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- Joe Borovsky, Space Science Institute, Boulder, CO, USA

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International Symposium on
Recent Observations and Simulations of the
Sun–Earth System III

Golden Sands, Varna, Bulgaria, 11–16 September 2016

Scientific Program

SUNDAY, 11 SEPTEMBER

17:00-19:00 **Registration**

Welcome Ceremony at Hotel International

Presiding: V. Jordanova

19:00 Welcome Address

19:30 Cocktail Reception

MONDAY, 12 SEPTEMBER

8:00-8:30 **Registration**

Opening Session
Session Chair: V. Jordanova

08:30 **I. Roussev:** Synergy between ISROSES and NSF's GEM, CEDAR, and SHINE Programs (Invited)

Session I: Interactions and coupling within the Sun-Earth system
Session Chair: V. Jordanova

09:00 **M. Wiltberger:** Simulations of Magnetosphere-Ionosphere Coupling Using Geospace Models (Invited)

09:25 **J. Borovsky:** Developing a Systems-Science Methodology for Statistical Data Analysis of the Solar-Wind-Driven Magnetosphere

09:45 **R. Thorne:** Modeling the Observed Dynamic Variability of Earth's Radiation Belts (Invited)

10:10–10:25 Coffee break

Session II: Interactions and coupling within the Sun-Earth system
Session Chair: L. Kistler

10:25 **D. Welling:** The Ionospheric Source of Magnetospheric Plasma is Not a Black Box (Invited)

10:50 **C. Gabrielse:** Plasma sheet injections and their relationship to magnetotail transients (Invited)

11:15 **J. Birn:** Modeling Energetic Particle Injections

11:35 **T. Brito:** Quantifying ion fluxes of ionospheric origin at geosynchronous orbit during substorms

11:55-13:30 Lunch break

Session III: Interactions and coupling within the Sun-Earth system

Session Chair: M. Denton

13:30 **L. Lyons:** 2013 March 17 Storm: Synergy of Observations Related to Mid-Latitude Electric Field Drivers and their Auroral, Current, Plasma Sheet Penetration, and Ring current (Invited)

13:55 **C. Chaston:** Particle Acceleration in Electromagnetic Field Structures in the Inner Magnetosphere (Invited)

14:20 **M. Usanova:** Van Allen Probes Observations of Oxygen Cyclotron Harmonic Waves in the Inner Magnetosphere

14:40 **C. Rodger:** Nature's Grand Experiment: Linkage Between Magnetospheric Convection, Substorms and the Radiation Belts

15:00 **Y. Yu:** A New Ionospheric Electron Precipitation Module Coupled with RAM-SCB within the Geospace General Circulation Model

15:20-15:35 Coffee break

Session IV: Interactions and coupling within the Sun-Earth system

Session Chair: W. Wiltberger

15:35 **M. Denton:** The complex nature of storm-time ion dynamics: Transport and local acceleration

15:55 **M. Mlynczak:** Observations of Space Weather and Space Climate over the past 15 years from SABER (Invited)

16:20 **S.Oyama**: Dependency of the thermospheric dynamics on the auroral morphology (Invited)

16:45 **I. Kutiev:** 3D reconstruction of electron density distribution over Europe in real time

Session ends: 17:05

17:30-19:00 **Poster Session I**

Session Chair: V. Jordanov

TUESDAY, 13 SEPTEMBER

8:00-8:30 **Registration**

Session I: Advances in measurement, theory, and simulations of the SES
Session Chair: V. Maget

8:30 **C. Pollock:** MMS Observations of Turbulence and Turbulent Dissipation in Earth's Magnetosheath and Upstream Solar Wind (Invited)

8:55 **D. Turner:** Transient ion foreshock phenomena on Earth's dayside (Invited)

9:20 **B. Lavraud**: Currents and associated electron scattering and bouncing near the diffusion region at Earth's magnetopause

9:40 **S. Markidis:** Kinetic Features of Magnetic Reconnection in Coupled MHD-PIC Magnetosphere Simulations (Invited)

