations of filament eruptions.
Laurence Wauters, Marie Dominique
- 17:00 Coronal dimmings - a proxy for the directivity of CMEs?
Galina Chikunova, Tatiana Podladchikova, Karin Dissauer, Astrid Veronig, Mateja Dumbović, Manuela Temmer, Ewan Dickson
- 17:15 Geo-effectiveness of Radio-loud and Radio-quiet Coronal Mass Ejections
Hema Kharayat, Bhuwan Joshi, Ramesh Chandra

17:30 Is there a Dynamic Difference between Stealthy and Standard CMEs?

Beili Ying, Alessandro Bemporad, Li Feng, Nariaki Nitta, Weiqun Gan

20:00-23:00 Conference Dinner

Poster Hall at the Venue

Friday, 28 October 2022

Session P2: Exploring Multi-Spacecraft Space Weather Monitoring (part 1)

Chairs: Colin Forsyth (UCL Mullard Space Science Laboratory), Malcolm Dunlop (Rutherford Appleton Laboratory), Melanie Heil (ESA)

Room: Water Hall

08:45 Introduction

08:47 The ESA Heliophysics Working Group: building cross discipline bridges to better serve the Space Weather community - **Invited**

Matt Taylor , Piers Jiggins, Juha-Pekka Luntama , Astrid Orr, Anja Stømme

09:12 Monitoring of the Aurora and its origin by a multi-spacecraft constellation

Stefan Kraft

09:27 NOAA's Space Weather Next Generation Observation Architecture

Irfan Azeem, Dimitrios Vassiliadis, Joanne Ostroy, Susan Jacobs, Elsayed Talaat, and Richard Ullman

09:42 An interactive viewer application for real-time space weather monitoring and historical case studies

Eelco Doornbos, Mark ter Linden, Kasper van Dam, Bert van den Oord

09:57 Discussion

10:07 Summary

10:15-10:20 Live SWx Forecast

Water Hall

10:20-11:30 Posters II & Refreshments

Session SWR1: Solar Sources of Space Weather (part 3)

Chairs: Judith de Patoul, onsite (Royal Observatory of Belgium, Belgium), Hebe Cremades (Uni. Mendoza and CONICET, Argentina), Barbara Perri, onsite (KU Leuven, Belgium)

Room: Water Hall

11:30 Hemispheric sunspot numbers starting from 1876 and their use for solar cycle predictions

A. M. Veronig, T. Podladchikova, S. Jain, W. Pötzi, F. Clette, O. Sutyryna, M. Dumbovic

11:45 Differences in physical properties of coronal hole and quiet Sun coronal bright points and their ALMA counterparts

Filip Matković, Roman Brajša, Manuela Temmer, Stephan G. Heinemann, Hans G. Ludwig, Steven H. Saar, Caius L. Selhorst, Ivica Skokić, Davor Sudar

12:00 Addressing Boundary Conditions of Coronal Models

Michaela Brchnelova, Blazej Kuzma, Barbara Perri, Stefaan Poedts

12:15 Advanced models of the solar wind, inner corona and heliosphere

A.S. Brun, V. Réville, B. Perri, A. Strugarek, R. Pinto, A. Finley, S. Parenti

12:30 STORMS' Magnetic Connectivity and Shock Forecasting Tools at H.ESC

Rouillard, A.P., Dalmasse, K., Kouloumvakos, A., Indurain, M., Poirier, N., Pinto, R., Alexandre, M.

11:30-12:45 Topical Discussion Meetings

Air Hall	Fire Hall
<p>T4: ESA SWE Service Network and Portal in support of Science Operations of Interplanetary Missions</p> <p><i>Olivier Lamborelle (SSCC), Hannah Laurens (ESA)</i></p>	<p>T9: Future instrument needs for space weather</p> <p><i>Melanie Heil (ESA), Piers Jiggins (ESA)</i></p>

13:00 Closing / Feedback

Water Hall

POSTERS

Session P1: Ground-Based Space Weather Monitoring Networks

P1.p01 Norwegian sensors for detection of solar radio bursts at 1 to 1.6 GHz

Knut Stanley Jacobsen

P1.p02 Solar Radio Spectro-polarimeter (50 - 500 MHz)

Anshu Kumari, G. V. S. Gireesh, C. Kathiravan, V. Mugundhan, Indrajit V. Barve, R. Ramesh, and C. Monstein[5]

P1.p03 Moving solar radio bursts (Type IIs and Type IVs) and their association with coronal mass ejections

Diaan Morosan, Anshu Kumari, Emilia Kilpua, Farhad Daei, Abdallah Hamini

P1.p04 Low-Cost Ionospheric Monitoring in Cyprus

Ion-Anastasios Karolos, Stylianos Bitharis, Christina Oikonomou, Christos Pikridas and Haris Haralambous

P1.p05 Combined space weather monitoring with high fidelity low-frequency spectro-polarimetric imaging with SKA precursor and Aditya-L1 mission

Devoiyoti Kansabanik, Divya Oberoi, Surajit Mondal

P1.p07 Real-time type II/III radio burst detection with the e-CALLISTO radio antenna at the Observatory Lustbühel Graz

Lukas Höfig, Manuela Temmer, F. Koller, L. Drescher, Thomas Suntinger, Sabrina Michlmayer, Desmond Grossmann, C. Monstein + PK Group SummerTerm2021

P1.p08 On the source sizes of fine structures of type II radio bursts using LOFAR

Anshu Kumari, Diana E. Morosan, Emilia K. J. Kilpua, Leopekka Sarasta, Pietro Zucca

P1.p09 Monitoring Severe Space Weather with Networked UK Soil Moisture Sensors

Fraser Baird, Keith Ryden, Alex Hands

P1.p10 Space Weather Related Research at Belgrade Muon Station

Nikola Veselinović, Mihailo Savić, Aleksandar Dragić, Vladimir Udovičić, Dimitrije Maletić, Dejan Joković, Radomir Banjanac, David Knežević,

P1.p12 **MAG-SWE-DAN**

Jan Wittke , Anna Willer , Gerhard Schwarz , Hermann Opgenoorth , Lars W. Pedersen, Nils Olsen, Patrik Johansson , Poul Erik Holmdahl Olsen , Jan Oechsle

P1.p13 **Talos Dome: a new INGV geomagnetic station on the Antarctic plateau, far from the permanent observatories**

