



# 16th International Symposium on Equatorial Aeronomy

September 12 - 16, 2022

Hybrid Meeting

Zoom and Uji Campus, Kyoto University, Kyoto, Japan



Program Booklet



## PREFACE TO ISEA-16 PROGRAM



Welcome to Kyoto! Welcome to ISEA-16!

The International Symposium on Equatorial Aeronomy (ISEA) is a unique scientific meeting specialized in upper atmosphere research in the equatorial and/or low-latitude regions. ISEA started in 1962 at Huaychulo, Peru, and was later held every three or four years in different areas worldwide. After the last meeting (ISEA-15) in 2018 at Physical Research Laboratory (Ahmedabad, India), we all suffered from the COVID-19 problems. But fortunately, we can now have the 16<sup>th</sup> ISEA in Kyoto, Japan. Because of this situation, this meeting is held in a hybrid style with in-person and virtual participants. We, the local organizing committee

(LOC) of ISEA-16, are delighted that about 40 international scientists are coming to Japan to join the meeting in-person. It is also essential that both in-person and virtual participants equally join and benefit from the meeting. The LOC members carefully prepared the meeting for this purpose. I hope that everybody will enjoy the ISEA-16.

This is the second time that Japan has hosted the ISEA meeting. The first one was ISEA-9 in 1997, held in Bali, Indonesia. Prof. S. Fukao chaired the meeting with extensive help from LAPAN (National Institute of Aeronautics and Space of Indonesia). I remember that we carried a heavy laptop PC and a printer from Japan to support office work at the site. After a quarter of a century from the Bali meeting, we now have this second occasion to hold the hybrid meeting in Kyoto, Japan. Because of this meeting style, we decided to skip the excursion, the biggest event of all ISEA meetings. We are sorry, but we hope in-person participants can enjoy Kyoto as the city is well prepared for international visitors.

Research themes and researchers themselves are changing over time. We should say that our research interests are expanding in areas and techniques. But the ISEA meetings keep their good tradition not changed. The meetings are organized by the scientific organizing committee (SOC), which was volunteered by active researchers in this research field and from different areas. And for this ISEA-16, the SOC and LOC members and session conveners did their best to organize the meeting. I sincerely appreciate their efforts. I also hope this meeting will be a good opportunity for all participants to know recent research trends and find the future direction of our studies.

Mamoru Yamamoto, ISEA-16 LOC Chair  
Director/Professor at RISH, Kyoto University

## ISEA-16 SPONSORS

International Exchange Program of National Institute of  
Information and Communications Technology (NICT)



Research Institute for Sustainable Humanospere (RISH)  
Kyoto University



Joint Research Program of Institute for Space-Earth  
Environmental Research (ISEE), Nagoya University



Society of Geomagnetism and Earth,  
Planetary and Space Sciences (SGEPSS)



Japan Society for the Promotion of Science (JSPS)  
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The Kyoto University Foundation

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## ISEA-16 ORGANIZING COMMITTEES

### **Scientific Organizing Committee (SOC)**

Mamoru Yamamoto (Chair)

*Research Institute for Sustainable Humanosphere (RISH), Kyoto University, Japan*

Pallam Raju Duggirala

*Physical Research Laboratory (PRL), India*

Tzu-Wei Fang

*National Oceanic and Atmospheric Administration (NOAA), USA*

Jeffrey Klenzing

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

Fabiano Rodrigues

*University of Texas at Dallas (UTD), USA*

Marco Milla

*Pontifical Catholic University of Peru (PUCP), Peru*

Danny Scipion

*Instituto Geofisico del Peru (IGP), Peru*

Claudia Stolle

*Leibniz-Institute of Atmospheric Physics (IAP), Germany*

### **Local Organizing Committee (LOC)**

Mamoru Yamamoto (Chair), Hiroyuki Hashiguchi, Tatsuhiro Yokoyama, Koji Nishimura

*RISH, Kyoto University*

Akinori Saito

*Graduate School of Science, Kyoto University*

Yuichi Otsuka

*Institute for Space-Earth Environmental Research (ISEE), Nagoya University*

Michi Nishioka, Kornyanat Hozumi (Kukkai)

*National Institute of Information and Communications Technology (NICT)*

Akimasa Yoshikawa, Huixin Liu

*Faculty of Sciences, Kyushu University*

Susumu Saito

*Electronic Navigation Research Institute (ENRI)*

## SCIENTIFIC SESSIONS AND CONVENERS

### **Session 1:**

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

Conveners: Amit Patra (NARL, India), Yuichi Otsuka (Nagoya U., Japan)

MSO: Marco Milla (PUCP, Peru)

### **Session 2:**

Longitudinal/hemispheric variation of equatorial electrodynamics

Conveners: Endawoke Yizengaw (Aerospace Corp., USA), Akinori Saito (Kyoto U., Japan)

MSO: Pallam Raju Duggirala (PRL, India)

### **Session 3:**

Atmosphere-ionosphere vertical coupling at low- and mid-latitudes

Conveners: S. Tulasi Ram (IIG, India), Michi Nishioka (NICT, Japan)

MSO: Danny Scipion (IGP, Peru)

### **Session 4:**

Space weather effects at low- and mid-latitudes

Conveners: Sebastijan Mrak (Colorado U., USA), Akimasa Yoshikawa (Kyushu U., Japan)

MSO: Fabiano Rodrigues (UTD, USA)

### **Session 5:**

Recent advances in instrumentation and observation

Conveners: Cesar Valladares (UTD, USA), Susumu Saito (ENRI, Japan)

MSO: Jeffrey Klenzing (NASA, USA)

### **Session 6:**

Application of numerical techniques for aeronomy

Conveners: Patrick Alken (Colorado U., USA), K. (Kukkai) Hozumi (NICT, Japan)

MSO: Tzu-Wei Fang (NOAA, USA)

### **Session 7:**

Future trends, opportunities, and challenges in low-latitude aeronomy

Conveners: Thomas Immel (UCB, USA), Mamoru Yamamoto (Kyoto U., Japan)

MSO: Claudia Stolle (IAP, Germany)

## PROGRAM SCHEDULE

	12(Mon)	13(Tue)	14(Wed)	15(Thu)	16(Fri)	
9:00	AM1	session4 09:00-10:30	session1 09:00-10:25	poster(3) 09:00-10:30	session3 09:00-10:35	
10:30						onsite registration 10:00 - 11:00
11:00	AM2	session6 11:00-12:35	session5 11:00-12:35	poster(4) 11:00-12:30	session7 11:00-12:25	
11:10						opening keynote lecture
11:50						session2 11:50-12:35
12:30	lunch 115 min	lunch 55 min.	lunch 55 min.	lunch 60 min.	closing lecture	
13:30		in-person poster viewing 60 min	in-person poster viewing 60 min	in-person poster viewing 60 min	closing remarks 13:10	
14:30	PM1	session4 14:30-16:00	session1 14:30-16:00	session1 14:30-16:05	session3 14:30-16:05	
16:00		break 30 min	break 30 min	break 25 min	break 25 min	
16:30	PM2	session6 16:30-17:20	poster(1) 16:30-18:00	session5 16:30-18:05	session3 16:30-17:15	
		session2 17:20-18:05			session1 17:15-18:00	
18:00		break 90 min				
19:30		poster(2) 19:30-21:00				

