

ISEA-15 : Program Booklet



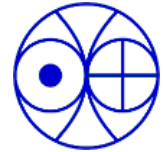
ISEA-15 : Sponsors

Main Sponsors

Indian Space Research Organisation (**ISRO**)



Physical Research Laboratory (**PRL**)



Co-Sponsors

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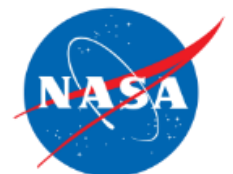
International Association of Geomagnetism and
Aeronomy (**IAGA**)



Committee on Space Research (**COSPAR**)



National Aeronautics and Space Administration (**NASA**)



About the 15th International Symposium on Equatorial Aeronomy (ISEA-15)

The International Symposium on Equatorial Aeronomy brings together scientists involved in various aspects of upper atmospheric research from around the globe. Occurring about every three to four years, ISEA presents an excellent platform to discuss and report on recent scientific results, as well as to foster collaborations among global researchers in this ever growing and dynamically evolving field of research. ISEA is not a rigidly structured body, and the members of the Scientific Organizing Committee (SOC) are active researchers of their own accord with global reputation who volunteer to serve the community and mould the meeting topics to keep pace with developments on the international stage.

The SOC members are drawn from different parts of the globe and are chosen by consensus. The SOC members assume multiple roles including making the selection of the prospective venue for the ISEA from the proposals that are received, deciding on the agenda and scientific themes for the Symposium, writing proposals for securing sponsorships for hosting the Symposium, identifying the Conveners for different scientific sessions who are drawn from different countries globally, and guiding the overall organization of each of the Scientific sessions by assuming the role of Main Scientific Organizers.

ISEA is a 5-day long single session symposium with no parallel sessions, as this approach provides a clear advantage in terms of sharing the new findings with a wider audience. However, this also puts a significant constraint on the number of talks that can be accommodated in the available time slots. Working with the Conveners, the SOC maintained a balance across the different sessions so that a maximum number of scientists can be accommodated in oral slots. The Conveners of all the sessions have done an excellent job in identifying the invited speakers, judging the oral and poster distributions, creating the line-up of talks, among many other tasks. We, the members of the SOC, commend the Conveners for the efforts that they have put in. We hope that all the delegates will make full use of this ISEA-15 and reap scientific benefits.

Scientific organizing Committee (SOC)

Duggirala Pallamraju, PRL, India

Endawoke Yizengaw, BC, USA

Philip Erickson, MIT, USA

Jonathan Makela, UI, USA

Claudia Stolle, GFZ, Germany

Marco Milla, JRO, Peru

Clezio de Nardin, INPE, Brazil

Mamoru Yamamoto, RISH, Japan

ISEA-15 : Scientific Sessions and Conveners

Session 1 : Equatorial E- and F-region irregularities: Cause and effects

Conveners : Amit K. Patra, NARL, India ; Fabiano Rodrigues, Univ. Texas, USA

MSO : Jonathan J. Makela, UI, USA

Session 2 : Longitudinal dependence of equatorial electrodynamics

Conveners : Larisa P. Goncharenko, MIT Haystack Observatory, USA ; Geeta Vichare, IIG, India

MSO : Endawoke Yizengaw, BC, USA

Session 3 : Mesosphere Ionosphere Thermosphere coupling at low- and mid-latitudes

Conveners : Kazuo Shiokawa, ISEE, Japan ; Subramanian Sridharan, NARL, India

MSO : Philip J. Erickson, MIT Haystack Observatory, USA

Session 4 : Mid- and low-latitude effects of global atmospheric wave coupling

Conveners : Subramanian Gurubaran, IIG, India ; Erdal Yigit, GMU, USA

MSO : Duggirala Pallam Raju, PRL, India

Session 5 : Space weather effects on low- and mid-latitudes

Conveners : Anthea Coster, MIT Haystack Observatory, USA ; Dibyendu Chakrabarty, PRL, India

MSO : Claudia Stolle, GFZ, Germany

Session 6 : Results from new techniques, experiments, and campaigns

Conveners : Juha Vierinen, UIT, Norway ; Raj Kumar Choudhary, SPL, India

MSO : Marco Milla, JRO, Peru ; Mamoru Yamamoto, RISH, Japan

Session 7 : Future opportunities with space and ground based instrumentation

Conveners : Jorge L. Chau, IAP, Germany ; Tarun Kumar Pant, SPL, India

MSO : Clezio De Nardin, INPE, Brazil ; Mamoru Yamamoto, RISH, Japan

ISEA-15 : Organizing Committees

Scientific Organizing Committee (SOC)

- Prof. Duggirala Pallam Raju, PRL, India
- Dr. Endawoke Yizengaw, BC, United States
- Prof. Jonathan Makela, UI, United States
- Dr. Philip Erickson, MIT, United States
- Dr. Claudia Stolle, GFZ, Germany
- Dr. Marco Milla, JRO, Peru
- Dr. Clezio De Nardin, INPE, Brazil
- Prof. Mamoru Yamamoto, RISH, Japan

National Organizing Committee (NOC)

- | | |
|--|----------|
| ▪ Dr. K. Sivan, Chairman, ISRO/ Secretary, DOS | Patron |
| ▪ Shri. A. S. Kiran Kumar, Chairman, PRL Council of Management | Patron |
| ▪ Prof. G. Joseph, Chairman, ADCOS | Chairman |
| ▪ Shri. D. K. Das, Director, SAC, Ahmedabad | Member |
| ▪ Dr. V. K. Dadhwal, Director, IIST, Thiruvananthapuram | " |
| ▪ Shri. R. Umamaheshwaran, Scientific Secretary, ISRO HQ, Bengaluru | " |
| ▪ Shri. A. Srivastava, Joint Secretary and Financial Advisor to ISRO, ISRO HQ, Bengaluru | " |
| ▪ Dr. A. Bhardwaj, Director, PRL, Ahmedabad | " |
| ▪ Dr. P. Sreekumar, Director, SSPO, ISRO HQ, Bengaluru | " |
| ▪ Dr. Radhika Ramachandran, Director, SPL, Thiruvananthapuram | " |
| ▪ Dr. A. K. Patra, Director, NARL, Gadanki | " |
| ▪ Prof. D. S. Ramesh, Director, IIG, Mumbai | " |
| ▪ Shri. C. V. R. G. Deekshitulu, Registrar, PRL, Ahmedabad | " |
| ▪ Dr. D. Pallam Raju, Professor, PRL, Ahmedabad | Convener |

ISEA-15 : Organizing Committees

Local Organizing Committee of PRL (LOC)

▪ Dr. A. Bhardwaj, Director	Chair
▪ Prof. P. Janardhan, Dean	Member
▪ Dr. R. D. Deshpande, Head, PPEG	"
▪ Shri. C. V. R. G. Deekshitulu, Registrar	"
▪ Prof. S. Ramachandran, Chair, SPA-SC Division	"
▪ Shri. V. K. Mahirale, Head, CMD	"
▪ Dr. D. Chakrabarty, Associate Professor	"
▪ Dr. S. K. Sharma, Associate Professor	"
▪ Ms. P. Sudha, Head, Accounts & IFA	"
▪ Shri. J. Raval, Head, Computer Center	"
▪ Dr. A. Guharay, Reader	"
▪ Shri. R. Sengupta, Head, P&GA	"
▪ Dr. B. Vaishnav, Head, Academic Services	"
▪ Shri. H. Shah, Head, Purchase and Stores Officer	"
▪ Mrs. P. Joseph, Sr. Admin. Officer (Academic Administration)	"
▪ Shri. G. S. Negi, Assistant Commandant, CISF at PRL	"
▪ Shri. P. K. Sharma, Admin Officer (Registrar's Office & Recruitment)	"
▪ Shri. Senthil Babu T.J., Admin Officer (Establishment)	"
▪ Ms. R. P. Kumar, Catering Manager	"
▪ Dr. D. Pallam Raju, Professor	Convener

ISEA-15 : Program at a glance

ISEA-15: Program at a glance						
Time	Monday 22 October	Tuesday 23 October	Wednesday 24 October	Thursday 25 October	Friday 26 October	
08:00 - 09:00	Registration	Registration	Registration	Registration	PS5	
09:00 - 09:30						
09:30 - 10:00						
10:00 - 10:30	Inaugural Function	OS3: Scientific Session 1	OS6: Scientific Session 7	OS8: Scientific Session 3		
10:30 - 11:00						
11:00 - 11:30	High Tea	OS4: Scientific Session 2	OS7: Scientific Session 3	OS9: Scientific Session 5		OS11: Scientific Session 5
11:30 - 13:00	Opening Session					
13:00 - 14:00	Lunch Break					
14:00 - 15:30	OS1: Scientific Session 1	PS1	Tour, Cultural Program, and Symposium Dinner	PS3	OS12: Scientific Session 5 & 6	
15:30 - 16:00				OS10: Scientific Session 6		
16:00 - 16:30	Tea/Coffee break	OS5: Scientific Session 4		PS2	Closing Session Panel Discussion, Feedback, Venue of ISEA-16, and Young Scientist Award	
16:30 - 17:30	OS2: Scientific Session 1					
17:30 - 18:30					PS4	High Tea
18:30 - 19:00	Pasting of poster	Free time (Dinner on your own)		Free time (Dinner on your own)	Free time (Dinner on your own)	
19:00 - 20:00	Director's Dinner					
21:00 - 22:15	A performance by danseuse Mallika Sarabhai and the Darpana Performing Group					
Please Note:						
1	OS: Oral Session.					
2	PS: Poster Session (Tea/Coffee will be served during all poster sessions).					

Message from Chairman, ISRO

भारतीय अन्तरिक्ष अनुसंधान संगठन
अन्तरिक्ष विभाग
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डॉ. कै. शिवन / Dr K. SIVAN
अध्यक्ष / Chairman

MESSAGE

I am very happy that the 15th International Symposium on Equatorial Aeronomy (ISEA-15) is being hosted at the Physical Research Laboratory, Ahmedabad. PRL is known as the cradle for space research in India and was founded by none other than Dr. Vikram Sarabhai. Dr. Sarabhai gave the vision for the Indian Space Program which now commands great respect globally for being people centric and focussed on space applications. The 3rd ISEA was hosted by PRL under Dr. Vikram Sarabhai's leadership in 1969. I am happy that as we are gearing up for his 100th birth centenary year celebrations beginning next year, PRL and India are getting a second opportunity to host the prestigious ISEA. I hope that the deliberations in this symposium will enhance the discourse on space research, in general, and equatorial aeronomy, in particular, in India. I also hope that these interactions will foster scientific collaborations internationally. My best wishes to all the delegates gathered here from both in and out of India. I wish ISEA-15 a grand success.