L. Santarelli, P. Bagiacchi, G. Benedetti, D.Di Mauro, S. Lepidi

P1.p14 **UKRAINIAN GROUND-BASED SPACE WEATHER MONITORING NETWORK**

Oleksandr Liashchuk, Yuriy Rapoport, Oleksiy Parnowski, Volodymyr Reshetnyk, Asen Grytsai , Yuriy Andryshchenko, Maksym Matveev

P1.p15 **The Space Weather Data Monitoring at the Institute of Earth Physics and Space Science**

Arpad Kis(1), István Lemperger(1), Veronika Barta(1), Kitti Berényi(1), Zoltán Vörös(1), Judit Muraközi(1)

Session P4: Space Weather Effects on ground-level systems: Industrial and Other End users

P4.p01 **Development of a Performance Indicator Application to help identifying Space Weather Impacts on GNSS**

Paul David, Martin Kriegel, Jens Berdermann, Kirsti Kauristie, Knut Stanley Jacobsen, Vincent Fabbro, Hannah Laurens, Ralf Keil

P4.p02 **SWAP: Establishing a network of space weather researchers and stakeholders in Austria**

Rachel Bailey , Roman Leonhardt , Georg Achleitner , Dennis Albert , Tanja Amerstorfer , Peter Beck , Sandro Krauss , Marcin Latocha , Christian Möstl , Rumi Nakamura , Martin Reiss , Philipp Schachinger , Michael Schönhuber , Susanne Schweitzer , Manuela Temmer , Astrid Veronig

P4.p03 **Influence of shield wires in GIC simulation: application to the Portuguese transmission network**

Rute Rodrigues Santos , Maria Alexandra Pais , Joana Alves Ribeiro , João Cardoso

P4.p04 **Solar radio bursts impact on the International GNSS Service network during Solar Cycle 24**

Manuel Flores-Soriano

P4.p06 Degradation of NRTK at High Latitudes During Space Weather Events

Arnlaug Høgås Skjæveland and Knut Stanley Jacobsen

Session CD1: Artificial intelligence in the service of space weather

CD1.p01 Surrogate Modeling for Faster Space Weather Prediction

Hanne Baeke , Jorge Amaya , Giovanni Lapenta

CD1.p05 Can Machine Learning solve the „Bz Problem“ in Interplanetary Coronal Mass Ejections?

Martin A. Reiss, Christian Möstl, Rachel Bailey, Hannah Rüdiger, Ute Amerstorfer, Tanja Amerstorfer, Andreas Weiss, Jürgen Hinterreiter, and Andreas Windisch

CD1.p07 A Comparative Study on New ML Approaches for F10.7 Time Series Forecasting

Adriana Marcucci, Giovanna Jerse, Isacco Zinna, Marco Molinaro, Mauro Messerotti

CD1.p08 Using machine learning to predict the timing, magnitude, and impact of solar flares.

Nathaniel Edward-Inatimi , Ciaran Beggan

CD1.p09 Towards explanation of airglow variation by ML techniques

Matej Varga, Simon Mackovjak, Peter Butka, Viera Maslej-Krešňáková, Samuel Amrich, Adrián Kundrát

CD1.p10 Applications of artificial intelligence in studies of space weather.

Laurentiu Asimopolos , Natalia-Silvia Asimopolos ,

Session CD2: Ways to improve our space weather forecasting capabilities

- CD2.p01 Radial diffusion coefficients dependence on ICME and SIR driven disturbances
Konstantina Thanasoula, Christos Katsavrias, Afroditi Nasi, Ioannis A. Daglis,, Georgios Balasis, and Theodore Sarris
- CD2.p02 An assessment of the performance of the EUHFORIA2.0 chain of models, from Sun to Earth, in predicting GIC in power grids across Europe
Ellen Clarke, Ewelina Florczak, Guanren Wang, Ciarán Beggan, Gemma Richardson, Alan Thomson, Aurélie Marchaudon, Pierre-Louis Blelly, Julian Eisenbeis, Simon Thomas, Jimmy Raeder, Banafsheh Ferdousi, Anwesha Maharana and Stefaan Poedts
- CD2.p03 Prediction of Adverse effects of Geomagnetic storms and Energetic Radiation (PAGER)
Yuri Shprits, Hayley Allison, Dedong Wang, Michael Wutzig, Stefano Bianco, Ruggero Vasile, Bernhard Haas, Tony Arber, Keith Bennett, Mike Liemohn, Bart van der Holst, Ondrej Santolik, Ivana Kolmasova, Ulrich Taubenschuss, Julien Forest, Arnaud Trouche, Benoît Tezenas du Montcel.
- CD2.p04 Impact of high speed solar wind streams on the dynamic variations of the electron population in the outer Van Allen belt.
Alexandra Triantopoulou, Afroditi Nasi, Christos Katsavrias, Ingmar Sandberg and Ioannis A. Daglis,
- CD2.p05 Status and future plans of the UK SWIMMR SPF programme
Dr Ian McCrea, Catherine Burnett
- CD2.p06 A Synthetic Test of Ensemble Forecasting of the Energetic Particle Fluxes at Geosynchronous Orbit
Ruotong Liu, Jian Yang
- CD2.p07 Impact of Interplanetary Coronal Mass Ejections on the dynamic variations of the electron population in the outer Van Allen belt
Adamantia Dimitrakoula, Afroditi Nasi, Christos Katsavrias, Ingmar Sandberg and Ioannis A. Daglis

- CD2.p08 **Physics-based machine learning for CMEs forecasting**
*Valentina Candiani , Sabrina Guastavino , Francesco Marchetti ,
Alessandro Bemporad , Roberto Susino , Daniele Telloni , Anna Maria
Massone , Michele Piana*
- CD2.p09 **An open platform for validating solar wind model solutions
at Earth**
*Martin A. Reiss, Karin Muglach, Richard Mullinix, Maria M. Kuznetsova,
Chiu Wiegand, and the Ambient Solar Wind Validation Team (H1-01)*
- CD2.p10 **Space Weather Landscape in Slovakia**
Simon Mackovjak
- CD2.p11 **An Improved Lifetime Model for the High Energy Electrons
in the Near-Earth Space Due to Their Interactions With
Chorus Waves**
Dedong Wang, Yuri Shprits , Bernhard Haas
- CD2.p12 **SafeSpace: a radiation belt forecasting project for the
safety of space assets**
*Ioannis A. Daglis , Sebastien Bourdarie , Stefaan Poedts , Ondrej
Santolik , Fabien Darrouzet , Juan Cueto Rodriguez , Benoit Lavraud ,
Ingmar Sandberg , Christos Katsavrias , Afroditi Nasi , George Balasis ,
Omiros Giannakis , Konstantina Moutsouroufi , Stefanos Doulfis ,
Marina Georgiou , Fiori-Anastasia Metallinou , Antoine Brunet ,
Nourallah Dahmen , Vincent Maget , Evangelia Samara , Benjamin
Grison , Ivana Kolmasova , David Pisa , Jan Soucek , Viviane Pierrard ,
Edith Botek 5], Ion Bueno Ulacia , Jose Manuel Jimenez Cerezo ,
Gaizka Eiguren Arza , Jesus Angel Oliveros Fernandez , Luis de Pablo
, Rui Pinto , Rungployphan (Om) Kieokaew , Vincent Genot ,
Constantinos Papadimitriou , Sigiava Aminimalragia-Giamini , and Zafar
Iqbal*