12 September 2022 (Mon)

10:00 - 11:00 Onsite Registration

### Opening Ceremony

JST = UT + 9 hours

11:00 - 11:10 Mamoru Yamamoto (Director of RISH, Kyoto University & Chair of the organizing committee)  
Kazuo Shiokawa (ISEE, Nagoya University & President of SCOSTEP)

### Keynote Lecture

Chair: Tatsuhiro Yokoyama

JST = UT + 9 hours

11:10 - 11:50 Mutual coupling between magnetosphere and low-latitude ionosphere during magnetic storms and substorms  
Yusuke Ebihara (RISH, Kyoto University)

### Session 2: Longitudinal/hemispheric variation of equatorial electrodynamics

Chair: Pallam Raju Duggirala

JST = UT + 9 hours

11:50 - 12:05	S2-01	Signatures of Space Weather events in low latitudes ionosphere and on the Earth's magnetic field	In-Person
	<b>invited</b>	Christine Amory-Mazaudier	
12:05 - 12:20	S2-02	Regulation of Ionospheric Plasma Velocities by Thermospheric Winds	In-Person
		Thomas Immel, Brian Harding, Roderick Heelis, Astrid Maute, Jeffery Forbes, Scott England, Stephen Mende, Christoph Englert, Russell Stoneback, Kenneth Marr, John Harlander, Jonathan Makela	
12:20 - 12:35	S2-03	Small-scale variability of ionospheric electrodynamics process inferred from LEO satellite magnetic observations	Virtual
		Dupinder Singh, Duggirala Pallamraju	

12:35 - 14:30 Lunch (115 min.)

### Session 4: Space weather effects at low- and mid-latitudes

Chair: Akinori Saito

JST = UT + 9 hours

14:30 - 14:45	S4-01	Geomagnetically induced current (GIC) at low latitudes: Major characteristics and prediction for extreme events	In-Person
	<b>invited</b>	Yusuke Ebihara, Shinichi Watari	
14:45 - 15:00	S4-02	Anomalous Electric Field Perturbations during Post-Sunset Hours over Indian Dip Equator	Virtual
		Ankit Kumar, Dibyendu Chakrabarty, Bela Fejer, Geoff Reeves, Diptiranjan Rout, S. Sripathi, Gopi Seemala, Surendra Sunda, Anil Yadav	
15:00 - 15:15	S4-03	Ionospheric Total Electron Content (TEC) Gradient Characterization in Magnetic Low Latitude Region	Virtual
		Maho Nakamura, Susumu Saito, Takayuki Yoshihara, Le Minh, Slamet Supriadi, Prayitno Abadi, Dwiko Prabowo	

15:15 - 15:30	S4-04	The dayside ionospheric-thermospheric changes during minor geomagnetic storm activity of 3 - 4 February 2022 Geetashree Kakoti, Mala Bagiya, Fazlul Laskar	Virtual
15:30 - 15:45	S4-05	Evolution and Decay of an EMSTID During Two Consecutive Substorms: A Case Study Rahul Rathi, M. Sivakandan, Dibyendu Chakrabarty, Sumanta Sarkhel, M. V. Sunil Krishna, A. Upadhyaya	In-Person
15:45 - 16:00	S4-06	2020 September Geomagnetic Storm's effect on the Nighttime Equatorial Ionization Anomaly (EIA) and Equatorial Plasma Bubbles (EPBs) as Observed by the GOLD Mission Deepak Karan, Richard Eastes, Carlos Martinis, Robert Daniel, William McClintock	Virtual

16:00 - 16:30 break (30 min.)

### Session 6: Application of numerical techniques for aeronomy

Chair: Endawoke Yizengaw

JST = UT + 9 hours

16:30 - 16:50	S6-01	Data Assimilation in the Ionosphere-Thermosphere System <b>invited</b> Timothy Kodikara	Virtual
16:50 - 17:05	S6-02	An empirical 3D model of the ionospheric current system based on data assimilation Patrick Alken, Gary Egbert, Astrid Maute, Art Richmond	Virtual
17:05 - 17:20	S6-03	The sami2py model -- overview and applications Jeff Klenzing, Jonathon Smith, Joe Huba, Angeline Burrell, Alexa Halford	In-Person

### Session 2: Longitudinal/hemispheric variation of equatorial electrodynamic

Chair: Endawoke Yizengaw

JST = UT + 9 hours

17:20 - 17:35	S2-04	Hemispheric and Longitudinal variation of the low latitude ionospheric dynamics <b>invited</b> Bitap Kalita	In-Person
17:35 - 17:50	S2-05	On the longitudinal variability of complexities associated with equatorial electrojet A. Rabi, S Ogunjo, O. Dare-Idowu, I. Fuwape	Virtual
17:50 - 18:05	S2-06	STATISTICAL Results of Traveling Ionospheric Disturbances in Equatorial and Low Latitudes During Geomagnetic Storms John Bosco Habarulema, Golekamang Thaganyana, Zama Katamzi-Joseph, Endawoke Yizengaw, Mark Moldwin, Chigomezyo Ngwira	In-Person

## 13 September 2022 (Tue)

### Session 4: Space weather effects at low- and mid-latitudes

Chair: Akimasa Yoshikawa

JST = UT + 9 hours

9:00 - 9:15	S4-07	Effect of Geomagnetic Storm Associated HILDCAA Events on Radiative Cooling by Nitric Oxide Infrared Emissions in the Mid High Latitude MLT Region Mallepula Venkata Sunil Krishna, Alok Ranjan, Akash Kumar, Sumanta Sarkhel	In-Person
9:15 - 9:30	S4-08	Large Scale Traveling Ionospheric Disturbances in the Topside Ionosphere Angeline Burrell, Manbharat Dhadly, Kate Zawdie, Fabrizio Sassi	In-Person
9:30 - 9:45	S4-09	Generation Mechanisms of Plasma Density Irregularity in the Equatorial Ionosphere During a Geomagnetic Storm on 21–22 December 2014 Takuya Sori, Atsuki Shinbori, Yuichi Otsuka, Takuya Tsugawa, Michi Nishioka, Akimasa Yoshikawa	In-Person
9:45 - 10:00	S4-10	Thermosphere-Ionosphere Response to Weak Geomagnetic Storms. The Case of the Starlink Satellite Loss in February 2022 Frédéric Pitout	Virtual
10:00 - 10:15	S4-11	The Space Weather Impacts on the Ionosphere over the African Mid-latitude Region Tshimangadzo Matamba, Donald Danskin, Rendani Nndanganeni, Mpho Tshisaphungo	In-Person
10:15 - 10:30	S4-12	First detection of daytime E-region disturbance winds Lily Oglesby, Thomas Immel, Brian Harding, Joanne Wu, Colin Triplett	In-Person
10:30 - 11:00	break (30 min.)		