Dated: October 10th, 2018

(कै. शिवन / K. Sivan)

कै. शिवन
10/10/2018

Message from Chair, PRL Council of Management

भारतीय अन्तरिक्ष अनुसंधान संगठन

अन्तरिक्ष विभाग

भारत सरकार

अन्तरिक्ष भवन

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दूरभाष : 91-80-23416406, 22172330

फैक्स : 91-80-23410705



Indian Space Research Organisation

Department of Space

Government of India

Antariksh Bhavan

New BEL Road, Bangalore - 560 231, India

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Fax: 91-80-23410705

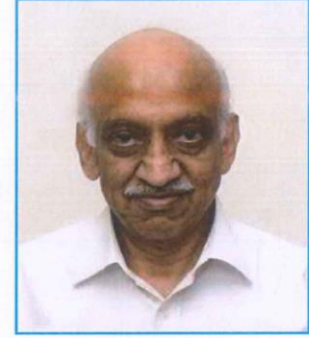
Email: kiran@isro.gov.in

A.S. KIRAN KUMAR

Chairman, Council of Management

Physical Research Laboratory

MESSAGE



I am very happy that the 15th International Symposium on Equatorial Aeronomy (*ISEA-15*) is being hosted at the Physical Research Laboratory (PRL), Ahmedabad. PRL is the brainchild of Prof. Vikram Sarabhai who, in the early years of India's independence, envisioned the impact that Space Research and its Applications could make on India's growth and progress. From the humble beginning, PRL grew by adding newer areas of research which resulted in establishing a new organization - the Indian Space Research Organization (ISRO) and a new institute - Institute of Plasma Research.

PRL has contributed significantly to the field of equatorial aeronomy right from the times of initiation of sounding rocket programme in the 1960s from the Thumba Equatorial Rocket Launching Station at Trivandrum. Several new results had emerged out of these rocket launches and PRL's equatorial aeronomy research grew immensely due to augmentation of ground segment of experiments as well.

It was under the leadership of Prof. Sarabhai, PRL had hosted the 3rd ISEA. After about 50 years, PRL is getting a chance again to organize this symposium.

I hope that the discussions and interactions during this symposium will contribute to a greater understanding of space research in India. I convey my best wishes to all the participants of the symposium coming from various parts of country as well as world across. I wish *ISEA-15* a grand success in all its efforts.

आ सी किरण कुमार
(आ. सी. किरण कुमार)
(A. S. Kiran Kumar)

Bangalore
October 12, 2018

Foreword from Director, PRL

भौतिक अनुसंधान प्रयोगशाला
(भारत सरकार, अंतरिक्ष विभाग की यूनिट)
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डॉ. अनिल भारद्वाज, एफएनए, एफएएससी, एफएनएससी
Dr. Anil Bhardwaj, FNA, FASc, FNASc
निदेशक / Director

Foreword

The International Symposium on Equatorial Aeronomy (ISEA) is held once in every three to four years. Researchers from the fields of atmosphere, ionosphere and magnetosphere gather in the ISEA to share new findings, discuss the current status of the field, and identify topics for future research. The 15th International Symposium in Equatorial Aeronomy (ISEA-15) is being hosted by the Physical Research Laboratory (PRL), Ahmedabad, India during 22–26 October 2018.



India has been making significant contributions in the field of Aeronomy, in general, and equatorial aeronomy, in particular, for more than six decades. Space research in India was initiated at PRL under the leadership of the great visionary Prof. Vikram Sarabhai, who is rightfully known as the father of space research in India. As a result, PRL has the unique distinction of serving as the cradle of space research in India. Interestingly, PRL was founded by Prof. Vikram Sarabhai in 1947, the year of Independence of India. Under his guidance establishment of the rocket launching station over the magnetic dip equator at Thumba came up in 1960s, from where the first rocket was launched on 21 November 1963 carrying the experiment developed at PRL. Detection of equatorial plasma waves and their characterization using *in-situ* rocket measurements is one of the major achievements of the Indian sounding rocket program. Further, satellite and indigenous launch vehicle building facilities have also been set up at different parts of India. Since then, the research in the field of equatorial aeronomy in India grew many folds with regular sounding rocket experiments, establishment of ground-based radars, chain of magnetometers, and other optical and radio experiments. PRL has played a leadership role in defining the space science program and the course of space research in India. New and innovative ground-based, balloon-, rocket-, and space-borne experiments have been conceived, developed and flown. New experimental capabilities for the investigations of upper atmosphere in both day and night-time conditions have been realized at PRL. Physics based models to investigate equatorial electrojet, equatorial ionization anomaly, equatorial spread F, etc., have been developed at PRL to address various issues pertaining to equatorial aeronomy.

The year 2019 is the birth centenary year of Prof. Vikram Sarabhai. It is thus an apt tribute to Professor Sarabhai that PRL is hosting the ISEA-15 close on the heels of his 100th birth anniversary at the very institute he founded. It is important to note that due to the initiative of Prof. Sarabhai, the 3rd ISEA was hosted by PRL in 1969. Thus, it is the second time that India and PRL are hosting the prestigious ISEA meeting.

"PRL research encompasses the Earth, the Sun immersed in the fields and radiations reaching from and to infinity, all that man's curiosity and intellect can reveal". As a unit of the Department of Space, Government of India, PRL presently carries out fundamental research in select areas of Physics, Space & Atmospheric sciences, Astronomy, Astrophysics & Solar Physics and Planetary & Geosciences, Theoretical physics, and Atomic, Molecular and Optical physics. One of the campuses of PRL at Udaipur houses a solar observatory and is also a part of the International GONG project. PRL also hosts a 1.2 m class Infrared telescope at Mt. Abu, while a new 2.5 m telescope is getting constructed there. PRL played an important role in the design of the scientific payload flown on the first Indian satellite "Aryabhata", as well as participated in the science definition of the first Indian mission to the Moon "Chandrayaan-1", and development of payloads for this mission.

PRL continues to partake in building of payloads for Indian space missions, including India's first mission to L1 point of the Sun-Earth System for studying the Sun "Aditya L1", the second mission to Moon "Chandrayaan-2", and possible future missions to other planets. PRL is the science lead for the ISRO's future Aeronomy satellite mission. It was from PRL that the Indian Space Research Organization (ISRO) and the Institute of Plasma Research (IPR) in Gandhinagar were carved out. PRL is one of the nodal agencies for the United Nations Centre for Space Science and Technology Education in Asia and the Pacific (UN-CSSTEAP) wherein a 9-month long Space and Atmospheric Science course is given biennially to participants from countries in Asia Pacific region.

The city of Ahmedabad is a unique blend of heritage and modernity, and is one of the fastest growing cities in India. Ahmedabad has become India's first *World Heritage City* as announced by the World Heritage Committee (WHC) of UNESCO in 2017. Renowned as a great textile and commercial centre and as the erstwhile "*Manchester of India*", Ahmedabad is today a prosperous, thriving metropolitan city, the second largest in western India. Ahmedabad is associated with Mahatma Gandhi, the apostle of peace and non-violence whose *ashram* or retreat on the banks of the river Sabarmati is now a place of national pilgrimage. This *Sabarmati Ashram* was one of the important places during India's independence movement. Ahmedabad is also the home of many premier academic and cultural institutions, created mainly due to the vision of Prof. Vikram Sarabhai. This city boasts of internationally reputed institutions, like Space Applications Centre (SAC), Indian Institute of Management (IIM), National Institute of Design (NID), Institute for Plasma Research (IPR), Ahmedabad Textile Industry's Research Association (ATIRA), Institute of Indology, and Darpana Academy of Performing Arts, and others.

The International Scientific Organizing Committee (SOC) of the ISEA-15 has taken enormous care in coming out with excellent scientific sessions of contemporary research topics in this ISEA meeting. The National Organizing Committee (NOC) has been helpful in providing guidance and serving as a bridge between the scientists at PRL and various government agencies that is required for the smooth organization of an international meeting of the stature of ISEA. We whole-heartedly acknowledge the earnest help and support extended by the members of the SOC and NOC in every aspect of the organization of ISEA-15. I take this opportunity to place on record our gratefulness to the main sponsor, the Indian Space Research Organization (ISRO), and the co-sponsors, viz., National Science Foundation (NSF), International Center for Theoretical Physics (ICTP), VarSITI (Variability of the Sun and Its Terrestrial Impact) program of Scientific Committee on Solar Terrestrial Physics (SCOSTEP), International Association of Geomagnetism and Aeronomy (IAGA), Committee on Space Research (COSPAR), and National Aeronautics and Space Administration (NASA).

It has been a privilege and great pleasure to host ISEA-15 at PRL. I On behalf of the Local Organizing Committee (LOC), I warmly welcome all the delegates of ISEA-15 to PRL and the city of Ahmedabad. This booklet that contains the detailed scientific programme of ISEA-15. We sincerely hope that the delegates will have a scientifically enriching experience during ISEA-15, and that this symposium will open up new international scientific collaborations in the field of equatorial aeronomy and pave way to advances in this field of space science. I thank the members of LOC and the staff of PRL who have directly and indirectly helped in various aspects of the organization of this significant and prestigious international event.

I wish that all the delegates would have comfortable stay in Ahmedabad pleasant memories of ISEA-15.


12/10/2018

Dr. Anil Bhardwaj
Director, PRL
Chairman LOC, ISEA-15

Welcome by Convener, ISEA-15

!! A warm welcome to the participants of ISEA-15 !!

It has been a long cherished dream of the aeronomy community in India to host the prestigious International Symposium on Equatorial Aeronomy. This desire is now becoming a reality. The Indian community, in general, and the PRL scientists, in particular, were excited when PRL was chosen as the venue of the 15th International Symposium on Equatorial Aeronomy (ISEA-15) by the International Scientific Organizing Committee (SOC) in the year 2016. The PRL proposal had been whole-heartedly recommended by the then Chair, PRL Council of Management, Late Prof. U. R. Rao and received full support of all PRL Directors during this course of time. Shri. A. S. Kiran Kumar has been supporting both as the Chairman, Indian Space Research Organization (ISRO) and Secretary, Department of Space earlier and as the Chair, of PRL Council of Management currently.



