

## **ISEA-14: First Announcement - May 2014**

The International Symposium on Equatorial Aeronomy (ISEA) is organized approximately every three to four years and is a major event in the field of Aeronomy. It serves as a forum for scientists around the world to report and discuss their recent research results and progress related to the physics of the thermosphere and ionosphere at equatorial, low- and mid-latitudes.

The 14<sup>th</sup> International Symposium on Equatorial Aeronomy will be held in Africa for the first time in more than four decades, from October 19-23, 2015 at Bahir Dar University, in Bahir Dar, Ethiopia. Bahir Dar city, one of the tourist destinations in the country, is about 560 km from the capital, Addis Ababa. There are at least two flights per day to Bahir Dar from Addis Ababa. Addis Ababa, the capital of the African Union, is one of the most easily accessible African cities. There are many flights to Addis Ababa by major carriers, including direct flights from Washington DC and many European major cities. Information about ISEA-14 can be found at <http://www.bdu.edu.et/isea14/>

### **The ISEA-14 scientific sessions**

The ISEA-14 program includes six scientific sessions with oral and poster presentations and will be distributed over four and a half conference days. A more detailed program will be available soon. Session descriptions, including conveners are given below. This information is also available on the ISEA-14 website indicated above.

*S1: Magnetosphere-Ionosphere-Thermosphere coupling impact at low- and mid-latitudes*

*S2: Longitudinal dependence of equatorial electrodynamics and storm-enhanced density*

*S3: Ionospheric irregularities and scintillations*

*S4: New results from recently deployed instrumentation*

*S5: Equatorial aeronomy related to atmosphere-ionosphere coupling*

*S6: Future opportunities using upcoming new mission and planned ground-based instrumentation*

### **Session 1: Magnetosphere-Ionosphere-Thermosphere coupling impact at low- and mid-latitudes**

**Conveners:** H. Wang and A. Yoshikawa, and L. Goncharenko

**MSO:** J. L. Chau and C. Stolle

*Description:* The inner magnetosphere and the ionosphere are closely coupled through the Earth's closed magnetic field lines at low- and mid-latitudes. Many phenomena occurring in the inner magnetosphere, such as polarization electric fields, region 2 field-aligned currents, and wave-particle interactions, can have effects on the ionosphere. On the other hand, ionospheric conditions like ionospheric conductivity and ion upflow can alter magnetospheric processes. Open field lines, or the field lines that reach far into the magnetotail, allow enhanced solar and magnetospheric energy inputs into the high-latitude ionosphere. It is presently believed that high- and low-latitudes are connected through tidal waves. Modulations by planetary and gravity waves are equally important for energy dissipation between polar and equatorial regions, such as traveling atmospheric and ionospheric disturbances, or the disturbance dynamo being initiated by enhanced

energy input into the high-latitude atmosphere. This session will cover the coupling processes between the inner magnetosphere, solar and magnetospheric energy transferred into the polar ionosphere and the ionosphere and thermosphere at low- and mid-latitudes. This includes traveling atmospheric and ionospheric disturbances, the disturbance dynamo, as well as variations of electric and magnetic fields and of the electric currents. Reports on observations, modeling, and theoretical aspects are all welcome.

Special focus is expected, but not exclusive, on:

- the response of the low- and mid-latitude ionosphere to penetrating electric magnetospheric fields vs. the disturbance dynamo (e.g., what is the response of low- and mid-latitude dynamics depending on storm onset times and local time?)
- the contribution of magnetospheric sources to quiet-time variability at low- and mid-latitudes. What is the contribution from tropospheric forcing and from magnetospheric and solar wind sources?

## ***Session 2: Longitudinal dependence of equatorial electrodynamics and storm-enhanced density***

**Conveners:** M. Nishioka, V. Doumbia, and C. Nardin

**MSO:** P. Erickson

*Description:* This session encourages scientific contributions related to the longitudinal dependence of important processes affecting low- and mid-latitude electrodynamics and ionospheric structuring. Storm enhanced density (SED), vertical ionospheric drifts, the equatorial electrojet (EEJ), the equatorial ionospheric anomaly (EIA), and equatorial plasma irregularities can all have significant longitudinal variations with large implications for global and regional ionosphere and thermosphere dynamics. We welcome contributions addressing observations of longitudinal differences, studies elucidating key drivers, and insights they provide into the larger coupled geospace system and into the relative influence of charged and neutral atmospheric processes. Local, regional, and global-scale observations from satellites, ground-based radio and optical techniques, magnetometers, and others are appropriate as well as modeling and theoretical results are also welcome.