### Session 6: Application of numerical techniques for aeronomy

Chair: Kornyanat Hozumi

JST = UT + 9 hours

11:00 - 11:20	S6-04	Impact of Thermospheric Data Assimilation on Thermospheric and Ionospheric Weather Monitoring <b>invited</b> Chih-Ting Hsu, Nick Pedatella, Jeff Anderson	Virtual
11:20 - 11:35	S6-05	Ingestion of Radio Occultation Data For Ionospheric Data Assimilation Victoriya Forsythe, Sarah McDonald	In-Person
11:35 - 11:50	S6-06	Assimilation of Satellite and Ground-Based Data for 3-D Regional Ionosphere Modeling Chalachew Kindie Mengist, Kyong-Hwan Seo, Eswaraiiah Sunkara	Virtual
11:50 - 12:05	S6-07	3D tomography of ionosphere above the Indian region using InSWIM GNSS network receivers Ajay Potdar, Raj Choudhary	Virtual
12:05 - 12:20	S6-08	Modeling ionograms with deep neural networks and electron densities forecasting Jhassmin Aricoché, Enrique Rojas, Reynaldo Rojas, Marco Milla	In-Person
12:20 - 12:35	S6-09	Support vector machine (SVM) for equatorial plasma bubble detection from VHF Radar Images at Chumphon VHF Radar Station, Thailand Pornchai Supnithi, Thananphat Thanakulketsarat, Lin Myint, Kornyanat Hozumi, Punyawit Jamjareegularn	Virtual
12:35 - 13:30	Lunch (55 min.)		

JST = UT + 9 hours

13:30 - 14:30	<b>in-person poster viewing</b>	In-Person
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### Session 1: Equatorial E- and F-region irregularities: Cause and effects

Chair: Yuichi Otsuka

JST = UT + 9 hours

14:30 - 14:45	S1-01	Nonlinear Spatiotemporal Dynamics of Equatorial Plasma Depletions Abraham Chian, Jose Abalde, David Hysell, Rodrigo Miranda	Virtual
14:45 - 15:00	S1-02	VHF to UHF scintillation by using beacon and NOAA signals Toru Takahashi, Susumu Saito, Mamoru Yamamoto	In-Person
15:00 - 15:15	S1-03	Study of Ionospheric Irregularities Using Rocket Born In-Situ Measurement Probes in Association With Ground Based HF Radar Observations During Different Geophysical Conditions Sruthi T.V, Manju G	In-Person
15:15 - 15:30	S1-04	Comprehensive Investigation of the Relationship Between Equatorial Plasma Bubbles and Plasma Blobs Using Optical and Radio Techniques and Multi-Satellite Data Oluwasegun Adebayo, Alexandre Pimenta	Virtual
15:30 - 15:45	S1-05	The Effect of Prompt Penetration Electric Fields on Plasma Bubble Growth Rates Anastasia Newheart, Joseph Huba, Anthea Coster, Victoria Coffey, Bela Fejer, Shantanab Debchoudury	In-Person
15:45 - 16:00	S1-06	On the importance of bottomside upwelling in the growth of equatorial plasma bubble- Experimental evidence Amit Patra, Suman Das	In-Person

16:00 - 16:30 break (30 min.)

JST = UT + 9 hours

16:30 - 18:00	<b>poster (1)</b>	virtual
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18:00 - 19:30 break (90 min.)

JST = UT + 9 hours

19:30 - 21:00	<b>poster (2)</b>	virtual
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14 September 2022 (Wed)

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

Chair: Amit Patra

JST = UT + 9 hours

9:00 - 9:15	S1-07	Modeling the Tonga Event with SAMI3/HIAMCM: Development of a Super-Bubble Joseph Huba, Erich Becker, Sharon Vadas	Virtual
9:15 - 9:30	S1-08	Forecasting equatorial F-region instability with a regional ionosphere model and WAM-IPE David Hysell, Tzu-Wei Fang, Timothy Fuller-Rowell	Virtual
9:30 - 9:55	S1-09	Improved Kinetic Simulations of Photoelectron Driven Instabilities Applied to 150 Km Echoes <b>invited</b> Meers Oppenheim, William Longley, Yakov Dimant, Alex Green	Virtual
9:55 - 10:10	S1-10	Zonal Asymmetry of the daytime 150-km echo observed by a VHF radar at Chumphon, Thailand Yuichi Otsuka, Kornyanat Hozumi, Michi Nishioka, Takuya Tsugawa, Susumu Saito, Pornchai upnithi, Punyawit Jamjareegulgarn	In-Person
10:10 - 10:25	S1-11	On the Forecast of Post-Sunset Equatorial Plasma Bubble Suman Das, Amit Patra, Niranjana Kandula	In-Person

10:25 - 11:00 break (35 min.)

**Session 5: Recent advances in instrumentation and observation**

Chair: Jeffrey Klenzing

JST = UT + 9 hours

11:00 - 11:20	S5-01	The LLITED Mission: Part of the Growing Grass-Roots Ionosphere/Thermosphere Constellation <b>invited</b> Rebecca Bishop, Aroh Barjatya, James Clemmons, Richard Walterscheid, Tad Gielow, Diana Swanson	In-Person
11:20 - 11:35	S5-02	Key Observations and Discoveries from the Vector Electric Field Investigation on the C/NOFS Satellite Robert Pfaff	In-Person
11:35 - 11:50	S5-03	Perpendicular-to-B Incoherent Scatter Spectral Measurements with AMISR-14 at Jicamarca Marco Milla, Karim Kuyeng, Fabiano Rodrigues, Joab Apaza, Roberto Flores, Danny Scipion	In-Person
11:50 - 12:05	S5-04	New Jicamarca Unattended Low Investigations of the Atmosphere (JULIA) using the new mid-power solid-state transmitters Danny Scipion, Karim Kuyeng, Iván Manay	In-Person
12:05 - 12:20	S5-05	A Study of Temporal and Spatial Variations of Plasmaspheric Total Electron Content during Geomagnetic Storms by Using the Worldwide GPS Total Electron Content Data Zhiyu Chen, Yuichi Otsuka, Atsuki Shinbori, Takuya Sori, Kazuo Shiokawa, Septi Perwitasari, Michi Nishioka	In-Person
12:20 - 12:35	S5-06	Recent scientific discoveries using the Low-latitude Ionospheric Sensor Network (LISN) Cesar Valladares	In-Person

12:35 - 13:30 Lunch (55 min.)