It is a matter of great pleasure and satisfaction that ISEA-15 at PRL has received an overwhelming response from researchers around the globe. Since the first announcement, several milestones were to be crossed in terms of scientific and local organizations. With the whole-hearted support extended by one and all, these targets were achieved bringing us here when we are now in a position to host ISEA-15. During 22 – 26 October, we will be deliberating on 249 abstracts from the delegates of 24 countries. As the ISEA is a single-session 5-day Symposium, 64 talks, each of 20 minute duration, could be accommodated. Further, all the 185 posters will be displayed on all the days of the symposium so that enough time is available for poster viewing and extensive interactions. A young scientist paper competition is also introduced with several best paper prizes to identify the next generation of talented researchers.

We sincerely thank Dr. K. Sivan, Chairman, ISRO and Secretary, DOS for his kind support and best wishes. We are grateful to the Chairman, PRL Council of Management, Shri. A. S. Kiran Kumar for kindly agreeing to inaugurate the 15th ISEA and give the Inaugural lecture on ISRO's Space Journey. The Chair, ADCOS, Prof. George Joseph, who is also the Chair of National Organizing Committee (NOC) has been a great source of inspiration. This huge task of hosting the symposium of this magnitude would not have been possible if it were not for the unstinting support of ministries and officials of Government of India and several colleagues. The SOC members have been very helpful whenever approached with issues of scientific organization, identification of conveners, and overall discussions with regard to the scientific program. I thank the members of SOC for the same.

In order to facilitate participation of interested delegates, 33 travel supports were extended (to both Indian and foreign delegates), over 94 participants have been offered accommodation, over 120 people have been offered registration fee waivers (both partial and full). It is an opportune moment to record our sincere thanks to the main sponsor: ISRO, and co-sponsors: NSF, ICTP, VarSITI/SCOSTEP, IAGA, COSPAR, NASA. Last, but not the least, the unflinching support of all the PRL staff has made the organization of ISEA-15 possible. It is my pleasant duty and responsibility to thank all who have made this event possible. I sincerely hope and believe that all the delegates will scientifically benefit from each others' work in the ISEA-15. Once again, a warm welcome to PRL and Ahmedabad !!

Dr. D. Pallam Raju
Professor, SPA-SC Division, PRL
(Chair, SOC & Convener, ISEA-15)

Program Schedule: ISEA-15

Day 1: October 22, Monday

0800 – 0930 REGISTRATION

Venue: K R Ramanathan Auditorium

0930 – 1100 INAUGURAL FUNCTION	
0930 – 0935	<i>Traditional lighting of the lamp</i>
0935 – 0945	WELCOME, Dr. Anil Bhardwaj , Director PRL & Chair, LOC, ISEA-15
0945 – 1000	ABOUT ISEA-15, Prof. Duggirala Pallamraju , Chair, SOC & Convener, ISEA-15
1000 – 1015	Address by <i>Guest of Honour: Prof. George Joseph</i> , Chair, NOC, ISEA-15 & Chair, ADCOS-ISRO
1015 – 1020	Releasing of Book of Abstracts
1020 – 1050	INAUGURAL ADDRESS AND LECTURE ON: “ISRO’s SPACE JOURNEY” Shri A. S. Kiran Kumar <i>Chief Guest & Chair, PRL Council of Management</i>
1050 – 1100	VOTE OF THANKS, Dr. Dibyendu Chakrabarty
1100 – 1130	HIGH TEA
1145 – 1245	OPENING SESSION Session Chair: Prof. George Joseph, India
1145 – 1205	The Perfect physical problem – equatorial aeronomy Robert Pfaff
1205 – 1225	Equatorial Aeronomy research in India – past, present, and the future Duggirala Pallamraju
1225 – 1245	Comparative planetary aeronomy Anil Bhardwaj
1245 – 1300	Important Information/Announcements related to ISEA-15 program
1300 – 1400	LUNCH BREAK

1400 – 1600 OS1: Session 1: Equatorial E- and F-region irregularities: Cause and effects**Session Chairs: P. B. Rao, India and J. Makela, USA**

1400 – 1420	Invited Talk (ISEA327001) Title: “Recent Results of High Resolution Plasma Bubble Modeling” Tatsuhiro Yokoyama
1420 – 1440	(ISEA226001) Equatorial Spread F Evolution and Morphology at Geomagnetically Conjugate Locations Dustin A. Hickey, Carlos R. Martinis
1440 – 1500	(ISEA223001) Study of the east and west wall behaviour of the EPBs during quiet and disturbed geomagnetic conditions Sukanta Sau, S. Gurubaran
1500 – 1520	(ISEA356002) C/NOFS Observations of Large Scale Undulations Resembling Kelvin-Helmholtz Waves During Periods of Reversed Zonal E x B Drifts Below the Equatorial Ionospheric F-Peak at Sunset Robert. Pfaff
1520 – 1540	Invited Talk (ISEA332001) Title: “Improvement of evening ionosphere and plasma bubble forecast by using the physical based data assimilation mode” (Session 5) Charles Lin, Chia-Hung Chen, P. K. Rajesh, and Tomoko Mats
1540 – 1600	(ISEA018001) Onset of Equatorial Plasma Bubbles and abnormal electron temperatures in the base of the F-region - Some Rocket observations P. Muralikrishna, Odriozola S. S. and Meneses F. C.
1600 – 1630	TEA / COFFEE BREAK

1630 – 1810 OS2: Session I: Equatorial E- and F-region irregularities: Cause and effects**Session Chairs: A. K. Patra, India and C. Lin, Taiwan**

1630 – 1650	(ISEA300001) Global Equatorial Ionospheric Irregularities and Its Potential Localized Drivers Endawoke Yizengaw
1650 – 1710	(ISEA220002) Responses of the Global Equatorial/low-latitude Ionospheric Irregularities to 2015 St. Patrick’s Day and September, 2017 Geomagnetic storms Akala, A. O., E. O. Oyeyemi, P. O. Amaechi
1710 – 1730	(ISEA099001) Role of break-scale of two-component power-law spectrum for equatorial plasma bubble intermediate scale irregularities in L-band scintillations A. Bhattacharyya, C. S. Carrano, P. Gurram, B. Kakad, and S. Sripathi
1730 – 1750	(ISEA188001) The Response time of equatorial ionization anomaly crest: A Unique precursor to the time of Equatorial spread F initiation Aswathy R. P, G.Manju, Surendra Sunda
1750 – 1810	(ISEA279001) CubeSat strategies for observing F-region plasma irregularities J. Klenzing, R. Bishop, M. Menzel, and J. Huba
1810 – 1850	Pasting of Posters : All posters to remain present on all the days.
1900 – 2000	Director’s Dinner
2100 – 2215	A performance by danseuse Mallika Sarabhai and the Darpana Performing Group

Day 2: October 23, Tuesday

0900 – 1030 **OS3: Session I: Equatorial E- and F-region irregularities: Cause and effects**

Session Chairs: **B. V. Krishnamurthy, India and P. Muralikrishna, Brazil**

0900 – 0920	(ISEA143002) Simultaneous observations of 150-km echoes and ionosonde virtual heights at Jicamarca G. A. Lehmacher, X. Lu, E. Kudeki, P. M. Reyes, M. Milla
0920 – 0940	(ISEA326001) First dual-frequency common-volume radar observations of 150-km echoes from Gadanki and their implications to the echoing phenomenon A K Patra, P Pavan Chaitanya, M Durga Rao, and P Kamaraj
0940 – 1000	(ISEA209001) A neural network-based model for daytime vertical ExB drift in the Indian sector P. Pavan Chaitanya and A. K. Patra
1000 – 1020	(ISEA156002) Estimation of daytime F-region vertical E x B drift velocities from optical neutral dayglow measurements Deepak K Karan and Duggirala Pallamraju
1030 – 1100	TEA / COFFEE BREAK

1100 – 1300 **OS4: Session 2: Longitudinal dependence of equatorial electrodynamics**

Session Chairs: **M. Yamamoto, Japan and G. Vichare, India**

1100 – 1120	Invited Talk (ISEA194001) Title: “Advances in Equatorial Electrodynamics during the International projects IEEY, IHY and ISWI” Christine Amory
1120 – 1140	(ISEA215002) Effect of disturbance electric fields on Equatorial electrojet (EEJ) over Indian longitudes Jayashree Bulusu, Archana R. K., Kusumita Arora, N. Phani Chandrasekhar and Nandini Nagarajan
1140 – 1200	(ISEA268001) Longitudinal differences in the day-to-day variability of the equatorial ionosphere Nicholas Pedatella
1200 – 1220	(ISEA345001) Longitudinal Differences in the Response of Low-Latitude Ionosphere to Sudden Stratospheric Warmings Larisa Goncharenko, A Coster
1220 – 1240	(ISEA149001) Theoretical simulation of electron density distribution of the equatorial and low latitudes along 75°E and 95°E Rimpy Kakoty, Pradip Kumar Bhuyan
1245 – 1345	LUNCH BREAK
1345 – 1530	Poster Session 1

1530 – 1730 OS5: Session 4: Longitudinal dependence of equatorial electrodynamicsSession Chairs: **S. Gurubaran, India** and **N. Pedatella, USA**

1530 – 1550	(ISEA070001) Meridional Circulation in the Whole Atmosphere during Sudden Stratospheric Warmings Fazlul I. Laskar, Gunter Stober, John McCormack, Duggirala Pallamraju, Jorge L. Chau, and Peter Hoffmann
1550 – 1610	(ISEA344001) Long-term observations of mesosphere lower thermosphere dynamics over the low and equatorial latitudes Karanam Kishore Kumar
1610 – 1630	(ISEA055001) Afternoon counter electrojet over Indian longitudes during June solstice in solar minimum Kuldeep Pandey, R. Sekar, B. G. Anandarao, S. P. Gupta, and D. Chakrabarty
1630 – 1650	(ISEA235001) Evidence for the effect of DE3 tide on the occurrence of Counter Electrojet Dupinder Singh, S. Gurubaran
1650 – 1710	(ISEA270001) Gravity Waves, Sudden Stratospheric Warmings, Magnetic Fields, and Atmospheric Wave Coupling Erdal Yiğit, Chinmaya Nayak, and Alexander S. Medvedev
1710 – 1730	(ISEA354001) Dependence of lunar tide of the equatorial electrojet on the winter-time polar vortex, solar flux and QBO Tarique A. Siddiqui, Yosuke Yamazaki, Claudia Stolle, Hermann Lühr, Astrid Maute, Nick Pedatella
1730 – 1830	Poster Session 2

Day 3: October 24 Wednesday**0900 – 1030 OS6: Session 7: Future trends, opportunities, and challenges in low-latitude aeronomy**Session Chairs: **R. Pfaff, USA** and **R. Sridharan, India**