Session CD6: Near Earth Space Radiation and Plasma Environment: Science and Space Weather Applications

- CD6.p01 10th year of the Proba-V/EPT mission: possible applications of long energetic particles flux time series in model development.
Stanislav Borisov, Sylvie Benck
- CD6.p03 Plasma Environment Modelling in Earth's Magnetosphere (PEMEM): new specification model for surface charging risk assessment.
Stepan Dubyagin, Natalia Ganushkina, Angélica Sicard, Loanne Monnin, Jean-Charles Matéo Vélez, Daniel Heynderickx, Piers Jiggins, Gregoire Deprez, Fabrice Cipriani
- CD6.p04 Multi-Purpose Model Validation Efforts for Space Plasma and Radiation Environment in the Near-Earth Region
Yihua Zheng
- CD6.p05 Forecasting the electron ring current population using the VERB-4D model, data assimilation, and ensemble modelling
Bernhard Haas, Yuri Y. Shprits, Michael Wutzig, Dedong Wang
- CD6.p06 Radiation Belt Simulations Using the VERB Code in Response to the COSPAR ISWAT Challenge
Dedong Wang, Yuri Shprits, Alexander Drozdov, Hayley Allison, Angelica Castillo Tibocho

Session CD7: Space Weather Effects on Aviation

- CD7.p01 Monitoring the Impact of Space Weather using South African Near-Real Time Space Weather GNSS Products
Tshimangadzo M. Matamba, Donald W. Danskin
- CD7.p02 ICAO Space Weather Advisories for Aviation
Klaus Sievers, Ralf Parzinger
- CD7.p03 The first GLE (73 – 28-Oct-2021) of solar cycle 25: study of the space weather implications
Alexander Mishev

- CD7.p04 An optimized solution to long-distance flight routes under extreme cosmic radiation
Dabin Xue, Jian Yang, Zhizhao Liu, and Bing Wang
- CD7.p05 Duration of Ionospheric Scintillation Events at Canadian High Latitudes. Probabilistic Model.
Lidia Nikitina, Raymond Langer
- CD7.p06 Effects of solar storm on radiation Exposure at Aviation Altitude
R.R Nndanganeni, T.M Matamba
- CD7.p07 Dosimetric yield function at commercial aircraft cruising altitudes
R.R Nndanganeni, G.M Mosotho and R.D. Strauss
- CD7.p08 The Variation of Radiation Dose Rates at Aviation Altitudes with Magnetospheric and Geographic Conditions
Christopher Davis, Keith Ryden, Alexander Hands, Fan Lei, Clive Dyer, Ben Clewer
- CD7.p09 Estimation of Radiation Dose Rates at the Aviation Flight Levels during Episodic Solar Proton Events
Jiyoung Kim, Dong-Hee Lee
- CD7.p10 Altitude profile of atmospheric radiation in the Arctic region derived with with MDU-1 Liulin during scientific balloon flight
Alexander Mishev, Alexandros Binios, Esa Turunen, Nicholas Larsen, Ari-Pekka Leppanen, Eija Tanskanen, Ilya Usoskin, Jouni Envall, Toivo Iinatti, Pasi Lakkala
- CD7.p11 Challenges in space weather alerting for aviation
Y. Maneva, J. Andries, J. de Patoul, F. Verstringe and K. Loumou
- CD7.p12 SRF2 - A short-term (1-24) hour foF2 prediction method
L. Perrone(1) and A. V. Mikhailov(2,1)*
- CD7.p13 An index for characterizing the geographical coverage of TEC maps
Pierre Cilliers

- CD7.p14 **A new fast and higher resolution Kp-like index, FKp, for Space Weather Operations**
Ellen Clarke, Alan Thomson, Fan Lei, Christopher Davis, Ben Clewer and Keith Ryden

Session SWR2: Interplanetary Coronal Mass Ejections and Solar Energetic Particles

- SWR2.p01 **Investigating residual Magnetosheath Jets during Coronal Mass Ejections**
Florian Koller , Ferdinand Plaschke , Luis Preisser , Manuela Temmer , Owen W. Roberts , Stefan Weiss , Zoltan Vörös
- SWR2.p02 **Differences of Forbush decreases produced by ICMEs and SIRs**
Sergio Dasso, Gutierrez Christian
- SWR2.p03 **Drag-based kinematics of ICMEs: the impact of virtual mass and magnetic erosion and towards application to real events**
Sotiris Stamkos, Spiros Patsourakos, Angelos Vourlidas, Ioannis Dagleis
- SWR2.p04 **On the magnetosheath jet production during a CME passage: A case study**
L. Preisser, F. Plaschke, F. Koller, M. Temmer, O. Roberts, Z. Vörös
- SWR2.p05 **Scales of Magnetic Complexity and Coherence within ICMEs: Insights from Spacecraft Swarms in Global Heliospheric Simulations**
Camilla Scolini, Réka M. Winslow, Noé Lugaz, Stefaan Poedts
- SWR2.p06 **Comparing flux rope CME models in EUHFORIA**
Anwasha Maharana, Luis Linan, Stefaan Poedts
- SWR2.p07 **Validation of the magnetized ICME model in Icarus**
Tinatín Baratashvili, Benjamin Grison, Brigitte Schmieder , Stefaan Poedts
- SWR2.p08 **Solar Energetic Particle Environment Modelling (SEPEM) Reference Data Set (RDS) - Version 3**
Piers Jiggins, Osku Raukunen, Ingmar Sandberg, Shannon Mutch, Rami Vainio, Daniel Heynderickx , Juan Rodriguez, Angels Aran, Marco Vuolo, Sigiava Aminalragia-Giamini