13:30 - 14:30	<b>in-person poster viewing</b>		In-Person
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**Session 1: Equatorial E- and F-region irregularities: Cause and effects**

Chair: Marco Milla

JST=UT+9 hours

14:30 - 14:55	S1-12	Ionospheric Structure Modeling and Diagnostis	In-Person
	<b>invited</b>	Charles Rino, Charles Carrano, Tatsuhiro Yokoyama	
14:55 - 15:20	S1-13	On the generation and evolution of equatorial plasma bubble irregularities in East and Southeast Asia	Virtual
	<b>invited</b>	Guozhu Li, Lianhuan Hu, Wenjie Sun, Xiukuan Zhao, Haiyong Xie, Baiqi Ning	
15:20 - 15:35	S1-14	Imaging ionospheric irregularities by earth observation radar satellite	In-Person
		Hiroatsu Sato, Jun Su Kim, Yuichi Otuska	
15:35 - 15:50	S1-15	When Traveling Ionospheric Disturbances Meet with Equatorial Plasma Bubbles	In-Person
		Charles Lin, Min-yang Chou, Shih-Ping Chen, Joesph Huba, Panthalingal Rajesh, Jong-Min Choi	

15:50 - 16:30 break (25 min.)

**Session 5: Recent advances in instrumentation and observation**

Chair: Susumu Saito

JST=UT+9 hours

16:30 - 16:50	S5-07	Performance Analysis of a Strong Constraint 4D-var and 4DEn-var on Imaging the Mid-latitude Regional Ionosphere	In-Person
	<b>invited</b>	Nicholas Ssessanga, Wojciech Miloch, Lasse Clausen	
16:50 - 17:05	S5-08	3-D Imaging of Nighttime E-F Coupling Over Japan by Using Ground-based GNSS-TEC and Ionosondes	In-Person
		Weizheng Fu, Nicholas Ssessanga, Tatsuhiro Yokoyama, Peng Liu, Mamoru Yamamoto	
17:05 - 17:20	S5-09	CCD-based Daytime Airglow Photometer (CDAP) – A Portable Photometer for Obtaining Daytime OI 630.0 nm Airglow Emissions From the Ground	In-Person
		Pallam Raju Duggirala, Pradip Suryawanshi, Shashank Urmalia, Sunil Kumar, Sovan Saha, Ravindra Singh, Pankaj Kushwaha, Mohit Soni	
17:20 - 17:35	S5-10	Airglow Observations by All-Sky Imagers from the Antarctic Research Vessel "Shirase"	In-Person
		Saki Yamashina, Akinori Saito, Takeshi Sakanoi, Takuo Tsuda, Takeshi Aoki, Mitsumu Ejiri, Takanori Nishiyama, Yuta Hozumi, Takahiro Naoi, Masato Nagahara	
17:35 - 17:50	S5-11	Monitoring of Equatorial Plasma Bubbles Using Aeronautical Navigation System	In-Person
		Keisuke Hosokawa, Susumu Saito, Hiroyuki Nakata, Charles Lin, Jia-Ting Lin, Pornchai Supnithi, Ichiro Tomizawa, Jun Sakai, Toru Takahashi	
17:50 - 18:05	S5-12	Concept Study for Pan-African Magnetometer Chain	In-Person
		Amoré Nel, Jürgen Matzka, Achim Morschhauser, Nigussie Giday,	

# 15 September 2022 (Thu)

JST = UT + 9 hours

9:00 - 10:30	<b>poster (3)</b>	virtual
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10:30 - 11:00 break (30 min.)

JST = UT + 9 hours

11:00 - 12:30	<b>poster (4)</b>	virtual
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12:30 - 13:30 Lunch (60 min.)

JST = UT + 9 hours

13:30 - 14:30	<b>in-person poster viewing</b>	In-Person
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## Session 3: Atmosphere-ionosphere vertical coupling at low- and mid-latitudes

Chair: Danny Scipion

JST = UT + 9 hours

14:30 - 14:50	S3-01	Connections Between Stratospheric Gravity Waves and TID Activity at Middle Latitudes <b>invited</b> Larisa Goncharenko, V. Harvey, Chihoko Cullens, Erich Becker, Shunrong Zhang, Anthea Coster	Virtual
14:50 - 15:05	S3-02	6-day oscillation in the thermosphere and ionosphere during the 2019 SSW event Yasunobu Miyoshi, Yosuke Yamazaki	In-Person
15:05 - 15:20	S3-03	Bright Band-Like Structures of the Mesospheric Airglow in the Equatorial Region Elucidated by Imaging Observations from ISS Akinori Saito, Takeshi Sakanoi, Yuta Hozumi, Septi Perwitasari	In-Person
15:20 - 15:35	S3-04	Evaluation of atmospheric 3-day waves as a source of day-to-day variation of the ionospheric longitudinal structure Guiping Liu, Jeffrey Klenzing, Douglas Rowland, Scott England, Nicholas Pedatella, Chin Lin, Christoph Englert, Brian Harding, Thomas Immel	In-Person
15:35 - 15:50	S3-05	Electromagnetic conjugacy of ionospheric disturbances after the 2022 Hunga Tonga-Hunga Ha'apai volcanic eruption observed by GNSS-TEC and SuperDARN Hokkaido pair of radars Atsuki Shinbori, Yuichi Otsuka, Takuya Sori, Michi Nishioka, Septi Perwitasari, Takuo Tsuda, Nozomu Nishitani	In-Person
15:50 - 16:05	S3-06	Atmospheric and Ionospheric Signatures Associated with the 15 January 2022 Hunga-Tonga Volcanic Eruption: A Multi-layer Observation Ajith K K, Sunil A S, Sunil P S, Priyesh Kunnummal	In-Person

16:05 - 16:30 break (25 min.)