10:05-10:20 Coffee break

Session II: Advances in measurement, theory, and simulations of the SES
Session Chair: D. Turner

10:20 **L. Kistler:** Advancements in Time-of-Flight Mass Spectrometers (Invited)

10:45 **V. Maget:** Data Assimilation in the radiation belts (Invited)

11:10 **D. Kondrashov:** Low-order data-driven applications in the Sun-Earth system

11:30 **D. Herrera:** Magnetic Local Time dependency in Earth radiation belts' modeling

11:50 **Q. Schiller:** Prompt relativistic electron acceleration in the inner magnetosphere due to interplanetary shocks

12:10 **V. Jordanova:** Specification of Space Hazards Induced near Earth by Large Dynamic Storms (SHIELDS)

12:30-14:30 Lunch break

Session III: Advances in measurement, theory, and simulations of the SES
Session Chair: B. Lavraud

14:30 **O. Santolik:** Survey of whistler-mode plasma waves in the inner magnetosphere using measurements of the Van Allen Probes (Invited)

14:55 **I. Kolmasova:** Properties of whistler-mode waves in plasmaspheric plumes

15:15 **C. Rodger:** Experimental observations of electron precipitation by EMIC waves (Invited)

15:40 **M. Cowee:** Modeling the dependence of EMIC wave properties on ring current plasma conditions

16:00 **E. Douma:** Comparison of >1 Mev relativistic electron microburst characteristics with whistler mode chorus and EMIC wave occurrence

16:20-16:35 Coffee break

Session IV: Advances in measurement, theory, and simulations of the SES
Chair: J. Borovsky

16:35 **M. Schulz:** Strategy for Improved Representation of Magnetospheric Electric Potential Structure on a Polar-Capped Ionosphere

16:55 **E. Turunen:** EISCAT and EISCAT_3D Incoherent Scatter Radar Facilities – New Techniques and Science Opportunities for Geospace and Atmospheric Research (Invited)

17:20 **D. Sibeck:** Science Objectives for the Solar wind Magnetosphere Ionosphere Link Explorer (SMILE) Mission

17:40 **Y. Liu:** An Introduction to Recent Progress on a Future Chinese Mission to Observe the Coupling between the Earth's Magnetosphere, Ionosphere and Thermosphere

18:00 **V. Jordanov:** Radiation Measurements - Concepts and Misconceptions

Session ends: 18:20

WEDNESDAY, 14 SEPTEMBER

7:30-8:00 **Registration**

8:00–17:00 **Field Trip to Balchik & Kaliakra**

12:30-13:30 **Lunch (included)**

17:30-19:00 **Poster Session II**

Session Chair: P. Nedialkov

THURSDAY, 15 SEPTEMBER

8:00-8:30 **Registration**

Session I: Reaction of the Earth system to the Sun and the solar wind
Session Chair: I. Roussev

8:30 **T. Amari:** Magnetic environment for solar eruptions (Invited)

8:55 **Y. Maneva:** Ion heating by kinetic Alfven waves in the solar wind

9:15 **K. Kozarev:** SEP Acceleration by CME-Driven Shocks in the Solar Corona

9:35 **P. Kotze:** Spectral Analysis of Solar Total Irradiance Behaviour during Cycle 23-24

9:55 **E. Grigorenko:** Influence of the IMF BY field on the magnetotail current sheet structure and particle dynamics

10:15-10:30 Coffee break

Session II: Reaction of the Earth system to the Sun and the solar wind
Session Chair: D. Sibeck

10:30 **G. Korotova:** Spatial and Temporal Characteristics of Long-Lasting Poloidal Pc4 Pulsations in the Dayside Magnetosphere

10:50 **V. Sergeev:** On the role of solar wind plasma state in the magnetospheric plasma acceleration

11:10 **E. Antonova:** Auroral Oval Mapping and the Problem of the Acceleration of Electrons of the Outer Radiation Belt (Invited)