- SWR2.p09 Wave observations in the solar wind during the September 2017 solar flares and coronal mass ejection events
Paul T.M. Loto'aniu
- SWR2.p10 Effect of Alfvén Wave Turbulence on the Decay Phase of SEP Events
Valeriy Tenishev, Lulu Zhao, Igor Sokolov
- SWR2.p11 Study of propagation of CME in the heliosphere using SWASTi framework
Prateek Mayank, Bhargav Vaidya
- SWR2.p12 A new reconstruction of solar energetic particle fluence for GLE events
Sergey Koldobskiy, Osku Raukunen, Rami Vainio, Gennady Kovaltsov, Ilya Usoskin
- SWR2.p13 Galactic Cosmic Ray Variation Caused by Interacting Earth-Impacting Coronal Mass Ejection
Filip Šterc, Darije Maričić, Ivan Romštajn, Dragan Roša, Damir Hržina
- SWR2.p14 Forecasting CMEs by addressing class imbalance using several machine learning models
Hemapriya Raju, Saurabh Das, Srijani Mukherjee
- SWR2.p15 Study of the propagation of the solar wind and coronal mass ejections: numerical MHD simulations and the comparison with observations
J. J. González-Avilés, P. Riley, Michal Ben-Nun
- SWR2.p16 Sensitivity of model estimates of CME propagation and arrival time to inner boundary conditions when constrained by spacecraft data.
Lauren James, Christopher Scott, Luke Barnard, Mathew Owens, Matt Lang.

- SWR2.p17 High time resolution shock and CME observations with Solar Orbiter's Heavy Ion Sensor
B. L. Alterman, Stefano Livi, Christopher Owen, Philippe Louarn, Roberto Bruno, A. Fedorov, George Ho, Susan Lepri, Jim Raines, Antoinette Galvin, Frederic Allegrini, Keiichi Ogasawara, Peter Wurz, Ryan Dewey, Yeimy Rivera, Sarah Spitzer, Christopher Bert, Kylie Sullivan, Tim Horbury, Domenico Trotta, Heli Hietala, Milan Maksimovic, Andrew Dimmock, Yuri Khotyaintsev, Virginia Angelini, Ed Fauchon-Jones, Helen O'Brien
- SWR2.p18 Simulations of SEP events with the novel ICARUS+PARADISE model
Edin Husidic, Nicolas Wijsen, Tinatin Baratashvili, Stefaan Poedts, Rami Vainio
- SWR2.p19 Electron beam plasma instabilities and their multiple implications in the space weather context
Marian Lazar, Rodrigo A. Lopez, Shaaban M. Shaaban, Stefaan Poedts
- SWR2.p20 Monte Carlo Markov Chain inference of the Probabilistic Drag Based Model's parameters for Coronal Mass Ejection propagation
Simone Chierichini , Teresa Barata, Enrico Camporeale , Joao Fernandes , Raffaello Foldes , Gregoire Francisco , Giancarlo de Gasperis , Luca Giovannelli , Dario Del Moro , Ronish Mugatwala , Gianluca Napoletano , Jannis Teunissen
- SWR2.p21 Energetic Storm Particle events: proton energy spectra and relation with magnetic turbulence nearby IP shocks
Federica Chiappetta, Monica Laurenza, Fabio Lepreti, Giuseppe Consolini, Simone Benella
- SWR2.p22 A study of a M4.0 flare followed by a CME and a type II radio emission recorded at Solar Observatory Bucharest
Octavian Blagoi, Liliana Dumitru, Cristian Danescu
- SWR2.p23 Galactic cosmic rays as signatures of coronal mass ejections
Luka Kramaric, Mateja Dumbovic, Bojan Vrsnak, Bernd Heber, Ilona Benko, Malte Horlock, Karmen Martinic

- SWR2.p24 Validation of the EUHFORIA model for cone and spheromak CME runs
Luciano Rodriguez ,Daria Shukhobodskaja ,Antonio Niemela ,Anwesha Maharana ,Christine Verbeke ,Evangelia Samara,Jasmina Magdalenic ,Robbe Vansintjan ,Marilena Mierla ,Ranadeep Sarkar ,Emilia Kilpua ,Eleanna Asvestari ,Stefaan Poedts
- SWR2.p25 Assessment of the near-sun axial magnetic field of a Coronal Mass Ejection observed by the Solar orbiter on 11 March 2022
Shifana Koya, Spiros Patsourakos, Manolis K Georgoulis, Alexander Nindos
- SWR2.p26 Numerical diffusion-expansion Forbush decrease model, ForbMod
Anamarija Kirin, Mateja Dumbović, Bojan Vršnak, Slaven Lulić
- SWR2.p27 A study of focused transport of particles using Monte Carlo simulation
Lidiya Annie John, Rami Vainio
- SWR2.p28 Revised database of Coronal Mass Ejection characteristics from in-situ and remote observations
Ronish Mugatwala, Gregoire Francisco, Simone Chierichini, Gianluca Napoletano, Raffaello Foldes, Dario Del Moro, Robertus Erdelyi, Luca Giovannelli, Giancarlo de Gasperis, Enrico Camporeale
- SWR2.p29 Radial Sizes and Expansion Behavior of ICMEs in Solar Cycles 23 and 24
Urmi Doshi 1,2, Wageesh Mishra 3, Nandita Srivastava 4
- SWR2.p30 Energy spectra of protons above 50 MeV obtained by the Electron Proton Helium INstrument (EPHIN) aboard SOHO.
Bernd Heber, Malte Hörnlöck, Stefan Jensen, Andreas Klassen, Patrick Kühl, Holger Sierks, Robert Wimmer

Session SWR5: Geomagnetic Activity on Earth's Surface and Effects on Ground-Based Technological Systems