### Session 3: Atmosphere-ionosphere vertical coupling at low- and mid-latitudes

Chair: Huixin Liu

JST = UT + 9 hours

16:30 - 16:45	S3-07	Unusual ionospheric disturbances and irregularities following the eruption of Hunga Tonga-Hunga Ha'apai on 15 January 2022 Susumu Saito, Takayuki Yoshihara, Toru Takahashi	In-Person
16:45 - 17:00	S3-08	Intense equatorial electrojet and counter electrojet caused by the 15 January 2022 Tonga volcanic eruption: space- and ground-based observations Guan Le, Guiping Liu, Endawoke Yizengaw, Christoph Englert	In-Person
17:00 - 17:15	S3-09	Volcanic Modification of the E-Region Dynamo: Observations of the Recent Tonga Eruption Claire Gasque, Brian Harding, Yen-Jung Wu, Thomas Immel, Colin Triplett	In-Person

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

Chair: Huixin Liu

JST = UT + 9 hours

17:15 - 17:30	S1-16	Implications of Equatorial E-Region Electrodynamics in Ionospheric Density Restructuring Lalitha Krishnan, Tarun Pant	In-Person
17:30 - 17:45	S1-17	Early development of shorter (3m) scale irregularities in the topside region of an Equatorial Plasma Bubble Tulasiram Sudarsanam, K. K. Ajith, Tasuhiro Yokoyama, Mamoru Yamamoto, K Hozumi	In-Person
17:45 - 18:00	S1-18	On the Intensity Estimation of Sporadic E Layers Haris Haralambous, Christos Haldoupis	Virtual

16 September 2022 (Fri)

### Session 3: Atmosphere-ionosphere vertical coupling at low- and mid-latitudes

Chair: Michi Nishioka

JST = UT + 9 hours

9:00 - 9:20	S3-10	Exploring the low-latitude valley region: Latest results from a multi-disciplinary approach <b>invited</b> Jorge Chau, William Longley, Meers Oppenheim, Amit Patra, Pablo Reyes, Gerald Lehmacher, Yuichi Otsuka, Marco Milla, Nicholas Pedatella, Claudia Stolle, Huixin Liu	In-Person
9:20 - 9:35	S3-11	Midlatitude sporadic E layer structuring related to neutral atmospheric instability David Hysell, Michelle Bui, Miguel Larsen, Phillip Erickson	Virtual
9:35 - 9:50	S3-12	Variations of the peak positions in the longitudinal profile of noon-time equatorial electrojet Zié TUO, VAFI DOUMBIA, DIABY AZIZ, N'GUESSAN KOUASSI, PIERDAVIDE COISSON	Virtual
9:50 - 10:05	S3-13	Ground-Based Observations of Continual 24-Hour Equatorial Thermospheric Winds Sovit Khadka, Andrew Gerrard, Mariangel Fedrizzi, John Meriwether	In-Person

10:05 - 10:20	S3-14	Simultaneous Occurrence of Three Non-Interacting Characteristically Different Ionospheric Plasma Structures Over the Geomagnetic Low-Mid Latitude Transition Region Sumanta Sarkhel, Rahul Rathi, Padma Gurram, Subarna Mondal, Virendra Yadav, M. V. Sunil Krishna, Arun Upadhyaya	In-Person
10:20 - 10:35	S3-15	Variation in OI 630.0 nm Dayglow Emission at Different latitudes due to Equatorial Electrodynamics and Meridional Winds Over Low Latitudes Sunil Kumar, Duggirala Pallamraju, Pradip Suryawanshi, Gopi Seemala	Virtual

10:35 - 11:00 break (25 min.)

### Session 7: Future trends, opportunities, and challenges in low-latitude aeronomy

Chair: Thomas Immel

JST = UT + 9 hours

11:00 - 11:20	S7-01	How does long-term changes in the geomagnetic activity regulate the CO <sub>2</sub> -driven trend in the thermosphere and ionosphere  <b>invited</b> Huixin Liu	In-Person
11:20 - 11:40	S7-02	Improving the representation of the ionosphere-thermosphere through data assimilation  <b>invited</b> Nicholas Pedatella, Chih-Ting Hsu, Fazlul Laskar, Jeffrey Anderson	In-Person
11:40 - 11:55	S7-03	Development of the Equatorial Plasma Bubble Alert System Kornyanat Hozumi, Septi Perwitasari, Michi Nishioka, Kenji Nakayama, Somkit Sophan, Pornchai Supnithi	In-Person
11:55 - 12:10	S7-04	An electromagnetic calculation of electric-field mapping that seems to override electrostatic theory, and which injects wave-like effects into E-F coupling  Russell Cosgrove	In-Person
12:10 - 12:25	S7-05	Towards a New Arecibo Radar and Radio Telescope in Puerto Rico and the U.S. Virgin Islands  Brett Isham	In-Person

### Closing Lecture

Chair: Mamoru Yamamoto

12:25 - 13:05	Sounding Rockets -- An Indispensable Tool to Study Equatorial and Mid-Latitude Electrodynamics in the E- and F-region Robert Pfaff (NASA/GSFC)		
13:05 - 13:10	<b>Closing Remarks</b>		

Poster (1)

13 September 2022 (Tue) 16:30-18:00 JST

Session 1: Equatorial E- and F-region irregularities: Cause and effects		
S1-P01	Estimating the daytime vertical E*B drift velocities in the F-region of the equatorial ionosphere using the IEEY and AMBER magnetic data in West Africa Kassamba Abdel Aziz Diaby, Vafi Doumbia, Olivier Kouadio Obrou, Franck Oswald Grodji, Zié Tuo, N'Guessan Kouassi, Endawoke Yizengaw	Virtual
S1-P02	Equatorial F-Region Irregularities in Africa: Its Latitudinal Pattern at Different Seasons SHOLA ADEBIYI, S. IKUBANNI, O. BOLAJI, J. FASHAE, B. ADEBESIN, B. JOSHUA, A. OLABODE, B. ADEKOYA	Virtual
S1-P03	Observation of Equatorial Plasma Bubbles using OI6300 night glow emissions at Abuja, Nigeria <b>WITHDRAWN</b> Oluwakemi Dare-Idowu, Babatunde Kabiru, Daniel Okon, Bola Abdurrahim, Aderonke Obafaye, Kazuo Shiokawa	Virtual
S1-P04	Vertical Propagation Speeds of Gravity Waves in the Daytime as a Precursor to the Onset of Equatorial Spread-F Subir Mandal, Duggirala Pallamraju, Tarun Pant	Virtual

Session 2: Longitudinal/hemispheric variation of equatorial electrodynamics		
S2-P01	The Ionospheric Response for Two Geomagnetic Storms and their Relation to the Latitudes and Longitudes. Heba Mohamed, Christine Mazaudier, Osama Shalabiea, Ayman Mahrous, hussien farid	Virtual
S2-P02	New Perceptions of Various Scale Heights as Revealed by Recent Radio Occultation Technique on COSMIC-2 Microsatellites Brahmanandam Potula, Uma Gouthu, Chu Y. H	Virtual
S2-P03	A Comparative Study of IRI-2016 Model Predictions and Simultaneous Ground Measurements of hmF2 and TEC Around 950E <b>WITHDRAWN</b> Prantika Nath, Bitap Kalita, Pradipto Bhuyan, Kalyan Bhuyan	In-Person