## ***Session 3: Ionospheric irregularities and scintillations***

**Conveners:** F. S. Rodrigues, A. Bhattacharyya, and T. Yokoyama

**MSO:** J. Makela and M. Milla

*Description:* This session covers scientific contributions related to fundamental and applied aspects of E- and F-region ionospheric irregularities at equatorial-, low-, and mid-latitudes, 150-km echoes, and sporadic E-layers. The session welcomes presentations describing results of investigations related to seeding processes, evolution, and decay of equatorial and mid-latitude spread-F structures. The session also welcomes presentations of investigations related to geophysical factors governing the development of equatorial F-region irregularities, and processes leading to post-midnight and/or June solstice spread-F. Contributions related to the effects of the turbulent ionosphere on signals used by satellite-based navigation systems and signals used for communication and remote sensing are encouraged. Presentations related to theoretical, experimental, and numerical simulation studies are welcome.

#### **Session 4: *New results from recently deployed instrumentation***

**Conveners:** J. Meriwether, C. Amory, B. Rabiou, and H. Liu

**MSO:** E. Yizengaw and K. Shiokawa

*Description:* This is an open session for the scientific community to report their observational results from recently deployed ground-based instruments, particularly in Africa -- a region that has not yet been explored in detail. Thus, papers that have an emphasis upon results from ground-based instruments recently deployed at new geographic locations or recently launched LEO satellite missions (e.g., SWARM) are invited for this session. Such instruments might be digital ionosondes, magnetometers, GNSS receivers, coherent or incoherent scatter radars, and optical all-sky imaging, and Fabry-Perot interferometers. Papers with results based upon networks of such instruments and papers associated with new measurements in the African longitudinal sector are especially encouraged for submission.

#### **Session 5: *Equatorial aeronomy related to atmosphere-ionosphere coupling***

**Conveners:** Tim Fuller-Rowell, D. Chakrabarty, and Charles Lin

**MSO:** K. Shiokawa

*Description:* This session encourages scientific contributions related to the roles of lower atmospheric processes like tides, gravity waves and planetary waves on the thermosphere and ionosphere, including electrodynamics, at equatorial and low latitudes, from the perspective of vertical/latitudinal coupling and temporal variability. Results that address the roles of migrating and non-migrating tides, wave-mean flow interactions and neutral instabilities, sudden stratospheric warming events, etc. in the equatorial ionospheric processes are welcome. Contributions that address the relative roles of solar activity and lower atmospheric processes at various solar epochs are encouraged. Studies related to the role of the spectrum of waves across all spatial and temporal scales propagating from the lower atmosphere that impact the equatorial ionosphere are also solicited. This session intends to cover the satellite, ground-based experimental results on global, regional and local scales as well as theoretical and modeling results that elicit intricate coupling aspects between the lower atmosphere and the equatorial ionosphere.

#### **Session 6: *Future opportunities using upcoming new mission and planned ground-based instrumentation***

**Conveners:** J. Makela, K. Shiokawa, and C. Stolle

**MSO:** D. Pallamraju and A. Stromme

*Description:* New experimental results help in advancing scientific understanding. Especially for space research, ground- and balloon-based as well as satellite-borne measurements complement each other with high temporal resolution and large spatial coverage datasets to provide insightful information on the atmospheric coupling processes and the dynamics of upper atmospheric regions. In the recent past many experiments and missions have been conducted and several are planned in the near future. They include experiments from new ground-based instruments operating in enhanced observational modes or new satellite missions, such as ICON, GOLD, COSMIC-2, and a variety of CubeSat programs. This session invites abstracts that describe results from recent multi-instrumented campaigns (using ground, rockets, balloon, and satellites platforms). This session also

welcomes new experiments, modeling and simulations studies aimed to address outstanding questions, future trends, and challenges.

If you are interested in participating in ISEA-14, have any question regarding ISEA-14, and want to receive future announcements please contact us at [kassie@bc.edu](mailto:kassie@bc.edu)

Sincerely,

### **The ISEA-14 International Organizing Committee**

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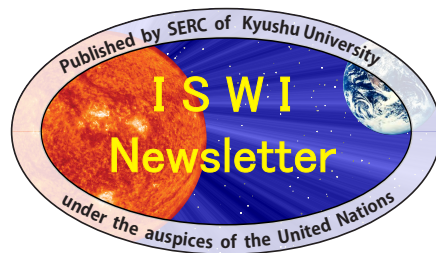
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