- SWR5.p01 Signatures of wedgelets over Scandinavia during the St Patrick's storm 2015
Audrey Schillings, L. Palin, H.J. Opgenoorth, M. Hamrin
- SWR5.p03 GEOINDUCED CURRENTS DURING SUPERSUBSTORMS AND INTENSE SUBSTORMS IN SEPTEMBER 2017
Pavel Setsko, Irina Despirak, Yaroslav Sakharov, Vladislav Bilin, Vasilij Selivanov
- SWR5.p05 Assessing the risk from Geomagnetically Induced Currents to individual transformers of the Spanish power network
S. Marsal, J.M. Torta, P. Piña-Varas, V. Canillas-Pérez, J. Ledo, A. Martí, P. Queralt, Á. Marcuello, J.J. Curto
- SWR5.p07 Geomagnetically Induced Currents and Harmonic Distortion: What we can learn from multiple years of THD observations across New Zealand?
Craig J. Rodger, Malcolm Crack, Ian Martin, Mark A. Clilverd, James B. Brundell, Daniel H. Mac Manus, and Michael Dalzell
- SWR5.p08 Studies related on rapid magnetic field variations associated to substorms and storms
Natalia-Silvia Asimopolos , Laurentiu Asimopolos
- SWR5.p09 Extreme geomagnetic storms in Northern Europe: modern events are far from the big one
Ari Viljanen , Elena Marshalko , Ilja Honkonen
- SWR5.p10 An evaluation of electric field and network models to account for the frequency dependence of network parameters used in the estimation of geomagnetically induced currents in power systems.
Pierre Cilliers, Robert Weigel
- SWR5.p11 Analysis of EGNOS signal in space performances under different types of ionospheric perturbations
Issaad KACEM, Mourad FAKHFAKH, Marzena SPAS, Mohamed OURAINI, Stanislas GUILLEMANT, Lotfi FEJRI and Christopher SANT-ANNA

SWR5.p12 Space Weather nowcast, forecast, archive and alerts products relevant Power System Operators, Pipeline Operators, Resource Exploitation System Operators, and the auroral tourism sector.

Line Drube¹, Jens Olaf Pepke Pedersen¹, Anna Willer¹, Nils Olsen¹, Jon Thøger², Norah Kaggwa Kwagala², and the members of the Geomagnetic Expert Service Center.

SWR5.p13 INVESTIGATING POSSIBILITY OF
GEOMAGNETICALLY INDUCED CURRENTS IN
KENYAN ELECTRIC POWER GRID

George Omondi

SWR5.p14 Space weather impact maps for GNSS scintillations

Sarah Beeck, Lars Stenseng

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Session P2: Exploring Multi-Spacecraft Space Weather Monitoring

- P2.p01 The GOES-R and Future SWFO-L1 Space Weather Missions
Paul T.M. Loto'aniu
- P2.p02 Plasmopause evolution from 7th to 9th September 2017 deduced from Van Allen Probes
Ljiljana Ivanković , Mario Bandić , Giuliana Verbanac
- P2.p03 Imaging the Sources of Solar Type-III Radio Bursts during the Parker Solar Probe Encounter 2
Mohamed Nedal1, Kamen Kozarev1, Peijin Zhang1, Pietro Zucca2
- P2.p05 The February 2022 Starlink Loss Event and the Need for Improved Orbital Space Weather Forecasting and Nowcasting
Thomas Berger , Marie Dominique , Greg Lucas , Marcin Pilinski , Vishal Ray , Robert Sewell , Eric Sutton , Jeffrey Thayer , Edward Thiemann
- P2.p06 NOAA's Compact Coronagraph Instrument for the ESA VIGIL Mission
Nai-Yu Wang1, Doug Biesecker1, Irfan Azeem1, Rich Ullman1, Elsayed Talaat1, Damien Chua2, Arnaud Thernisien2
- P2.p07 In-situ Energetic Electron Flux Measurements using KSEM PD on GK-2A Geostationary Satellite
Daehyeon Oh, Jiyoung Kim
- P2.p08 Coordination of ground based and in orbit multipoint measurements: comparison of magnetospheric and ground currents
Malcolm Dunlop, Xiangcheng Dong, Dong Wei, Xin Tan, Jennifer Carter, Junying Yang, J. and Chao Xiong
- P2.p09 Temporal evolution and spatial variation of the solar wind structures throughout the heliosphere
Nikolett Biró, Andrea Opitz, Anikó Timár, Zoltán Németh, Gergely Kobán, Ákos Madár, Zsuzsanna Dálya, Péter Kovács

- P2.p10 Deflection/Rotation of Earth directed CMEs in the vicinity of Coronal Hole
Suresh Karuppiah, Mateja Dumbovic, Karmen Martinic
- P2.p11 Developing Models for the Waves in the Inner Magnetosphere Using Data from Multi-Spacecraft
Dedong Wang, Yuri Shprits

Session P3: Multi-techniques to monitor the Sun and solar wind for space weather

- P3.p01 LDE3's weekly Solar Orbiter/STIX flare bulletin
R. F. Pinto, A. Finley, B. Perri, A. Strugarek, A. S. Brun
- P3.p02 Spatial distribution and survival rate of magnetosheath jets during CMEs, SIRs, and HSSs.
Stefan Weiss, Florian Koller, Manuela Temmer, Adrian T. LaMoury, Owen W. Roberts, Ferdinand Plaschke, Luis Preisser
- P3.p03 A revised version of the Empirical Solar Wind Forecast (ESWF) model
D. Milošić, M. Temmer, S.G. Heinemann, T. Podladchikova, A. Veronig, B. Vršnak
- P3.p05 Mapping the coronal plasma density using type III radio bursts, Parker Solar Probe observations and modeling with EUHFORIA
Ketaki Deshpande, Jasmina Magdalenic, Immanuel Christopher Jebraj, Senthamizh Pavaai Valliappan, Vratislav Krupar
- P3.p06 HelioCast: A white light constrained MHD model for space weather forecast of the heliosphere
Victor Réville, Alexis Rouillard, Nicolas Poirier, Athanasios Kouloumvakos, Rui Pinto, Naïs Fargette, Mikel Indurain
- P3.p07 The Space Weather Follow On (SWFO) Product Generation and Distribution (PGD) element
Dimitrios Vassiliadis (1), Ame Fox (1), Steven Hill (2), Jacob Inskip (1), Jeff Johnson (2), Laurel Rachmeler (3), Rob Redmon (3), William Rowland (3)
- P3.p08 Triangulating Solar Radio Bursts using Bayesian Methods
L Alberto Canizares, Peter T Gallagher, Eoin P Carley, Shane A Maloney

- P3.p09 **Status of the Space Weather Observatory and Services at the Royal Meteorological Institute of Belgium**
Danislav T. Sapundjiev Stanimir M. Stankov, Jean-Claude Jodogne
- P3.p10 **Assessment of the source surface neutral line as a predictor of the heliospheric current sheet crossings at 1 AU**
Kan Liou, and Chin-Chun Wu
- P3.p11 **MHD simulations in the Solar Terrestrial ObseRvations and Modeling Service (STORMS)**
Indurain, M., Dalmasse, K., Alexandre, M., Pinto, R., Reville, V., Rouillard, A.P.
- P3.p12 **CUBE (CME Catcher Carousel) – a nanosatellite space mission concept for future ESA space weather activities**
S. Ivanovski, F. Fiore, M. Lavagna, M. Piersanti, M. Laurenza, R. Iuppa, R. Battiston, S. Danzeca, P. Diego, D. Gacnik, I. Kramberger, A. Menicucci, and V. Vilona