Session 3: Atmosphere-ionosphere vertical coupling at low- and mid-latitudes		
S3-P01	A Comprehensive Study on Sudden Stratospheric Warming (SSW) Events and Associated Signatures on Upper Atmosphere <b>WITHDRAWN</b> Jinee Gogoi, Kalyan Bhuyan, Bitap Kalita	In-Person
S3-P02	On the Influence of Major Sudden Stratospheric Warming on Mesospheric Cooling by Nitric Oxide, Ozone Abundance, and Their Interrelation MV Sunil Krishna, Akash Kumar, Alok Ranjan, Sumanta Sarkhel	In-Person
S3-P03	A meteor Radar Network Study on the Polar-to-Tropical Mesospheric Coupling During the 2018 Sudden Stratosphere Warming Eswaraiah Sunkara	In-Person
S3-P04	Investigation on the Middle atmosphere Tidal variability during September 2019 Southern Hemisphere minor Sudden Stratospheric Warming Gourav Mitra, Amitava Guharay, Paulo Batista, Ricardo Buriti, Tracy Moffat-Griffin	Virtual

Session 4: Space weather effects at low- and mid-latitudes		
S4-P01	Day-to-day Changes in Equatorial Electrodynamics and Response to Transient Solar Processes Lalitha Krishnan, Tarun Pant	In-Person
S4-P02	Correlation Between foEs and Zonal Winds Over Mid-Latitude Stations Using Horizontal Wind Model (HWM14) During Solar Cycle 23-24. bushragul, Muhammad Ameen, Tobias Verhulst	Virtual
S4-P03	Ionospheric Response to an Intense Geomagnetic Storm (26 August 2018) over Low latitudes and Southern Hemisphere Uma Pandey, Javed Malik <b>WITHDRAWN</b>	In-Person
S4-P04	Solar flare effect on the low latitude ionospheric inferred using GPS TEC during the peak of solar cycle 24 Ajeet Maurya, Suniti Suniti, Himani Sharma <b>WITHDRAWN</b>	Virtual
S4-P05	Unusual positive and negative ionospheric storm over Asian-African regions during a geomagnetic storm on 21 August 2018 Sk Samin Kader, Nirvikar Dashorta <b>WITHDRAWN</b>	In-Person
S4-P06	Ionospheric responses to geomagnetic storms over the Middle East region from GNSS TEC and GUVI Rabia Hundal, Munawar Shah, Nadia Imtiaz <b>WITHDRAWN</b>	In-Person
S4-P07	On The Simultaneous Response Of The Ionosphere To Solar Events As Observed From Equatorial And Midlatitude Regions Using Optical Facilities Rasheedat Abdulrahim, Akeem Rabiu, Oluwakemi Dare-Ikodu, Daniel Okoh, Aderonke Obafaye, Kazuo Shiokawa <b>WITHDRAWN</b>	In-Person
Session 5: Recent advances in instrumentation and observation		
S5-P01	Global Bottomside Thickness (B0) and Shape (B1) Parameters from FORMOSAT-7/ COSMIC-2 GNSS Radio Occultations and Comparison with International SAMPAD KUMAR PANDA, Arun Kumar Singh, Haris Haralambous	Virtual
S5-P02	Observations of Equatorial Thermosphere-Ionosphere - Overview of SOUREX Experiment Tarun Pant, Manju G, Vineeth C, Md Hossain, Miridula N <b>WITHDRAWN</b>	In-Person
S5-P03	Study of the ionospheric spatial correlation  LIU Shuo	In-Person
S5-P04	A Study on the Relationship between the Real-Time Kinematic Positioning Performances and Ionospheric Delay Gradients near the Suvarnabhumi Pornchai Supnithi, Phyo Thu, Jirapoom Budtho, Lin Myint, Susumu Saito, Apitep Saekow	Virtual
Session 6: Application of numerical techniques for aeronomy		
S6-P01	Application of Classical Kalman filtering technique in assimilation of multiple data types to NeQuick model Patrick Mungufeni, Yenca Miguela Orué, Matamba Tshimangauze, George Omondi <b>WITHDRAWN</b>	In-Person
S6-P02	Multi-model predictability assessment of TEC during deep solar minimum around 100°E Angkita Hazarika, Bitap Kalita, Kalyan Bhuyan, Arup Borgohain, Pradip Bhuyan <b>WITHDRAWN</b>	In-Person

S6-P03	Analysis of solar parameters and foF2 data obtained by Singular Value Decomposition Junmi Gogoi, Kalyan Bhuyan	Virtual
S6-P04	Automatic Detection and Classification of Low Latitude TEC Structures Observed using Geostationary NavIC and other GNSS satellites Himanshu Sethi, Nirvikar Dashora	Virtual
S6-P05	Ionospheric vertical plasma drift model for the Indian and Indonesian sectors: Validation and usefulness PavanChaitanya Peddapati, Amit Patra, Yuichi Otsuka, Tatsuhiro Yokoyama, Mamoru Yamamoto	Virtual

## Poster (2)

13 September 2022 (Tue) 19:30-21:00 JST

Session 1: Equatorial E- and F-region irregularities: Cause and effects		
S1-P05	Characteristics Gravity Wave Scale Sizes present in the Plasma Bubbles as seen in the OI 630 nm Nightglow Emissions over Low-Latitudes Sovan Saha, Duggirala Pallamraju, Rupesh Ghodpage	Virtual
S1-P06	Inferring Zonal Drift Velocity of Ionospheric Irregularities from a Spaced GNSS Receivers Arrangement at a low-latitude location Guntur, India SAMPAD KUMAR PANDA, Ram Kumar Vankadara, Venkata Ratnam Devanaboina	Virtual
S1-P07	Towards development of a statistical model of Loss of lock and scintillations during the equatorial post-sunset ionospheric irregularities Nirvikar Dashora, V. K. D. Srinivasu	Virtual
S1-P08	New digisonde analysis tools for equatorial ionospheric research  Janardana Reddy G, Amit Patra	Virtual
S1-P09	Evidence of Interaction of Equatorial Plasma Bubbles with Medium Scale Travelling Ionospheric Disturbances during post mid-night sector over Indian Rupesh Ghodpage, Onkar Gurav, Sripathi, P. Pathi, V. Erram <b>WITHDRAWN</b>	Virtual
S1-P10	Midlatitude Plasma Bubbles Detected over the African-European Longitude Sector Zama Katamzi-Joseph, John Bosco Habarulema, Yuichi Otsuka	In-Person
Session 2: Longitudinal/hemispheric variation of equatorial electrodynamic		
S2-P04	Investigation on Longitudinal and Decadal Variations of the Equatorial Electrojet using a Physical Model Kuldeep Pandey, R. Sekar, D. Chakrabarty, B. G. Anandarao	Virtual
S2-P05	Explicit characteristics of longitudinal wavenumber structure observed using COSMIC-2 RO Lalit Joshi, Lung-Chih Tsai, Shin-Yi Su	Virtual
S2-P06	Equatorial Electrojet, Counter-Electrojet, and Other Ionospheric Currents and Related DC Electric Fields Observed on the C/NOFS Satellite Robert Pfaff, Henry Freudenreich	In-Person