0900 – 0920	Invited Talk (ISEA078001) Title: “The Swarm satellites: the magnetic satellite mission to investigate geospace” Claudia Stolle, Rune Floberghagen, Yosuke Yamazaki, Guram Kervalishvili, Juan Rodriguez-Zuluaga, Chao Xion
0920 – 0940	Invited Talk (ISEA361001) Title: “Future opportunities in optical remote sensing to expand understanding of low-latitude thermospheric and ionospheric dynamics” Jonathan J. Makela
0940 – 1000	Invited Talk (ISEA313002) Title: “Radar Technology and its application to Equatorial Aeronomy” Marco A. Milla
1000 – 1020	Title: “An overview of the IUGONET project: Metadata database (Type-A) and SPEDAS/UDAS” Atsuki Shimbori
1030 – 1100	TEA / COFFEE BREAK

1100 – 1300 OS7: Session 3: Mesosphere Ionosphere Thermosphere coupling at low- and mid-latitudes

Session Chairs: **B. G. Anandarao, India and L. Goncharenko, USA**

1100 – 1120	Invited Talk (ISEA322001) Title: “Lower atmospheric influence on the equatorial electrojet and Sq currents” Yosuke Yamazaki, Claudia Stolle, Jürgen Matzka
1120 – 1140	(ISEA305001) Investigation of the quarter-diurnal tide in the MLT over low-latitude stations A. Guharay, P. P. Batista
1140 – 1200	(ISEA299001) Equatorial ionosphere induced variability by a secondary wave arising from the nonlinear interaction between an ultrafast Kelvin wave and the diurnal tide Fabio Egito, Hisao Takahashi, Inez S. Batista, R.A. Buriti
1200 – 1220	(ISEA230001) Response of low-latitude ionosphere of the Indian longitudes to the Sudden Stratospheric Warming events of 2009 and 2013: A comparative study Sneha Yadav, C. Vineeth, Raj Kumar Choudhary, Tarun K. Pant, and Surendra Sunda
1220 – 1240	(ISEA050001) Ionospheric response to the 2009 and 2013 sudden stratospheric warming around 95°E: Ground-based and Satellite observation Geetashree Kakoti, Pradip Kumar Bhuyan, Bitap Raj Kalita and Saurabh Baruah
1240 – 1300	(ISEA239001) Changes in the mean winds and planetary wave activity over Kolhapur (16.8°N, 74.2°E) and Collm (51.3°N, 13°E) during the recent SSW 2018 event S. Sathishkumar, S. Sridharan, Ch. Jacobi, S. Gurubaran, P.T.Patil
1300 – 1400 LUNCH BREAK	
1400 – 2215 Tour, Cultural Program, and Symposium Dinner	

Day 4: October 25, Thursday

0900 – 1030 OS8: Session 3: Mesosphere Ionosphere Thermosphere coupling at low- and mid-latitudes

Session Chairs: **S. Sridharn, India and C. Stolle, Germany**

0900 – 0920	Invited Talk (ISEA206001) Title: “Prompt penetration electric fields during storms and sub-storms, Evening Anomaly and impact on Equatorial Plasma Bubbles” Tulasiram Sudarsanam
0920 – 0940	(ISEA338001) Equatorial Plasma Bubble (EPB) to atmosphere relationship found from day-to-day variation of GPS scintillation and GAIA assimilation data Mamoru Yamamoto, Yuichi Otsuka, Hidekatsu Jin, and Yasunobu Miyoshi

OS8 Contd..

0940 – 1000	(ISEA317001) Long-Term GPS Observations of Medium-Scale Traveling Ionospheric Disturbances at Mid-Latitudes Y. Otsuka, A. Shinbori, T. Takuya, M. Nishioka
1000 – 1020	(ISEA287001) New directions in understanding the origin of an unusual structure in the sodium layer over Gadanki, India S. Sarkhel and S. Mondal
1030 – 1100	Tea/Coffee Break

1100 – 1300 OS9: Session 5: Space weather effects on low- and mid-latitudes.**Session Chair: T. Yokoyama, Japan and E. Yizengaw, USA**

1100 – 1120	(ISEA117001) Global plasma bubble occurrence during quiet and disturbed periods using ionosphere data assimilation (Session 1) Rajesh. P. K., Charles Lin, C. H. Chen, Tomoko Matsuo
1120 – 1140	(ISEA217002) Low Latitude Ionospheric Electrodynamics: Looking Beyond IMF Bz Debrup Hui
1140 – 1200	(ISEA309001) Extreme impacts over low latitude ionosphere during a space weather event D. Rout, K. Pandey, D. Chakrabarty, and R. Sekar
1200 – 1220	(ISEA242001) Regional Neural Network Predictive Model for TEC Variabilities over Indian Sector K. Unnikrishnan, Sreekumar Haridas, R. K Choudhary, Dinil Bose P
1220 – 1240	(ISEA233001) On the Delayed Response of Thermosphere O1D 630.0 nm Dayglow over the Dip Equator during an X-class Flare C. Vineeth and T. K. Pant
1240 – 1300	Invited Talk (ISEA109001) Inter-frequency performance of GNSS signals during periods of scintillations near the EIA crest Ashik Paul, Krishnendu Paul, Trisani Biswas, Somrita Sarkar
1300 – 1400	LUNCH BREAK
1400 – 1530	Poster Session 3

1530 – 1730 OS10: Session 6: Results from new techniques, experiments, and campaigns**Session Chairs: A. Bhattacharyya, India and M. Milla, Peru**

1530 – 1550	Invited Talk (ISEA019001) Title: “Using the Low-latitude Ionospheric Sensor Network (LISN) distributed observatory to investigate the relationship of TIDs and tropospheric phenomena”, Cesar E. Valladares, Dhanya Ramani
1550 – 1610	(ISEA219001) Synthetic Aperture Radar (SAR): An alternate for ionospheric scintillation studies Shradha Mohanty, Charles Carrano, Gulab Singh
1610 – 1630	(ISEA036001) Indian Network for Space Weather Impact Monitoring (InSWIM): A new initiative to observe and model the low latitude ionosphere over the Indian longitudes R.K. Choudhary, Smitha V. Thampi, T. K. Pant, C. Vineeth, P. Sreelatha, Md. Nazeer, Rosmy John, Md. Mosarraff Hossain and K. M. Ambili

OS10 Contd.

1630 – 1650	(ISEA311001) Recent studies of MLT region from new experiments over Arecibo S. Raizada, J. Smith, M. Sulzer, J. Lautenbach, E. Franco, C. G. Brum, E. Nossa, N. Aponte, and P. Perillat
1650 – 1710	(ISEA250001) Ultraviolet Remote Sensing of the Upper Atmosphere and the Ionosphere in the Extreme and Far Ultraviolet from the ISS: Results from the LITES experiment Supriya Chakrabarti, Andrew Stephan, George Geddes, Susanna Finn, Timothy Cook and Scott Budzien
1710 – 1730	(ISEA011001) Long-term trends in the low latitude middle atmosphere temperature and winds: Observations and model simulations M. Venkat Ratnam, Liying Qian
1730 – 1830	Poster Session 4

Day 5: October 26 Friday

0900 – 1100	Poster Session 5
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1100 – 1300 OS11: Session 5: Space weather effects on low- and mid-latitudes**Session Chairs: C. E. Valladares, USA and T. K. Pant, India**

1100 – 1120	(ISEA255002) Unique responses of the Equatorial Plasma Bubbles (EPBs) to the recent geomagnetic storms: Results from a chain of radio experiments over India S. Sripathi, R. Singh
1120 – 1140	(ISEA341001) TempContributed and spatial variations of the ionosphere during geomagnetic storms based on the global GNSS-TEC data analysis Atsuki Shinbori, Yuichi Otsuka, Takuya Tsugawa, Michi Nishioka
1140 – 1200	(ISEA124001) Investigation of Ionospheric scintillation using EUREF GNSS network over European region Ishita Gulati, Rajesh Tiwari, Martin Johnston
1200 – 1220	(ISEA216001) Dependence of irregularities occurrences on geomagnetic activity over the crests and trough of the African EIA P. O. Amaechi, E. O. Oyeyemi, A. O. Akala
1220 – 1240	(ISEA228001) Evaluation of an Ionospheric GNSS model performance in Southern mid-latitudes during geomagnetic storm S M Ahoua, J B Habarulema, O K Obrou, and P J Cilliers
1240 – 1300	(ISEA302001) On the dawn dusk asymmetry in the ring current during geomagnetic storms: Case studies Sandeep Kumar, B. Veenadhari, D. Chakrabarty and S. Tulasi Ram
1300 – 1400	LUNCH BREAK

1400 – 1600 OS12: Session 5: Space weather effects on low- and mid-latitudes and, Session 6: Results from new techniques, experiments, and campaigns
Session Chairs: E. Yiğit, USA and R. K. Choudhary, India

1400 – 1420	(ISEA085001) Diurnal Variation of Altitude Distributed Thermospheric Cooling During Magnetic Storm: A case study Tikemani Bag
1420 – 1440	(ISEA150001) Long term climatic response of low latitude Ionosphere to Space Weather Sunanda Suresh, N. Dashora
1440 – 1500	(ISEA237001) Estimation of Equivalent Ground based GNSS Receiver derived Total Electron Content using Space based GNSS Receiver Patrick Mungufeni, Sandro M. Radicella, John Bosco Habarulema, Yenca Migoya-Orué
1500 – 1520	(ISEA316001) New geomagnetic observations for EEJ studies Jürgen Matzka, Tarique Siddiqui, Gabriel Brando Soares, Yosuke Yamazaki, Claudia Stolle, Domingo Rosales, Edgar Ricaldi, and Ahmed Muslim
1520 – 1540	(ISEA046001) Atmospheric dynamics as observed using 53MHz ST Radar at Calcutta (CU-STR) Tanmay Das, P. Nandakumar, Gopal Singh, and Ashik Paul
1600 – 1730	CLOSING SESSION Panel Discussion, Feedback, Venue of ISEA-16, and Young Scientist Award
1730	HIGH TEA

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Session #1 : Equatorial E- and F-region irregularities: Cause and effects