Session CD3: Lessons from Space Climate: Extreme solar events

- CD3.p01 **The dominant fraction in atmospheric ^{10}Be transport**
K. Golubenko, E. Rozanov, G. Kovaltsov, M. Baroni and I. Usoskin
- CD3.p02 **The role of the horizontal displacements of the photospheric magnetic features in the strongest flares of solar cycle 23**
Paolo Romano, Abouazza Elmhamdi
- CD3.p03 **Space weather effects during extreme GLEs: a new assessment**
Alexander Mishev, Ilya Usoskin, Sanja Panovska
- CD3.p04 **Uncertainties determination on the multi-century Sunspot Number Series - An important historical perspective on the solar cycle.**
Shreya Bhattacharya, Laure Lefèvre, Maarten Jansen, Frédéric Clette
- CD3.p05 **Solar cycle 25 records: the strongest, brightest and most distinct features as monitored by the ESA Space Weather Service Network Portal products**
Judit Palacios, Federico Da Dalt, Ralf Keil, Hannah Laurens, Alexi Glover, Juha-Pekka Luntama

Session CD4: Recent advances in VLF observations of the ionosphere during space weather events

- CD4.p01 Filtering the useful flaring information from VLF signal
Sergio Núñez, Antonio Guerrero, Consuelo Cid
- CD4.p02 AWESOME@Nancay: performances and first results
Carine Briand, Morris Cohen, Kevin Whitmore, Sangitiana F. RAKOTOZAFY HARISON
- CD4.p03 VLF4IONS: a projet of VLF receivers around the equatorial region
Carine Briand, Germain Pham, Baptiste Cecconi, Sébastien Celestin, Mark Clilverd, Morris Cohen, Kevin Whitmore
- CD4.p04 Detection of Solar Flares from the Analysis of Signal-To-Noise Ratio Records from the Ebro Observatory
Antoni Segarra, Victor de Paula, David Altadill, Juan José Curto, Estefania Blanch
- CD4.p05 Study of the response of the lower ionosphere to solar-induced X-Ray using VLF data from A118 (France) and Anchor University Space Lab (Nigeria) receivers
Oghenenyovwe Ovie, Victor U. J. Nwankwo, Michael Olatunji, Omodara E. Obisesan, Oluwaseun V. Fatoye
- CD4.p06 Analysis of VLF disturbances using spectral methods and information entropy and perspectives of multiparameter ULF, VLF and HF Space Weather monitoring
Yuriy Rapoport, Volodymyr Reshetnyk, Asen Grytsai, Volodymyr Grimalsky, Oleksandr Liashchuk, Alla Fedorenko, Masashi Hayakawa, Andrzej Krankowski, Leszek Błaszkiwicz, Sergiy Petrishchevskii, Paweł Flisek, Oleh Ivantyshyn

Session CD5: The Ensemble Method in Space Weather Forecasting: bridging the gap between expectation and reality

- CD5.p01 To Ensemble or Not Ensemble
Enrico Camporeale
- CD5.p02 Daily ensemble forecasting from the Sun to 1 AU - The PAGER EU project.
Tony Arber, Keith Bennett, Andrew Angus, Bart van der Holst

- CD5.p03 Over 20-year global magnetohydrodynamic simulation of Earth's magnetosphere
Ilja Honkonen, Max van de Kamp, Theresa Hoppe, Kirsti Kauristie
- CD5.p04 How ensemble modelling can be easily employed to a simple Drag-Based Model: Drag-Based Ensemble Model (DBEM)
Jaša Čalogović, Manuela Temmer, Mateja Dumbović, Bojan Vršnak, Astrid Veronig

Session CD8: Measuring and modelling geoelectric fields for GIC studies

- CD8.p01 Geomagnetically induced currents in the German power grid
Leonie Pick, Aline Guimaraes Carvalho, Aoife E. McCloskey, Jens Berdermann
- CD8.p02 Expected Geomagnetically Induced Currents in the Spanish islands power transmission grids
J.M. Torta, S. Marsal, P. Piña-Varas, R. Hafizi, A. Martí, J. Campanyà, V. Canillas-Pérez, J.J. Curto, J. Ledo, P. Queralt, A. Marcuello
- CD8.p03 Extreme values and return levels of modelled geoelectric fields at the UK observatories
C. Beggan, J. Huebert, G.S. Richardson
- CD8.p04 The UK's long-period magnetotelluric field campaign for improved ground electric field modelling
E. Eaton, J. Huebert, C. Beggan, A. Montiel-Alvarez, A. Thomson, C. Hogg and D. Kiyan

Session SWR1: Solar Sources of Space Weather

- SWR1.p01 The pre-eruptive conditions and post-eruptive consequences of homologous compact major eruptive flares
Suraj Sahu, Bhuwan Joshi, Alphonse C. Sterling, Prabir K. Mitra, Ronald L. Moore
- SWR1.p02 An Investigation of the Influence of Solar Activities Variability on Earth's Climate Change
Racheal Foluke Oloruntola, Babatunde Adebo, Nurudeen Bakare, Aanuoluwapo Akinfoyeku
- SWR1.p03 Coronal dimmings as early indicators of CME propagation direction
Shantanu Jain, Galina Chikunova, Tatiana Podladchikova, Karin Dissauer, Astrid M. Veronig
- SWR1.p04 Application of different flare predictor proxies in 3D to increase the prediction time windows
Marianna Korsos
- SWR1.p05 Impact of photospheric magnetic field maps on the prevision of heliospheric structures and CME propagation
Barbara Perri , Gabriel Aulanier , Michaela Brchnelova, Blazej Kuzma , Tinatin Baratashvili, Fan Zhang , Andrea Lani , Stefaan Poedts
- SWR1.p06 Exploring the formation of the cantele-shaped flare loops
Chen Xing, Guillaume Aulanier, Jaroslav Dudík
- SWR1.p07 Progress on the GOES High cadence Operational Total Irradiance project
Martin Snow, Steven Penton, Stephane Beland, Odele Coddington, Don Woodraska
- SWR1.p08 IONOSPHERIC DISTURBANCES PRODUCED BY SOLAR WIND VARIATIONS USING VERTICAL TOTAL ELECTRON CONTENT
Juan Manuel Castaño and Amalia Margarita Meza
- SWR1.p09 The effects of the sympathetic CMEs on the strength of the geomagnetic storms
Hadeer F. Sabeha, Alshaimaa Hassanin, Ayman M. Mahrous, Mohamed Elnawawy