11:35 **S. Dubyagin:** Solar Wind Control of the Plasma Sheet Thermal Electrons at r=6-11 Re Empirical Model

11:55-14:30 Lunch break

Session III: Reaction of the Earth system to the Sun and the solar wind
Session Chair: K. Kozarev

14:30 **J. Woodroffe:** Modeling Magnetospheric Particle Fluxes During the March 17, 2013 Geomagnetic Storm

14:50 **S. Milan:** Response of the Ionosphere to the Solar Wind (Invited)

15:15 **N. Østgaard:** The asymmetric system during the magnetic storm on August 17, 2001 (Invited)

15:40 **K. Mursula:** Regional climate effects of high-speed solar wind streams: Global connection and preconditioning emphasized (Invited)

16:05-16:20 Coffee break

Session IV: Reaction of the Earth system to the Sun and the solar wind
Session Chair: C. Rodger

16:20 **M. Voiculescu:** Space climate proxies versus internal climatic modes imprints on terrestrial cloud cover (Invited)

16:45 **F. Søraas:** Observations of energetic protons and neutral atoms (ENA) at low altitudes during geomagnetic storms

17:05 **M. M. Lam:** Response of the lower atmosphere to changes in the global atmospheric electric circuit (GEC) associated with solar wind variability (Invited)

17:30 **S. Mavrodiev:** On the regional imminent seismic activity forecasting and the possibilities for “when, where and how” earthquake’s prediction

Session ends: 17:50

19:00 - **Gala Dinner at Hotel International**

FRIDAY, 16 SEPTEMBER

8:00-8:30 **Registration**

Session I: Recent research in space weather science and applications
Session Chair: G.L. Delzanno

8:30 **S. Poedts:** A new solar wind and CME evolution model (Invited)

8:55 **P. Lamy:** Solar Corona and Space Weather

9:15 **I. Roussev:** New Insights into the Origin and Evolution of CMEs (Invited)

9:40 **N. Meredith:** Determination of the 1 in 10, 1 in 50 and 1 in 100 year space weather event (Invited)

10:05-10:20 Coffee break

Session II: Recent research in space weather science and applications
Session Chair: M. Usanova

10:20 **M. Henderson:** Multi-point Observations and Modeling of Particle Injections during Substorms (Invited)

10:45 **J. Stadsnes:** Trapped and precipitating energetic electrons during geomagnetic storms driven by corotating interaction regions (CIRs)

11:05 **M. Balikhin:** Chorus, Hiss and Equatorial Magnetosonic Waves: System Science approach to identify control parameters of wave distribution in the magnetosphere (Invited)

11:30 **D. Pokhotelov:** Effects of ULF Wave Power on Relativistic Radiation Belt Electrons: 8-9 October 2012 Geomagnetic Storm

11:50 **P. Anderson:** Mapping the South Atlantic Anomaly continuously over two complete solar cycles

12:10-14:00 Lunch break

Session III: Recent research in space weather science and applications
Session Chair: M. Henderson

14:00 **H. Singer:** Transitioning Models from Research to Operations at NOAA Space Weather Prediction Center (Invited)

14:25 **N. Ganushkina:** Forecasting the keV-electrons in the inner Earth's magnetosphere responsible for surface charging (Invited)

14:50 **G.L. Delzanno:** Spacecraft charging via numerical simulations: computational design choices and physics applications

15:10 **R. Horne:** Modelling Space Weather Events and Mitigating their Effects on Spacecraft with SPACESTORM

15:30-15:45 Coffee break

Session IV: Recent research in space weather science and applications
Session Chair: D. Welling

15:45 **L. Trichtchenko:** Impacts of geophysical and network parameters on evaluation of geomagnetically induced currents in ground networks

16:05 **T. Dachev:** ISS radiation environment in the period 23 October 2014 - 11 January 2016 (Invited)

16:30 **I. Despirak:** Substorm behavior dependence of space weather conditions in the 23-th and 24-th solar cycles

16:50 **J. Semkova:** Experimental investigations of the radiation environment onboard ExoMars 2016 and 2018 interplanetary missions