S.No.	Abstract ID	Abstract Details
1	ISEA063002	Simultaneous occurrence of daytime L-band scintillations and Es over the low mid-latitude location Dibrugarh during 2009 – 2014, Authors: Barsha Dutta, Bitap Raj Kalita and Pradip Kumar Bhuyan
2	ISEA243001	Shrinking of the Equatorial Plasma Bubbles, Authors: V. L. Narayanan, K. Shiokawa, Y. Otsuka, S. Gurubaran, S. Saito
3	ISEA326002	Role of Ducted Atmospheric Gravity Waves on the 150 km echoing phenomenon, Authors: E.A. Kherani, A K Patra and P. Pavan Chaitanya
4	ISEA139001	On the precursor of equatorial plasma bubble , Authors: S.K.Das, P. Pavan Chaitanya, A.K. Patra, T.K. Ramkumar, K. Niranjan
5	ISEA020001	Study of equatorial plasma blobs observed at 630.0 nm over Kolhapur, India , Authors: D. P. Nade, P. T. Patil, A. K. Sharma, Swapnil S. Potdar G. A. Chavan, S. S. Nikte, H. P. Gaikwad, O. B. Gurav, Devendraa Siingh.
6	ISEA041001	Occurrence characteristics of ionospheric irregularities over Indian low-latitude region Varanasi during ascending phase of solar cycle 24, Authors: Vishnu Singh Rathore, A.K. Singh
7	ISEA044003	Study of Night Time TEC Depletion over Indian region, Authors: S. S. Rao Shweta Sharma, R. Pandey
8	ISEA048001	Measurement of Type-1 irregularities during night-time in equatorial E-region at Thumba by rocket borne probes, Authors: S. P. Gupta
9	ISEA059001	Morphology and evolution of Equatorial Plasma Bubbles using All Sky Imager over low latitude station Kolhapur, India, Authors: O. B. Gurav*, A. K. Sharma, R. N. Ghodpage, P. T. Patil and S. Gurubaran
10	ISEA082001	On latitudinal shift in Equatorial Ionization Anomaly crest location during the ascending phase of solar cycle 24 observed for the Indian region., Authors: Sheetal P Karia, Nilesh C Patel, Kamlesh N Pathak
11	ISEA084001	Study of the variability of the total electronic content (TEC) in the intertropical African zone according to the solar and geomagnetic parameters, Authors: Roselin jolor NSONGA OUMBA, Clobite BOUKA BIONA and Jean Bienvenu DINGA
12	ISEA089001	Ionospheric TEC/F2-layer Critical Parameters and Comparisons with International Reference Ionosphere (IRI-2016) and International Reference Ionosphere-Plasmasphere (IRI-Plas) models over Cyprus, Authors: Sampad Kumar Panda, Kanaka Durga Reddy Battula, Haris Haralambous
13	ISEA111001	Performance analysis of TEC predictions from IRI2016 and SPIM/IRI-PLas models over the Indian Low latitudes during Moderate to Strong Geomagnetic Storms in 24th Solar Cycle, Authors: Kanaka Durga Reddy Battula, Sampad Kumar Panda
14	ISEA127002	Multifractal analysis of equatorial E-F transition region in-situ data , Authors: Neelakshi Joshi, Reinaldo R. Rosa, Siomel Savio Odriozola, Esfhan Alam Kherani, Francisco Carlos de Meneses Jr., Gabriel Fornari, Polinaya Muralikrishna and Stephan Stephany
15	ISEA134001	A detailed theoretical model to calculate atmospheric conductivity profile, Authors: Suman Chakraborty, Sudipta Sasmal, Tamal Basak, Sandip K. Chakrabarti
16	ISEA142001	Characteristics of freshly generated equatorial spread F (F-ESF) irregularities in Indian longitude, Authors: P. Gurram, B. Kakad, A. Bhattacharyya and T. K. Pant
17	ISEA158001	The Low latitude Spread-F over the African and the American sector during a low Solar Activity Period, Authors: Ayokunnu, David O, Ogunsola, Oluseyi, E, Adeniyi, Jacob O

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18	ISEA159001	Variability of Geomagnetic Field With Interplanetary Magnetic Field at Low, Mid and High Latitudes, Authors: Shivangi Bhardwaj, Roshni Atulkar and P. K. Purohit
19	ISEA161001	Local time influence on geomagnetic activity linked effects at low latitude F-region, Authors: B. Kakad, G. Surve, P. Tiwari, V. Yadav, and A. Bhattacharyya
20	ISEA162001	Effect of dust size distribution in dense quantum plasma, Authors: Ravi Vanshpal, Ratna Agarwal
21	ISEA170001	Singularities and periodicities observe on relativistic electron during geomagnetic disturbances, Authors: Srijana Neupane , Binod Adhikari
22	ISEA202002	A Comparative Study on Day Time and Night Time Amplitude Scintillations over Indian Latitudes , Authors: Sreekumar Haridas, K. Unnikrishnan, V.M Ashna, R. K Choudhary, and K. Sreelatha
23	ISEA204001	On the relationship between equatorial plasma bubbles and loss of lock of GNSS signals over Waltair, Authors: V.K.D. Srinivasu, N. Dashora, D.S.V.V.D. Prasad, and K. Niranjana
24	ISEA204002	Pre-midnight and Post-midnight occurrence analysis of multi-frequency multi-GNSS Ionospheric Scintillations in Indian sector, Authors: V.K.D. Srinivasu, N. Dashora, D.S.V.V.D. Prasad, and K. Niranjana
25	ISEA255001	Characteristics of equatorial and low latitude plasma irregularities as investigated using a meridional chain of radio experiments over India, Authors: S. Sripathi, Sreeba Sreekumar, S. Banola
26	ISEA260001	The study of equatorial plasma bubble during January to April 2012 at low latitude station Kolhapur , Authors: P. T. Patil, R. N. Ghodpage, S. Gurubaran, O.B. Gurav, R. S. Vatkar, A. Taori
27	ISEA261001	Variation in zonal drift velocity of Equatorial Plasma Bubbles during the increasing phase of 24th solar cycle over Kolhapur, India , Authors: A. K. Sharma, G. A. Chavan, O. B. Gurav, H. P. Gaikwad, R. N. Ghodpage , P. T. Patil
28	ISEA267001	Numerical modeling of simultaneous multiple-path VLF observation of solar flare including solar zenith angle profile and LWPC, Authors: Tamal Basak, Sudipta Sasmal, Suman Chakraborty, Sandip Kumar Chakrabarti, and James Brundell
29	ISEA267002	Modeling of diurnal variation of VLF signal over signal propagation paths of various characteristics, Authors: Tamal Basak, Sudipta Sasmal, Suman Chakraborty, Sandip Kumar Chakrabarti, and James Brundell
30	ISEA272001	Study of variation in drift of ionospheric irregularities on disturbed nights over low latitude station Kolhapur , Authors: G. A. Chavan, R. S. Vhatkar, A. K. Sharma, O. B. Gurav, H. P. Gaikwad, D. P. Nade, S. S. Nikte, R. N. Ghodpage
31	ISEA277001	On the variability of ionospheric irregularities with phases of solar cycle along African Equatorial region, Authors: Abdulrahim R. B., Rabi, A. B.
32	ISEA281001	Comparative study on foF2 variation over a low latitude station Guangzhou using Ionosonde data and IRI-2016 model., Authors: Monti Chakraborty, S S Rao, and R Pandey
33	ISEA283001	An alternative approach to elaborate TEC maps, Authors: Cesar Buchile Abud de Oliveira, Mangalathayil Ali Abdu, Jonas de Sousa dos Santos, Alison de Oliveira Moraes
34	ISEA288001	Day time low latitude vertical ExB drift velocity obtained from ground-based magnetometer observations of delta H, Authors: M. Prabhu, K. Unnikrishnan

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35	ISEA323001	Electric currents related to equatorial plasma depletions: New insights from the Swarm mission, Authors: Juan Rodriguez-Zuluaga, Claudia Stolle and Jorge Chau
Session #2 : Longitudinal dependence of equatorial electrodynamics		
S.No.	Abstract ID	Abstract Details
1	ISEA149001	Theoretical simulation of electron density distribution of the equatorial and low latitudes along 75°E and 95°E, Authors: Rimpay Kakoty, Pradip Kumar Bhuyan
2	ISEA156001	Existence of small scale longitudinal variations in the low-latitude upper atmospheric wave dynamics, Authors: Deepak K Karan and Duggirala Pallamraju
3	ISEA044001	Longitudinal and seasonal dependence of the Electron Hole Formation: a comparison of results obtained for the Indian and American equatorial region , Authors: S S Rao, Shweta Sharma, and R Pandey
4	ISEA023001	Estimating daytime equatorial vertical ExB drift velocities using IEEY and AMBER magnetic data in West Africa, Authors: Aziz Kassamba Diaby, Olivier Kouadio Obrou, Vafi Doumbia
5	ISEA135001	Study of daytime vertical EXB drift velocities at central African sector under geomagnetically quiet and disturbed conditions., Authors: MESSANGA ETOUNDI Honoré
6	ISEA204003	Variation of GPS TEC and ROTI over 80o E Longitude during declining phase of Solar cycle 24 , Authors: V.K.D. Srinivasu, D.S.V.V.D.Prasad, K.Niranjan
7	ISEA208001	Study of the Fractal Properties of ΔH time series using Rescaled Range Analysis , Authors: Sajith Babu S (1,2) , K.Unnikrishnan (2,3) 1 Department of Physics, Catholicate College, Pathanamthitta, 2 School of Pure and Applied Physics, Mahatma Gandhi University, Kottayam, 3 Department of Physics, NSS Hindu College, Changanacherry
8	ISEA213001	A Comparative study on the complexity of Geomagnetic storms of different strength, Authors: Soumya.M.S, K. Unnikrishnan
9	ISEA227001	Response of Solar quiet and Equatorial Electrojet currents in Indian and African sectors modulated by 2013 Sudden Stratospheric Warming, Authors: N. Phani Chandrasekhar and Oluwafisayo Owolabi
10	ISEA244001	Evaluation of Prompt penetration effects on Equatorial Electrojet in the Indian Sector, Authors: Archana R.K, Nandini Nagarajan and Kusumita Arora
11	ISEA248001	Regional features of longitudinal variability of GNSS scintillations, Authors: S.K.Chakraborty , S. Pal, S. Banerjee
12	ISEA265001	Modeling and trends of GPS total electron content over the African low latitude region, Authors: Geoffrey Andima, Emirant B Amabayo,Edward Jurua,Pierre J Cilliers
13	ISEA306001	Longitudinal variability of the low latitude currents in the Indian sub-continent, Authors: Rahul Rawat, Geeta Vichare, Atul Kulkarni, Ashwini Kumar Sinha
14	ISEA333001	Longitude features of low-latitude ionosphere response to severe geomagnetic storms (Interkosmos-19 data) , Authors: V.Depuev, A.Depueva
15	ISEA353001	Comparative study of the northern EIA variations between East Asian and American sector, Authors: D. H. Zhang and J. Liu
16	ISEA356003	Ionospheric Currents Observed Using the Flux-gate Magnetometer on the C/NOFS Satellite, Authors: Robert Pfaff1, Henry Freudenreich1, Guan Le1