- SWR1.p10 MHD EUHFORIA simulations for geoeffectiveness predictions
Brigitte Schmieder (1,2,3), Anwasha Maharana (1), Camilla Scolini (4,5), Giuseppe Prete (1), Antonio Niemela (1), Stefaan Poedts (1,6)
- SWR1.p11 Modelling dynamical processes in the lower solar atmosphere with an ion-neutral two-fluid model
Fan Zhang, Andrea Lani, Stefaan Poedts
- SWR1.p12 Sunspot and Interdecadal Space Weather Burst Lifetime Distributions
James Wanliss, Ambaka LeGregam
- SWR1.p14 Segmentation and Tracking of a Solar Eruption with Multiple Instruments
Oleg Stepanyuk, Kamen Kozarev
- SWR1.p15 Solar weather products in the ESA SWE Portal from MEDOC, Université Paris-Saclay
Éric Buchlin, Stéphane Caminade, Frédéric Auchère, Miho Janvier, Marc Dexet, Anthony Gréau, Khalil Ashkar
- SWR1.p16 Interaction of coronal mass ejections and the solar wind. A force analysis
Dana-Camelia Talpeanu , Stefaan Poedts , Elke D’Huys , Marilena Mierla , Ian G. Richardson
- SWR1.p17 Monitoring space weather with PROBA2/LYRA after 12 years in space
Ingolf Dammasch , Marie Dominique
- SWR1.p18 The COSPAR ISWAT Cluster S2: Ambient Solar Magnetic Field, Heating, and Spectral Irradiance
Martin A. Reiss , Charles N. Arge , Carl J. Henney , James A. Klimchuk , Jon A. Linker , Karin Muglach , Alexei A. Pevtsov , Rui F. Pinto , Samuel J. Schonfeld
- SWR1.p19 Using field line helicity to identify Space-Weather-important locations on the Sun
Kostas Moraitis, Spiros Patsourakos, Alexander Nindos
- SWR1.p20 Analysis of a productive active region from the beginning of the solar cycle 25
Liliana Dumitru, Cristian Danescu, Octavian Blagoi

- SWR1.p21 Do pre-event conditions of the upper solar atmosphere differ for flare-imminent vs. flare-quiet active regions?
Karin Dissauer, KD Leka, Graham Barnes, Eric L. Wagner
- SWR1.p22 Identifying solar features with Mathematical Morphology
Slava Bourgeois, Andreas Wagner, Teresa Barata, Robertus Erdélyi, Orlando Oliveira, Ricardo Gafeira
- SWR1.p23 The optimal sunspot number series: iterative construction
Michal Švanda, Martina Pavelková, Jiří Dvořák, Božena Solarová

Session SWR3: Radiation Belts Forecast Applications for End-Users: from current achievements and needs to future requirements

- SWR3.p01 A new Earth Radiation Belt Forecast And Nowcast (RB-FAN) Framework based on the Salammbô data assimilation codes
V. Maget (ONERA), S. Bourdarie (ONERA), A. Ferlin (ONERA), S. Poedts (KU Leuven), A. Kochanov (A. Kochanov), C. Papadimitriou (SPARC), I. Sandberg (SPARC), E. Botek (BIRA-IASB), V. Pierrard (BIRA-IASB), E. De Donder (BIRA-IASB), L. Zychova (BIRA-IASB), M. Dierckxsens (BIRA-IASB), N. Ganushkina (FMI), S. Dubyagin (FMI) A.Glover (ESA/ESOC – Space Weather Office (OPS-SW)), R. Keil (Rhea System GmbH for ESA/ESOC/OPS-SW), H. Evans (ESA/ESTEC – TEC/EPS)
- SWR3.p02 SWE Network: Radiation Belt Activity Indices for Surface Charging, Internal Charging and Solar Array Degradation
A. Sicard (1), S. Bourdarie (1), A. Ferlin (1), D. Lazaro (1)
- SWR3.p03 Data assimilation as a baseline for Space Weather and Climatology: work done at ONERA
Antoine Brunet, Vincent Maget, Antoine Ferlin, Olivier Pannekoucke, Nour Dahmen, Martin Sabathier, Sébastien Bourdarie
- SWR3.p04 Plasmaspheric Products for Space Weather Services
János Lichtenberger, Balázs Heilig, Péter Steinbach, Dávid Koronczay, Lilla Juhász, Szilárd Pásztor, Bendegúz Bendicsek, Anders Joergen

- SWR3.p05 Waves in the Inner Magnetosphere and their Effects on Radiation Belt Electrons [WIRE]
Dedong Wang, Yuri Shprits

Session SWR4: Magnetosphere, Ionosphere and Thermosphere Coupling

- SWR4.p01 A study of spatio-temporal variability of equatorial electrojet using long-term ground-observations
Alemayehu Mengesha Cherkos and Melesew Nigussie
- SWR4.p02 PITHIA-NRF offer access to European upper atmosphere research facilities
Ingemar Häggström
- SWR4.p03 Storm-time mesoscale field-aligned currents and interplanetary parameters
A. Adero Ochieng a,b, Geeta Vichare b,, Paul Baki a, Pierre Cilliers c, Pieter Kotze c, Chao Xiong d, Ashwini Kumar Sinha*
- SWR4.p04 GIM-TEC forecast for the past and future during spotless days
Tamara Gulyaeva and Haris Haralambous
- SWR4.p05 Ionospheric irregularities embedded in a Plasma Bubble as probed with a Swarm overfly
Luca Spogli, Lucilla Alfonsi and Claudio Cesaroni
- SWR4.p06 ATISE : Ground campaigns and calibrations
Mathieu Barthelemy, Juliette Robuschi, Elisa Robert, Laura Serra Amengual
- SWR4.p08 Modeling of TEC irregularities over Greenland based on empirical orthogonal function method
Yaqi Jin, Lasse B.N. Clausen, Wojciech J. Miloch, and Per Høeg
- SWR4.p09 First 3D results with Vlasiator on auroral proton precipitation during southward interplanetary magnetic field driving
Maxime Grandin, Thijs Lutikhuis, Markku Alho, Markus Battarbee, Harriet George, Lucile Turc, Maxime Dubart, Yann Pfau-Kempf, Urs Ganse, Maarja Bussov, Giulia Cozzani, Evgeny Gordeev, Konstantinos Horaites, Konstantinos Papadakis, Jonas Suni, Vertti Tarvus, Fasil Tesema, Ivan Zaitsev, Hongyang Zhou, Minna Palmroth