17:10 **Publication Plans and Closing Remarks**
Vania Jordanova and Joe Borovsky

17:30 ISROSES Adjourns

POSTER SESSION I

MONDAY, 12 SEPTEMBER

17:30 – 19:00 Poster Viewing

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1. **L. Biktash:** Dst index and its imperfections
2. **L. Damé:** SUITS/SWUSV: A Small-Size Mission to Address Solar Spectral Variability, Space Weather & Solar-Climate Relations
3. **P. Dobreva:** A study of the magnetosheath plasma properties with the gasdynamics framework
4. **J. Hawkins:** WN4 Variability in the Topside Ionosphere
5. **A. Irbah:** Geometry of the Sun as seen with HMI (SDO) during Cycle 24
6. **M. Klimenko:** Geomagnetic and ionospheric disturbances during storms in March 2013 and March 2015
7. **D. Krezhova:** Application of advanced spectral remote sensing techniques for assessment of the plant health
8. **R. Landry:** Boundary Oriented Global Empirical Model of Subauroral Polarization Streams
9. **D. Marlia:** Variation of Ionospheric TEC and Scintillation during the Magnetic Storm on 17 March 2015 Observed in Low Latitude: Over Indonesia
10. **S. Savin**: Penetration of super-low frequency disturbances from solar wind and magnetosheath towards ionosphere
11. **E. Seba:** Investigating the effect of geomagnetic storms and equatorial electrojet on equatorial ionospheric irregularity over East African sector
12. **R. Shkevov:** Surfatron acceleration of relativistic protons by electromagnetic wave in space plasma
13. **A. Stoev:** Cosmic ray variations as a tool for studying surface layer baric and temperature fields
14. **T. Tsvetkov:** Kinematics of prominence eruption
15. **P. Velinov:** Calculation of Short, Mid and Long Term Ionization Effects by Solar Energetic Particles During Bastille Day on 14 July 2000
16. **V. Vesselinov:** Model Predictions of Complex System Behavior

POSTER SESSION II

WEDNESDAY, 14 SEPTEMBER

17:30 – 19:00 Poster Viewing

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1. **B. Adebesin**: Incidence of Extreme dB/dt Perturbations at Equatorial Regions: Observation and Simulation Results
2. **B. Benev:** A new anisotropic magnetoresistive vector magnetometer used in geophysical applications and space weather monitoring
3. **L. Biktash:** Space weather, Dst index and global temperature evolution of during solar cycles 19-24
4. **L. Damé:** SOLAR/SOLSPEC: major results of 8 years of solar observations from the ISS
5. **V. Guineva:** Substorms during geomagnetic storms observed at Apatity in the course of the descending phase of SC24
6. **R. Koleva**, Transient Plasma Structures in the Magnetotail Lobes
7. **K. Krastev:** Calculation of the radiation doses and particle fluxes obtained from the Liulin-MO dosimetric instrument onboard ExoMars 2016 mission to Mars
8. **K. Krezhov:** Structural aspects of biogenic iron-rich products of neutrophilic bacterial origin
9. **V. Rusanov:** Really “Guests” from the Sun System or simply Earth Rocks or Scrap
10. **J. Semkova:** Radiation investigations on the International Space Station: summary of results for years 2007/2015 obtained with Liulin-5 charged particle telescope
11. **L. Sfica:** Solar signal at regional scale: a study of possible solar impact upon cloud cover and associated climatic parameters in Romania
12. **I. Shagimuratov:** Similarities and Features of GPS TEC Fluctuations Occurrence During Auroral Activity
13. **R. Shkevov:** Surfatron acceleration of weakly relativistic electrons by electromagnetic waves packet in space plasma
14. **P. Stoeva:** Influence of high-speed solar wind on galactic cosmic rays
15. **P. Velinov:** Calculation of Total Electron-Ion Production Rates Due to Solar Energetic Particles During Halloween Events 2003
16. **R. Werner:** Climate Forcing Factors Influences on Climate Change at Large Regional Scales