Session 3: Atmosphere-ionosphere vertical coupling at low- and mid-latitudes		
S3-P05	Reverse Ray Tracing of Mesospheric Gravity Waves Observed Over the Indian Equatorial Region Nilesh Chauhan, Viswanathan Lakshmi Narayanan, Subramanian Gurubaran	Virtual
S3-P06	Ionospheric disturbances triggered by tropical cyclones over India during 2014-2021 V. K. D. Srinivasu, Nirvikar Dashora	Virtual
S3-P07	Interhemispheric asymmetry of the equatorial ionization anomaly (EIA) on the African sector over 3 years (2014-2016): Effects of thermospheric meridional AMAL LOUTFI, Frederic Pitout, Aziza Bounhir, Zouhair Benkhardoun, Jonathan J Makela	In-Person

Session 4: Space weather effects at low- and mid-latitudes		
S4-P08	Climatology of Global, Hemispheric and Regional electron content variations during the Solar Cycles 23 and 24 Waqar Younas, Majid Khan, Christine Mazaudier	Virtual
S4-P09	AFRICAN EQUATORIAL IONOSPHERIC STORM-TIME IRREGULARITIES IN EQUINOXES DURING SOLAR CYCLE 24 PEAK Stephen Ikubanni, Shola Adebisi, Olawale Bolaji, Babatunde Adebisin, Bolarinwa Adekoya, Benjamin Joshua	Virtual
S4-P10	Neutral Gravity Wave Dynamics Over Mid-Latitudes Kshitiz Upadhyay, Duggirala Pallamraju	Virtual
S4-P11	Study of Equinoctial Asymmetry in Total Electron Content (TEC) for the Two Extremes of Solar Cycle 24. Fatima Ather, Madeeha Talha	Virtual
S4-P12	Particle Precipitation Effects on the Global Secondary Ozone Distribution Patrick Espy, Lise Murberg, Tiril Løvset, Yvan Orsolini	Virtual
S4-P13	Study of Equatorial Geomagnetic Field Activities and its Relationship with Ionospheric disturbances at Low-Latitude LIN MYINT, Khanitin Seechai, Kornyanat HOZUMI, Pornchai Supnithi	Virtual
S4-P14	Assessment of Long-term Impact of Solar Activity on the Ionosphere over an African equatorial GNSS station Mefe Moses, Sampad Panda, Joseph Dodo, Lazarus Ojigi, Kola Lawal	Virtual
S4-P15	The observations of localize ionospheric scintillation structure by FORMOSAT-7/COSMIC-2 beacon and GNSS network Tung-Yuan Hsiao	In-Person

Session 5: Recent advances in instrumentation and observation		
S5-P05	Ionospheric Plasma Anomaly Using GPS TEC Measurements Over Nepal Narayan Chapagain	Virtual

S5-P06	A New Approach to Obtain the Daytime Gravity Wave Characteristics in Three-Dimensions Sunil Kumar, Subir Mandal, Duggirala Pallamraju	Virtual
S5-P07	Ionospheric Monitoring Using a Low-Cost GNSS Receiver  Ion-Anastasios Karolos, Stylianos Bitharis, Christina Oikonomou, Christos Pikridas, Haris Haralambous	Virtual
S5-P08	New Meteor Observation System using Forward Scatter FM Broadcast  Himanshu Sethi, Nirvikar Dashora	Virtual

### Poster (3)

15 September 2022 (Thu) 09:00-10:30 JST

Session 1: Equatorial E- and F-region irregularities: Cause and effects		
S1-P11	GOLD Mission's Observations on the Variabilities of Equatorial Plasma Bubbles Occurrence Rate Deepak Karan, Richard Eastes, Carlos Martinis, Robert Daniel, William McClintock	Virtual
S1-P12	An Interhemispheric Analysis of Plasma Irregularities Over South America Using a Disturbance Ionosphere index Giorgio Picanço, Clezio Denardini, Paulo Nogueira, Laysa Resende, Carolina do Carmo, Sony Chen	Virtual
S1-P13	Tidal Influence on the generation of Post-Midnight F Region Irregularities Meenakshi S, Sridharan S, Kornelius Holm, Ilara Yuki, Tatsuro Kobayama, Hiroyuki Hashiguchi	In-Person
S1-P14	Satellite Observations of BSS Irregularities Coordinated with Ground Measurements Cesar Valladares	In-Person
S1-P15	Vast expanses of kilometer-scale waves discovered in the earth's ionosphere by probes on the C/NOFS satellite -- A new source of scintillations Robert Pfaff	In-Person
Session 3: Atmosphere-ionosphere vertical coupling at low- and mid-latitudes		
S3-P08	Spectral Analysis of the Phase Velocity Distribution of AGWs and MSTIDs in Airglow Images at Darwin, Australia, and Sata, Japan Takuma Tsuboi, Kazuo Shiokawa, Yuichi Otsuka, Hatsuki Fujinami, Takuji Nakamura, David Neudegg	In-Person
S3-P09	Ionospheric response against Tonga volcanic eruption observed over South America Hisao Takahashi, Cosme Figueiredo, Diego Barros, Cristiano Wrasse, Gabriel Giongo, R Honda, L Vital, Laysa Resende, P Nyassor, T Ayorinde, C Carmo, M	Virtual
S3-P10	The vertical structure of quasi-6 day wave in neutral wind and temperature and the corresponding oscillation in column O/N2 Yen-Jung Wu, Brian Harding, Colin Triplett, Divyam Goel, Thomas Immel, Chihoko Cullens, Scott England	In-Person
S3-P11	Dynamical mechanisms for zonal mean wind responses in the thermosphere to doubled CO2 concentration. Masaru Kogure, Huixin Liu, Chihiro Tao	In-Person