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Session #3 : Mesosphere Ionosphere Thermosphere coupling at low- and mid-latitudes

S.No.	Abstract ID	Abstract Details
1	ISEA093001	Evidence for the presence of MSTID and Quasi-Periodic Southward Moving Waves over 6° Magnetic latitude, Authors: M. Sivakandan, D. Chakrabarty, T.K. Ramkumar, A. Guharay, R. Sekar, and N. Parihar
2	ISEA245001	The variabilities of ESF irregularities during Sudden Stratospheric Warming (SSW) under varied solar activity conditions , Authors: Sreeba Sreekumar, S. Sripathi
3	ISEA312002	The seasonal and hemispheric asymmetry of the EIA in the 100°E meridian , Authors: Bitap Raj Kalita ^{1,2} , A. Hazarika ² , P.Nath ² , G.Kakoti ² , P. K. Bhuyan ² , K. Hozumi ⁴ , T. Tsugawa ⁴ , T. Yokoyama ⁴ , M. Le. Huy ⁵
4	ISEA173001	Effect of sudden stratospheric warming events on equatorial electrojet: Is it due to solar or lunar and migrating or nonmigrating tides? , Authors: S. Sridharan
5	ISEA001001	On the inter-dependency of variations of solar flux and composition on thermospheric dayglow emissions at different latitudes. , Authors: Duggirala Pallamraju, Deepak Karan, Fazlul I. Laskar, T. Vijaya Lakshmi, M. Anji Reddy, and Supriya Chakrabarti
6	ISEA021004	Role of VLF Waves in Ionosphere-magnetosphere Dynamics, Authors: A. K. Singh and Asheesh Bhargawa
7	ISEA032001	Long term Variability and Climatology of Equatorial Electrojet over the Indian Longitudinal Sector: a Statistical Study, Authors: Muhammed Kutty P. V., S. Gurubaran, S. Sathishkumar
8	ISEA044002	A re-look at Winter Anomaly in TEC, Authors: S. S. Rao Shweta Sharma, R. Pandey
9	ISEA051001	On the performance of the SAMI2/SAMI3 model during the deep solar minimum 2009-2010 around 95°E, Authors: Angkita Hazarika, Pradip Kumar Bhuyan, Bitap Raj Kalita
10	ISEA052001	TEC over Cocos Islands , Australia from 2009 to 2014 : Inter-seasonal and Inter-hemispheric asymmetries , Authors: Prantika Nath, Pradip Kumar Bhuyan, Bitap Raj Kalita, Geetashree kakoti and Priyanka Talukdar
11	ISEA067001	Sudden stratospheric warming control of the equatorial electrojet and solar quiet currents, Authors: O.P. OWOLABI, O.S. BOLAJI, A.A. AJIBOYE, B. A. HASSAN AND I. D. ADEWOYIN
12	ISEA071001	Formation of Triple Layered Mesospheric Inversion Event over Tropical Latitudes, Authors: K. Ramesh, S. Sridharan, S. Vijaya Bhaskara Rao
13	ISEA103001	Ionospheric response to Sudden Stratospheric Warming episodes of 2007 and 2009 over Western region of India, Authors: Jinee Gogoi, Som Kumar Sharma, Kalyan Bhuyan
14	ISEA134002	Energetic Particle Bursts observed at magnetospheric altitudes through satellite observations during Nepal, 2015 earthquake, Authors: Suman Chakraborty, Sudipta Sasmal, Tamal Basak, Sandip K. Chakrabarti
15	ISEA145001	Effect of Solar flares on ionospheric ion densities in the F2 region Ionosphere and comparison with IRI-2012 model , Authors: D. K. Sharma, Ananna Bardhan and Malini Aggarwal
16	ISEA158002	The signature of a G3-class Geomagnetic Storm on the Equatorial F2 Ionospheric Layer, Authors: Ayokunnu D.O, Aremu A.O, Ogunsola O.E , Adeniji J.A

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17	ISEA187001	Variations on tides from MLT winds at 7.4°S and 22.7°S during geomagnetic storm events, Authors: Luciana Rodrigues de Araujo, Lourivaldo Mota Lima, Paulo Prado Batista
18	ISEA236001	Climatology of ionosphere-thermosphere coupling above the Oukaimeden observatory: effects of extreme solar events , Authors: A. Loutfi, A. Bounhir, F. Pitout
19	ISEA241002	Seasonal, inter-annual variability in MLT Quasi Two Day Wave (Q2DW) over low latitude region Kolhapur, Authors: H. P. Gaikwad, A. K. Sharma, M. V. Ratnam, O. B. Gurav, G. A. Chavan, D. P. Nade, G. P. Naniwadekar, D. J. Shetti, S. S. Nikte, P. T. Patil
20	ISEA246001	Observations of tropical cyclone effects in the ionosphere over equatorial latitude, Tirunelveli (8.7o N, 77.8o E), Authors: E.Karthikeyan, Y.Srinivas, S.Sathishkumar, K.Emperumal, S.Sripathi
21	ISEA252001	Response of Ionosphere over Korea and adjacent areas to 17 March 2015 geomagnetic storm , Authors: Chalachew Kindie Mengist
22	ISEA276001	Study of atmospheric tides and its effects on the mesospheric winds , Authors: G. P. Naniwadekar, R. N. Ghodpage, P.T. Patil and S. Gurubaran
23	ISEA312001	Seasonally invariant midlatitude type Es: supporting evidence of the wind shear theory?, Authors: B.R.Kalita, P.K.Bhuyan and ,K.Wang
24	ISEA320001	Earth's Middle Atmospheric and Ionospheric Changes over Western India: Long Term Scenario, Authors: Som Sharma, Harish Chandra, and Shyam Lal
25	ISEA324001	The generation of F3 layers over the dip equatorial location of Thiruvananthapuram- A new perspective, Authors: Mridula N, Tarun Kumar Pant.
26	ISEA346001	Mid-latitude ionospheric dynamics observed with a network of F-region optical all-sky imagers, Authors: Asti Bhatt and Elizabeth Kendall
27	ISEA356001	Dynamo currents and their drivers revealed using vapor trails and rocket measurements of DC electric fields, currents, and ionospheric density, Authors: R. Pfaff ¹ , D. Rowland ¹ , J. Klenzing ¹ , H. Freudenreich ¹ , T. Abe ² , H. Habu ² , M.-Y. Yamamoto ² , S. Watanabe ² , M. Yamamoto ² , T. Yokoyama ² , Y. Kakinami ² , Y. Yamazaki ² , M. Larsen ³ , L. Hurd ³ , J. Clemmons ⁴ , R. Bishop ⁴ , R. Walterscheid ⁴ , T. Bullett ⁵ , J. Mabie ⁵

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1	ISEA344001	Long-term observations of mesosphere lower thermosphere dynamics over the low and equatorial latitudes , Authors: Karanam Kishore Kumar
2	ISEA201001	Investigation of vertical wavenumber spectra from the lower atmosphere to the ionosphere over tropical and subtropical regions, Authors: Priyanka Ghosh, and Som Sharma
3	ISEA134003	On the study of the generation of Atmospheric Gravity Waves (AGWs) in the ionosphere due to various sources, Authors: Suman Chakraborty, Sudipta Sasmal, Sujay Pal, and Sandip K. Chakrabarti
4	ISEA004001	Short term variability in Sun synchronous and Non sun synchronous tides in the middle atmosphere from FORMOSAT-3/COSMIC data, Authors: Uma Das

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5	ISEA011002	Vertical and lateral coupling through waves and tides observed using MLT radar network over Indian region, Authors: M. Venkat Ratnam, S. Eswaraiyah, L. Ramanjaneyulu, G. Kishore Kumar, K. Kishore Kumar, K.V. Subrahmanyam and S. VijayaBhaskara Rao
6	ISEA038001	Effect of cyclonic storm on the Equatorial Atmosphere – ionosphere system, Authors: G J Bhagavathiammal
7	ISEA038002	Long term trends and variability of Rossby wave forcing on northern winter circulation, Authors: G J Bhagavathiammal
8	ISEA038003	Potential of Rossby wave forcing on the tropical weather during 2015/16 NH winter, Authors: G J Bhagavathiammal
9	ISEA071002	Planetary wave-Gravity wave Interactions during Tropical Mesospheric Inversion Layer Events , Authors: K. Ramesh, S. Sridharan, K. Raghunath, S. Vijaya Bhaskara Rao
10	ISEA146001	Title: Numerical modeling of long-path propagation characteristics of radio waves as observed from Indian Antarctic stations, Authors: Sudipta Sasmal, Tamal Basak, Suman Chakraborty, Sourav Palit, Sujay Pal and Sandip K. Chakrabarti
11	ISEA150002	Latitude and Solar Activity dependence of Tidal, Planetary Wave and QBO variations in Equatorial and Low Latitude Ionosphere, Authors: Sunanda Suresh, N. Dashora
12	ISEA156003	Variations of daytime thermospheric gravity waves over long time scales, Authors: Deepak K Karan and Duggirala Pallamraju
13	ISEA186001	An assessment of the role of the wind reversal mechanism in causing counter electrojet events, Authors: S. Gurubaran, D. Singh
14	ISEA196001	Mesosphere and Lower Thermosphere Zonal wind Variations over Tropics: Relation to local stratospheric zonal winds and Global Circulation anomalies , Authors: Kishore Kumar G, Kishore K Kumar, Werner Singer, Hilde Nesse Tyssøy, Markus Rapp, Wayne K Hocking and Hauke Schmidt
15	ISEA262001	A discussion on the estimation of Mesospheric ozone during 2005-2014 Geminid meteor shower period, Authors: B. Premkumar, D. V. Phanikumar, K. Chenna Reddy, K. Kishore Kumar, G. Ram Kumar and G. Yellaiah
16	ISEA294001	Meteor winds behavior at low southern latitudes during Arctic Sudden Stratospheric Warming, Authors: Lourivaldo Mota Lima, Ana Roberta Paulino, Luciana Rodrigues de Araujo, Vinicius Matias Diniz, Paulo Prado Batista
17	ISEA331001	Dynamics of low latitude mesospheric-lower thermospheric region in response to the high latitude major Sudden Stratospheric Warming events , Authors: Maria Antonita. T 1and Geetha Ramkumar 2
18	ISEA340002	First Time CCD Imager Airglow Observation Of Medium scale Travelling Ionospheric Disturbances Over Srinagar, Jammu and Kashmir, India, Authors: Aashiq Hussain Bhat , Bilal Ahmad Ganaie , T.K. Ramkumar , Manzoor Ahmad Malik
19	ISEA350001	Mesospheric temperature inversions observed in OH and O2 rotational temperatures from Mount Abu (24.6°N, 72.8°E), India, Authors: Ravindra Pratap Singh and Duggirala Pallamraju
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1	ISEA021003	Ionosphere-magnetosphere coupling during severe geomagnetic storms: A case study, Authors: Asheesh Bhargawa and A. K. Singh
2	ISEA242001	Regional Neural Network Predictive Model for TEC Variabilities over Indian Sector, Authors: K. Unnikrishnan, Sreekumar Haridas, R. K Choudhary, Dinil Bose P