- SWR4.p10 Distributed Space weather Sensor System observations of the magnetosphere, ionosphere and thermosphere
Melanie Heil, Stefan Kraft, Juha-Pekka Luntama, Alexi Glover
- SWR4.p11 Signal arriving direction monitoring tool for PL610 LOFAR station
Mariusz Pozoga, Helena Ciechowska, Barbara Matyjasiak, Hanna Rothkaehl
- SWR4.p12 Detection of Travelling Ionospheric Disturbances and effects in the HF direction finding system
Antoni Segarra, David Altadill, Jens Tölle, Stefan Unger
- SWR4.p13 The Time-Frequency Analysis (TFA) toolbox: a versatile processing tool for the recognition of geophysical signals in Swarm time series
Georgios Balasis, Constantinos Papadimitriou, Adamantia Zoe Boutsí, Georgios Vasalos, Omiros Giannakis, Alexandra Antonopoulou, Ashley Smith, Klaus Nielsen
- SWR4.p14 Observations of stable auroral arcs with the ALIS network leading to the precipitating electron flux
Gaël Cessateur, Hervé Lamy, Marius Echim, Cyril Simon Wedlund, Guillaume Gronoff, Romain Maggiolo
- SWR4.p16 SUBSTORM MAGNETIC EFFECTS AT MID-LATITUDES AND LARGE-SCALE STREAMS IN THE SOLAR WIND
Irina Despirak, Andris Lubchich, Nataliya Kleimenova, Suvorova Z.V.
- SWR4.p17 Thermospheric conditions associated with the loss of 40 Starlink satellites
Yongliang Zhang, Larry J. Paxton, Robert Schaefer, and William H. Swartz
- SWR4.p18 Forecasting the high-latitude ionospheric electric field using the BAS reanalysis of Super Dual Auroral Radar Network (SuperDARN) data
Mai Mai Lam, Robert M. Shore, Gareth Chisham, Mervyn P. Freeman, Adrian Grocott, Maria T. Walach, Lauren Orr
- SWR4.p19 A 3-Dimensional MHD Study of Flux Transfer Events at the Dayside Magnetopause
Arghyadeep Paul, Bhargav Vaidya, Antoine Strugarek

- SWR4.p20 Comparison of the Feldstein-Starkov Auroral Oval Model with the Epsilon Parameter for Various Geomagnetic Storms
Mehmet Baran Ökten, Zehra Can
- SWR4.p21 Medium-term predictions of F10.7 and F30 cm solar radio ux with RESONANCE
Tatiana Podladchikova, Elena Petrova, Astrid M. Veronig, Stijn Lemmens, Benjamin Bastida Virgili, Tim Flohrer
- SWR4.p22 Multi-instrumental investigation of the solar flares impact on the ionosphere on 05–06 December 2006
Veronika Barta, Randa Natras, Vladimir Srećković, David Koronczay, Michael Schmidt, and Desanka Šulic
- SWR4.p23 Assessment of space weather conditions that may impact the lifetime of low altitude satellites
Yoshita Baruah, Souvik Roy, Suvadip Sinha, Erika Palmerio, Sanchita Pal, Dibyendu Nandy
- SWR4.p24 Instrumental issues in Spread F automatic detection from ionograms
Carlo Scotto, Alessandro Ippolito, Dario Sabbagh
- SWR4.p25 An imaging Polarimeter for the Auroral Line Emissions
Gaël Cessateur, Herve Lamy, Leo Bosse, Mathieu Barthelemy, Jean Liliensten, Magnar G. Johnsen
- SWR4.p26 High-latitude ionospheric electric field model comparison during the September 2017 geomagnetic storm
L. Orr, A. Grocott, M.-T Walach, G. Chisham, M.P. Freeman, R.M. Shore, M.M. Lam
- SWR4.p27 Comprehensive analysis of the response of the ionospheric F2-layer to the largest geomagnetic storms from solar cycle 24 over Europe
K. A. Berényi, B. Heilig, J. Urbář, D. Kouba, Á. Kis, V. Barta
- SWR4.p28 Diagnose of the magnetospheric generator properties from in situ and/or optical observations of stable auroral arcs
Herve Lamy, Marius Echim, Cyril Simon Wedlund, Gaël Cessateur, Johan De Keyser

- SWR4.p29 High latitude scintillation detection using TEC provided by multi-frequency professional GNSS receivers
Rayan Imam, Fabio Dovis, Claudio Cesaroni, Luca Spogli, Lucilla Alfonsi
- SWR4.p30 The Socioeconomic Impacts of the Upper Atmosphere Effects on LEO Satellites, Communication and Navigation Systems
Pietro Vermicelli; Sara Mainella, Lucilla Alfonsi, Anna Belehaki, Dalia Buresova, Reko Hynonen, Vincenzo Romano; Ben Witvliet
- SWR4.p31 Variations of thermospheric parameters in the Northern Hemisphere during SWWs in January 2008 and 2009
*L.Perrone *(1)and A.Mikhailov(2,1)*
- SWR4.p32 Spatial and temporal distribution of intermittent magnetic field irregularities in the upper ionosphere and their space weather consequences; Study of the Swarm mission magnetic field records
Péter Kovács(1), Balázs Heilig(2), Andrea Opitz(1), Nikolett Biró(1), Gergely Kobán(1), Zoltán Németh(1)
- SWR4.p33 A lack of F10.7 consensus: Impacts of varying F10.7 smoothing approaches on global models
Elizabeth Donegan-Lawley, Sean Elvidge, Luke Nugent, Alan G. Wood, David R. Themens
- SWR4.p34 Spectral numerical study of the development of the Rayleigh-Taylor instability in the MHD-Boussinesq model
Anna Piterskaya, Mikael Mortensen
- SWR4.p35 Scintillation on transionospheric radio signals
Dmytro Vasylyev, Martin Kriegel, Volker Wilken, Jens Berdermann



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AVIDOS is a Seibersdorf Laboratories' web service federated with and accessible via [ESA Space Weather Portal](#).

AVIDOS is an information and educational software for assessing radiation exposure from galactic and solar cosmic rays during civil aviation flights.

The newly released AVIDOS 3.0 features a redesigned and reprogrammed graphical user interface that is easily accessible through most modern web browsers. AVIDOS 3.0 has a new functionality: an internal database where users can store and manage their data.