Session 4: Space weather effects at low- and mid-latitudes		
S4-P16	Validation of NeQuick 2 model over Brazil using GNSS-derived Total Electron Content Taiwo Osanyin, Claudia Candido, Fabio Becker-Guedes, Yenca Migoya-Orues	Virtual
Session 5: Recent advances in instrumentation and observation		
S5-P09	Two-dimensional UHF coherent backscatter radar observations of equatorial F-region irregularities at the Jicamarca Radio Observatory Fabiano Rodrigues, Josemaria Socola, Jonas Sousasantos, Joab Apaza, Karim Kuyeng, Danny Scipion, Marco Milla, Carlos Padin	Virtual
S5-P10	High-altitude drift experiments over Jicamarca: low-latitude driver effects over the topside equatorial ionosphere Luis Navarro Dominguez, Bela Fejer, Danny Scipion, Marco Milla, Jorge Chau, J Conte, Alan Liu	Virtual
S5-P11	Electrojet Zeeman Imaging Explorer: measurements of low-latitude ionospheric currents and winds Patrick Alken, Rafael Mesquita, Astrid Maute, Wenbin Wang, Heikki Vanhamaki, Jesper Gjerloev, Sam Yee	Virtual
S5-P12	Optical Instrumentation to Study Ionospheric Processes From Equatorial to Subauroral Latitudes Carlos Martinis, Jessica Norrell, Jeffrey Baumgardner, Joei Wroten, Michael Mendillo, John Meriwether, Luis Navarro, Robert Daniell, Richard Eastes,	Virtual
Session 7: Future trends, opportunities, and challenges in low-latitude aeronomy		
S7-P01	Distributed arrays of small instruments: Results, opportunities, and lessons learned from an ongoing effort that employs low-cost ionospheric sensors Fabiano Rodrigues, Josemaria Socola, Isaac Wright, Alison Moraes, Danny Scipion, Cesar de la Jara, Igo Paulino, Ricardo Buriti	Virtual
S7-P02	A new D-region probing technique using ENTLN lightning waveforms Erin Lay, Emily Hudson, Amitabh Nag <b>WITHDRAWN</b>	Virtual

#### Poster (4)

15 September 2022 (Thu) 11:00-12:30 JST

Session 1: Equatorial E- and F-region irregularities: Cause and effects		
S1-P16	Ionospheric vertical ExB drift variations during sudden stratospheric warming events Pavan Chaitanya Peddapati, Amit Patra, Yuichi Otsuka, Tatsuhiro Yokoyama, Mamoru Yamamoto	Virtual
S1-P17	Observation on Large-Scale Wave Structure in Southeast Asia Yu Yi Liow, Suhaila M Buhari, Mardina Abdullah, Tajul Ariffin Musa, Sundarsanam Tulasiram	Virtual
S1-P18	On the variability of the equatorial plasma irregularities under post-sunset and post-midnight sectors as investigated using ionosonde observations Sripathi Samireddipalle, B Gayathri, Rajesh Barua, Srihar Banjara <b>WITHDRAWN</b>	In-Person

S1-P19	First Observation of Daytime Range Spread F at Middle Latitude in the Afternoon  Chunhua Jiang, Lehui Wei, Ercha Aa, Wengeng Huang, Hua Shen, Jing Liu, Guobin Yang, Zhengyu Zhao	In-Person
S1-P20	Airglow Observation and Investigation of Equatorial Plasma Bubble Tilt Variations, and its Possible Relation to Zonal Drift Velocity over Gadanki Arun Panda, T.K. Ramkumar	Virtual
S1-P21	Variabilities of Equatorial Plasma Bubble: Causes and predictability  Lalit Joshi, Lung-Chih Tsai, Shin-Yi Su, Abhijit Dey	Virtual
Session 3: Atmosphere-ionosphere vertical coupling at low- and mid-latitudes		
S3-P12	Effect of Equatorial Electric Fields seen in the Latitudinal Movement of the OI 630 nm Nocturnal Emissions over Indian Longitude Sovan Saha, Duggirala Pallamraju	Virtual
S3-P13	Investigation of Gravity Wave Coupling to the Equatorial Ionosphere Under Extreme Tropical Weather Conditions Rajesh Barad, S Sripathi	In-Person
S3-P14	Monitoring Thunderstorm induced Atmospheric Wave Propagation by using NavIC and GPS Satellite Signal Saurabh Das, Soumen Datta	In-Person
S3-P15	Zonal Winds in the Lower Ionosphere and Their Effects on EEJ Return Currents: An Observational Study Using ICON/MIGHTI And Swarm Sreelakshmi Jayaraman, Astrid Maute, Geeta Vichare, Arthur Richmond, Brian Harding	Virtual
Session 5: Recent advances in instrumentation and observation		
S5-P13	Initial Results of Low-Cost Small All-Sky Imagers for Multi-Point Measurements of Airglow and Aurora Kazuo Shiokawa, Yuka Yamamoto, Takumi Adachi, Kouki Kawai, Kohki Nakamura, Jie Liu, Liwei Chen, Yuto Kato, Takuma Tsuboi, Masaki Sato, Kazuki Nomura, Yoshizumi Miyoshi, Yasunobu Ogawa, Mitsumu Ejiri, Keisuke Hosokawa, Shin Suzuki, Takeshi Sakanoi	In-Person
S5-P14	Development of a Neutral Mass Spectrometer for the In-situ Observation of the Upper Atmosphere Masahiro Yoneda, Akinori Saito, Yoshifumi Saito	In-Person
S5-P15	Software-defined radio-based receiving system for HF Doppler observation system Hiroyuki Nakata, Kenro Nozaki, Keisuke Hosokawa, Kumiko Hashimoto, Takashi Kikuchi, Jun Sakai, Ichiro Tomizawa, Satoko Saita	Virtual
S5-P17	VIPIR ionospheric observations in Japan  Michi Nishioka, Hideo Maeno, Hiroyuki Yamakawa, Takuya Tsugawa	In-Person
Session 6: Application of numerical techniques for aeronomy		
S6-P06	Artificial Neural Network-Based Model for Equinoctial Evening Upward Ionospheric Plasma Drift in Equatorial Southeast Asia Prayitno Abadi	Virtual

S6-P07	Latitude-Weighted Total Electron Content Map Using GNSS Network in Thailand Napat Tongkasem, Pornchai Supnithi, Lin Min Min Myint, Kornyanat Hozumi	Virtual
S6-P08	Time Series Prediction of the Equatorial Spread-F Occurrence using the LSTM network Phimmasone Thammavongsy, Pornchai Supnithi, Lin Myint, Kornyanat Hozumi	Virtual

**Session 7: Future trends, opportunities, and challenges in low-latitude aeronomy**

S7-P03	Observations of Ionospheric Disturbances - From Space Weather Events to Tonga Volcano Eruptions Charles Lin, Panthalingal Rajesh, Chi-Yen Lin, Jia-Ting Lin, Cheng-Yung Huang, Jong-Min Choi	In-Person
S7-P04	A High-Frequency Receiving Array for Radar and Radio Imaging of the Ionosphere Brett Isham, Terence Bullett, Björn Gustavsson, Emil Polisensky, Vasyl Belyey, Arturs Stramkals, Christiano Brum	In-Person