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3	ISEA295001	An Investigation of Transient Plasma Events and Associated Geoeffectiveness , Authors: Sonia Sharma 1, Subhash C. Kaushik 2 and D. C. Gupta 1
4	ISEA228001	Evaluation of an Ionospheric GNSS model performance in Southern mid-latitudes during geomagnetic storm, Authors: S M Ahoua, J B Habarulema, O K Obrou, and P J Cilliers
5	ISEA054002	Impact of Solar Proton Events on High Latitudel Ionospheric Conditions, Authors: Aslam A.M1*, Azad Ahmed Mansoori1, Parvaiz. A. Khan1 and A.K. Gwal2
6	ISEA013001	Ionospheric Conditions during the Main Phase of Intense Geomagnetic Storm Events as measured using GPS Observations at Ile-Ife, Nigeria., Authors: Ayomide Olabode, Emmanuel Ariyibi, Lilian Olatunbosun, and Temitope Owolabi
7	ISEA013002	Space Weather Effect on Ionospheric Total Electron Content Variation at Equatorial Ionization Anomaly (EIA) Stations, Authors: L. G. Olatunbosun, A. O. Olabode and E. A. Ariyibi
8	ISEA016001	L-band Scintillations and TEC variations on St Patrick's Day Storm of 17th March 2015 over Indian Longitudes using GPS and GLONASS observations, Authors: D.S.V.V.D.Prasad, V.K.D.Srinivasu, K.Niranjan, S. Gopi Krishna, K.Venkatesh
9	ISEA016002	Longitudinal and Latitudinal response of GPS TEC over American sector during the 21st August 2017 total solar eclipse, Authors: D.S.V.V.D.Prasad, V.K.D.Srinivasu, K.Niranjan, P.S.Brahmanandam
10	ISEA033001	Effects of Space Weather on the Ionosphere: A Case Study of Geomagnetic Storms During the period 18-28 February, 2014, Authors: Sharon Aol, Patrick Mungufeni, Edward Jurua
11	ISEA049001	Comparison of GPS TEC with IRI model at northern EIA crest during ascending phase of 24th solar cycle (2007-2014), Authors: Chintan Jethva, H. P. Joshi
12	ISEA054001	Geomagnetic Response to IMF and Solar wind over different latitudes, Authors: Aslam. A.M.1, Parvaiz .A. Khan1, Azad. A. Mansoori.1, Malik.A. Waheed1, A.K. Gwal.2,
13	ISEA055002	Effect of disturbance dynamo on equatorial ionosphere during daytime, Authors: Kuldeep Pandey, D. Chakrabarty and R. Sekar
14	ISEA096001	Effects of Solar High Energy Protons on Ozone Layer during Super Storms, Authors: Asheesh Bhargawa, A.K. Singh
15	ISEA101001	Effect of Coronal Mass Ejection on Earth's Magnetic Field during Ascending Phase of Solar Cycles 23-24 , Authors: Shirsh Lata Soni, R. S. Gupta, P.L. Verma
16	ISEA118001	Study of Ionosphere Variability over equatorial latitude during extreme low solar activity period., Authors: Roshni Atulkar1, and P.K. Purohit2
17	ISEA125001	Solar flare modulation of Lower ionospheric plasma and VLF signal: Modeling with a robust in-situ computer simulation, Authors: Sourav Palit, Sandip K. Chakrabarti , Jean-Pierre Raulin
18	ISEA129001	Study of the Ionospheric and Tropospheric observation in association to geomagnetic storm over equatorial anomaly station, Guwahati, Authors: Bornali Chetia, Santanu Kalita, Minakshi Devi and Ananda K.Barbara
19	ISEA151001	Study of Interplanetary coronal mass ejection in the 23rd solar cycle, Authors: D.S. burud, R.S. vhatkar
20	ISEA166001	Variability Of Relativistic Electrons With Geomagnetic Storms Using Wavelet Analysis, Authors: Tulsi Thapa, Binod Adhikari
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23	ISEA185001	On the Pre-Magnetic Storm Signatures in NmF2 in some equatorial, low and mid-latitude stations, Authors: Joshua B. W., Adeniyi J. O., Amory-Mazaudier C.
24	ISEA191001	Response of the Mid, Low, and Equatorial Ionosphere to the St. Patrick's Day storms of 2013 and 2015, Authors: C. Krishnaprasad, P. R. Shreedevi, Smitha V. Thampi, and R. K. Choudhary
25	ISEA198001	Evaluation of the contribution of thunderclouds to the electrification of the troposphere and the formation of low altitude electrojet, Authors: Hervé Tchoungui, Cesar Mbane Biouele, Honoré Messanga Etoundi
26	ISEA199001	Estimation of field-aligned current and ring current on east-west component of Earth's magnetic field during geomagnetic disturbances, Authors: Pratiksha Bhandari, Binod Adhikari
27	ISEA200001	Variation on Solar Wind Density and Pressure during Geomagnetic disturbances due to High Speed Streamers, Authors: Srishti Pant, Binod Adhikari
28	ISEA202001	Multi Constellation Observations of Equatorial Plasma Bubbles, Authors: Sreekumar Haridas, K. Unnikrishnan, R. K Choudhary, Dinil Bose P and P.B. Rao
29	ISEA212001	A study of the Latitudinal Correlation of TEC measurements within the African Equatorial Ionization Anomaly (EIA) during the maximum phase of solar cycle 24, Authors: Oyedokun O. J., Akala A. O., Oyeyemi E.O.
30	ISEA217001	Role of IMF By in the Disturbed Time Ionospheric Electrodynamics at Low to Equatorial Latitudes, Authors: Debrup Hui, Geeta Vichare
31	ISEA222001	Study of the ionosphere magnetosphere coupling as manifested in foF2, Authors: Junmi Gogoi(1), Kalyan Bhuyan(2)
32	ISEA240001	Dynamic Behavior of Ionosphere during the Geomagnetic Storms in January 2005, Authors: Bhupendra Malvi, Sharad C. Tripathi, P. K. Purohit
33	ISEA248002	Regional aspects of Space Weather variability of Ionospheric perturbations, Authors: S.K.Chakraborty, D. Jana, S. Banerjee
34	ISEA253001	Comparison of Ionospheric Vertical Total Electron Content during high solar active year and low solar active year for Indian region based on IGS station GPS observables, Authors: Subrata Kundu, Sudipta Sasmal , Suman Chakraborty and Sandip K. Chakrabarti
35	ISEA253002	Ionospheric GPS Total Electron Content response over Indian region to the solar flares of the year 2017 , Authors: Subrata Kundu, Sudipta Sasmal, Suman Chakraborty and Sandip K. Chakrabarti,
36	ISEA257001	Morphology of local time response of the geomagnetic storms on the Equatorial Plasma Bubbles (EPBs) based on Aarons (1991) criteria, Authors: Ram Singh & S Sripathi
37	ISEA258001	Mid-latitude ionospheric response to the super geomagnetic storm of March 2015, Authors: M. Rahaman, S. Pal, S. K. Mondal
38	ISEA259001	Nonsubstorm Pi2s: Morphological features and solar cycle dependence , Authors: Manjula Lingala ¹ , Jayashree Bulusu ¹ , Kusumita Arora ¹ , Sergey Y. Khomutov ² Oksana V. Mandrikova ² , Igor S. Solov'ev ²
39	ISEA263001	Overview of Space Weather and Prospect of its Forecasting, Authors: Narayan Prasad Chapagain
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43	ISEA284001	Ionospheric total electron content disturbances at low latitude, Authors: HAMMOU ALI. O1, ZAOURAR. N1, ABDELLAOUI. H2, FLEURY. R3, Christine Amory-Mazaudier4,5
44	ISEA286001	Influence of geomagnetic storms on foF2 at low and mid latitude stations , Authors: P. Peddi Naidu, T. Madhavi Latha and M. Indira Devi
45	ISEA289001	Effect of geomagnetic storms of different solar origin on the mid latitude ionosphere, Authors: Azad A. Mansoori, P. K. Purohit
46	ISEA292001	Comparison of Ionspheric variables with IRI Models during a Geomagnetic Storm, Authors: Varsha Kachneria, Aslam A. M., Azad A. Mansoori, A. K. Gwal
47	ISEA300002	ULF Wave Associated Space Weather Effects at the Equator, Authors: E. Yizengaw, E. Zesta, M. B. Moldwin, and N. K. Tripathi4
48	ISEA303001	Evidence of a long duration prompt penetration event of the interplanetary electric field in OI 630.0 nm nightglow from low latitude, Authors: Avik Paul, D. Chakrabarty, K.Pandey, D. Rout, R. Sekar, K. Hozumi, and G. D. Reeves
49	ISEA335001	Space weather-Plasmasphere-Troposphere coupling: Role of High – Mid latitude – equatorial zone dynamics , Authors: Minakshi Devi, S. Patgiri, A. K. Barbara , A. Depueva, V. Depuev
50	ISEA336001	Scattered X-ray component from planetary atmospheres, Authors: Srikar Paavan Tadepalli, Shyama Narendranath
51	ISEA343001	Study of latitudinal variation of O+(2P-2D)732.0 nm dayglow emission under geomagnetic storm conditions, Authors: Maneesha Dharwan, Vir Singh, Anil Bhardwaj
52	ISEA351001	Improving Space Weather Capabilities over Africa: Case for AfrequaMARN, Authors: Hammed A. Lawal, Mark Lester, S.W.H. Cowley, T.K. Yeoman, Steve Milan, A. Babatunde Rabinu
53	ISEA352002	Ionospheric TEC as a probe to study the solar flare, Authors: Deepthi. ANV, S. Chakraborty, and A. Datta
54	ISEA156004	Effect of geomagnetic storms on the daytime low-latitude thermospheric wave dynamics as inferred from large field-of-view dayglow measurements, Authors: Deepak K Karan and Duggirala Pallamraju
55	ISEA293001	Studying the Performance of NeQuick-2 and IRI-Plas 2017 Model during Solar Maximum year in 2013-2014 over Global Equatorial Low latitude Regions, Authors: Iluore Kenneth, Francisca Okeke, Daniel Okoh
56	ISEA110001	Study of Thermospheric O/N2 ratio and Total Electron Content (TEC) from the Indian longitude sector during intense geomagnetic storms of 2015-2017, Authors: S. Ray and D. Sur
57	ISEA144001	Analysis of Field Aligned Current (FAC) and East-West Components (D-component) of Low Latitude Geomantic Field during HILDCAAs, Authors: Binod Adhikari , Odim Mendes, Margarete Domingues, Ezequiel Echer
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2	ISEA069001	Gravity wave characteristics over low-latitude upper atmospheric region obtained by radio technique , Authors: Subir Mandal, Duggirala Pallamraju, Deepak Kumar Karan
3	ISEA247002	Climatology of Nighttime equatorial Thermospheric Winds over Nigeria, West Africa., Authors: Sivla William Tafon, Qian Wu, Babatunde Rabi, Daniel Okoh
4	ISEA290001	LabVIEW based reconfigurable coherent beacon receiver for ionospheric studies , Authors: Sreelatha P, Rosmy John, Smitha V Thampi, Raj Kumar Choudhary and Tarun K Pant
5	ISEA036002	Electron Temperature Analyser: A new tool for studying the thermal plasma environment of planets, Authors: Smitha V. Thampi, R. K. Choudhary, P. Sreelatha, Md. Nazeer, Neha Naik, Rosmy John, T. K. Pant and K. Oyama
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7	ISEA087001	Bispectral analysis on low-latitude mesospheric electron density irregularities, Authors: D. Selvaraj, A. K. Patra, H. Chandra, H. S. S. Sinha and U. Das
8	ISEA134004	On the study of VLF signal modulations during a Total Solar Eclipse (TSE) using ion chemistry model, Authors: Suman Chakraborty, Sourav Palit, Suman Ray, Sandip K. Chakrabarti
9	ISEA146002	Modelling of lower ionospheric response of the Great American solar eclipse on August 21, 2017 through VLF signal modulation, Authors: Sudipta Sasmal, Sandip K. Chakrabarti, Tamal Basak, Suman Chakraborty and Robert L. Tucker
10	ISEA146003	Thermal and electromagnetic irregularities during and prior to Nepal Earthquake, 2015, Authors: Sudipta Sasmal, Suman Chakraborty, Tamal Basak, Sandip K. Chakrabarti
11	ISEA183001	Revelation of early detection of co-seismic ionospheric perturbations in GPS-TEC from realistic modelling approach: Case study, Authors: Dhanya Thomas, Mala S. Bagiya, P. S. Sunil, Lucie Rolland, A. S. Sunil, Dylan Mikesell, Srinivas Nayak, M. Subrahmanyam, D. S. Ramesh
12	ISEA189001	An Artificial Neural Network based Ionospheric Model (ANNIM) using climatological data, Authors: V. Sai Gowtam, S. Tulasi Ram
13	ISEA230002	Observations of Total Electron Content by using GNSS receiver aboard the ORV-Sagar kanya, Authors: Sneha Yadav, Raj Kumar Choudhary, Krishna Prasad, P. R. Shreedevi, Smitha Thampi
14	ISEA234001	Investigation of variations in VLF radio waves using Super SID at Atigre, India , Authors: Swapnil S. Potdar, P. P. Bhosale, P. R. Patil, S. S. Nikte, R. P. Pawar, S. T. Mane, G. A. Chavan, D. P. Nade.
15	ISEA238001	S band Scintillation studies using IRNSS, Authors: S. Banerjee, S. K. Chakraborty
16	ISEA267003	Study of the varying ionospheric characteristics over small, intermediate and long VLF radio wave propagation paths , Authors: Tamal Basak, Sudipta Sasmal, Suman Chakraborty, Sandip Kumar Chakrabarti, James Brundell

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19	ISEA285001	Middle atmospheric Wind observations with Indian Rayleigh Doppler lidar, Authors: K Raghunath, Alok Taori, S Sridharan, A Jayaraman and AK Patra
20	ISEA291001	Relative performance of IRNSS and GPS from an anomaly crest location, Authors: Trisani Biswas, Ashik Paul
21	ISEA301001	Studies of ionospheric equinoctial asymmetry (EA) over Indian equatorial and low-latitude region using COSMIC measurements, Authors: Malini Aggarwal, Ananna Bardhan, D.K. Sharma
22	ISEA304001	Estimation of the electric potential developed on a spacecraft in near earth space, Authors: Vipin K. Yadav, Raksha J. Jathanna
23	ISEA313001	F-region plasma parameter measurements using incoherent scatter medium-power radar experiments at the Jicamarca Radio Observatory, Authors: Marco A. Milla, David Hysell, Jorge L. Chau
24	ISEA321001	Automated Power Spectrum Analysis of Low Latitude Ionospheric Scintillation Data Recorded from Software GNSS Receiver, Authors: Himanshu Sekhar Sethi, Nirvikar Dashora
25	ISEA325001	Analogous phase index for mid latitude European region, Authors: 1Rumajyoti Hazarika, 1Rajesh Tiwari, 2Geetashree Kakoti
26	ISEA338002	GNU Radio Beacon Receiver 2 (GRBR2) for new satellite-ground beacon experiment, Authors: Mamoru Yamamoto, Mayumi Matsunaga, Roland Tsunoda, and Rick Doe
27	ISEA342001	Detection of solar and cosmic noise by riometer from low latitude station, Kolhapur , Authors: S. S. Nikte*, R. P.Pawar, A. K. Sharma, D. P. Nade, G.A.Chavan, O. B. Gurav, H. P. Gaikwad, S. S. Potdar
28	ISEA352001	Effects of ionosphere and troposphere on sensitive radio observations from 70 MHz to 24 GHz, Authors: S. Chakraborty and A.Datta
29	ISEA307001	Development of Indian Regional Ionospheric Maps (IRIM) by assimilating GAGAN TEC data into Global Ionospheric Maps (GIM) Model using Kalman Filter, Authors: P. Babu Sree Harsha and D. Venkata Ratnam

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Places to visit in Ahmedabad

- **The Heritage Walk of Ahmedabad:** Best way to experience the glory of Ahmedabad is to walk through the 'Walled City'. The walk starts from the Swamynarayan temple of Kalupur, at 8:00 am, covers 20 main sites of the old city.
- **Sabarmati Ashram:** In peaceful, shady grounds on the Sabarmati River's west bank, this ashram was Gandhi's headquarters during the long struggle for Indian independence. The museum houses the personal memorabilia of Mahatma Gandhi.
- **Vishalla:** On the southwestern outskirts of town, Vishalla is a magical eating experience in an open-air, lantern-lit, rural village fantasy setting. An endless thali of Gujarati dishes you won't find elsewhere.
- **Sabarmati Riverfront:** This waterfront along the banks of Sabarmati River, is the best place to have refreshing and scenic walk in early morning or late evening hours.
- **Kankaria Lake:** This artificial lake in the southern Ahmedabad, is one of the major entertainment hubs of Ahmedabad. Whether it is thrill or adventure, whatever the tourist seeks they will find it here.
- **Vintage Car museum:** Get ready to be chauffeured into the vintage era by paying a visit to World Vintage Car Museum. This museum houses a world-class collection of vintage cars, antique vehicles, utility vehicle, motorcycles, and buggies. The museum is a must visit tourist attraction in Ahmedabad.
- **Sidi Sayeed Masjid:** Built in 1573, the carved jaalis in the windows of the western wall are known worldwide and have become a symbol of the city of Ahmedabad. Depicting a tree with intertwining branches, the carvings look like fine lace filigree work, but are hewn from solid stone. The craftsmanship of this mosque places it on a level nearly unequalled in the world.
- **Sardar Patel Museum:** This national museum showcases artefacts and the belongings of Sardar Vallabhbhai Patel. Best attraction of the museum is the light and lasers show that takes you back in time and narrates the story of our motherland, India. The story outlines the Vedic period, the Mughal era, the British domination, the freedom struggle and the birth of free India.
- **Jama Masjid:** The magnificent Jama Masjid, built in 1423 during the reign of Ahmedabad's founder Ahmed Shah I. While all around the mosque lies the hectic frenzy of the center of the old city, step through the gates and the urban chaos falls away behind you, leaving you standing in a refuge of profound serenity, accompanied only by people in quiet prayer, and birds perching on the columns.
- **Adalaj Stepwell:** Set in the quiet village of Adalaj, it has served as a resting place for hundreds of years for many pilgrims and caravans along their trade routes. This five-storey stepwell was also a spiritual refuge.
- **Bhadra Fort:** When it comes to monuments in Ahmedabad, Bhadra fort is one name that indeed deserves a special mention. Bhadra fort in Ahmedabad is a royal fort that occupies the top most position in the Ahmedabad sightseeing tour. Consisting of splendid palace and beautiful lush green garden, the charm of Bhadra fort is unbeatable. The fort is well known for the Bhadrakali Temple that was built in the dedication of Hindu Goddess 'Bhadra, a different form of Goddess Kali.
- **Swaminarayan Temple:** This temple at Kalupur in Ahmedabad, established by Sahajanand Swami himself, is a good example of Gujarati art and craft traditions. The temple has, at its north, a large court which is defined by wooden Havelis on three sides. The rooms of the Havelis are used for storage and accommodation. The entire Swaminarayan complex is one of the largest Hindu places of worship in the old city of Ahmedabad.
- **Queen's Tomb:** Queen's Tomb also known as '*Rani no Hajiro*' is the tombs of Ahmed Shah's Queens situated near Manek Chowk, Ahmedabad. The court yard contains eight marble tombs of queens of Ahmed Shah I and other Gujarat Sultanate rulers. Some Muslim families live inside complex and take care of the tombs.
- **Sarkhej Roza:** It is one of the most elegant and unique architectural complexes of Ahmedabad. In its architecture, Sarkhej Roza is an example of the early Islamic architectural culture of the region. The Roza Complex at Sarkhej was built at the advent of Sultanate era.

