



## 3rd ISEE Symposium

**PWING-ERG conference and school on the inner magnetosphere  
ONLINE CONFERENCE**

ISEE, Nagoya University, Japan  
March 8-12, 2021

# SCHEDULE v.5.5

## TO ALL ATTENDANTS

★ **To join the meeting check the zoom link sent to your email!**

Keep it handy by bookmarking the link or [pinning the tab](#) in your browser.

(all times below are in **JST**! Please make sure to convert to [your local time](#)!)

Make sure you have the [latest zoom version](#) (or at least higher than 5.3) otherwise you won't be able to use the breakout room function.

→ *Unsure how to check your zoom version?* Follow instructions [here](#)

- **Main** zoom room: Lectures, talks and their respective Q&As.
- **Breakout rooms** A, B and C: Discussions with speakers during breaks and discussion time after the sessions.
- **Small discussion** rooms 1, 2 and 3: Space for smaller group discussions
- Breakout room **Social** 1 and 2: Informal discussions.

## TO ALL PRESENTERS

- All presentations will be oral and organized in the main zoom meeting room.
- Presentation and discussion times are as follow:

🔊 **Lectures:** 35 min presentation + 15 min Q&A

🔊 **Invited talks:** 15 min presentation + 5 min discussion

🔊 **Contributed talks:** 10 min presentation + 2 min discussion

- **Breakout discussions**

We have prepared at least 3 rooms for breakout discussions. Each breakout room will have 1-2 speakers of the session so that the participants may ask further questions or discuss on the presentation. If necessary, more rooms can be added.

- **The meeting will not be recorded.**

We encourage the participants to contact the speakers directly if they would like a copy of their presentation.

# PROGRAM AT A GLANCE

Time [JST] UT+9h	Day 1 (Mar 8, Mon)		Day 2 (Mar 9, Tue)		Day 3 (Mar 10, Wed)	Day 4 (Mar 11, Thu)	Day 5 (Mar 12, Fri)
9:00–9:10	School opening	9:00–10:00	S. Ukhorskiy	9:00–10:20	Session 4	Session 9	Session 13
9:10–10:10	K. Shiokawa	10:00–11:00	V. Jordanova	10:20–10:50	Break w/ discussion	Break w/ discussion	Break w/ discussion
10:10–11:10	Y. Miyoshi	11:00–13:00	Lunch break	10:50–12:10	Session 5	Session 10	Session 14
11:10–12:10	N. Nishitani	13:00–13:30	Symposium opening	12:10–13:30	Lunch break w/ discussion	Lunch break w/ discussion	Lunch break w/ discussion
12:10–13:00	Lunch break	13:30–14:50	Session 1	13:30–14:50	Session 6	Session 11	Session 15
13:00–15:30	ERG Sc. Center & IUGONET	14:50–15:20	Break w/ discussion	14:50–15:20	Break w/ discussion	Break w/ discussion	Break w/ discussion
15:30–16:00	Break	15:20–16:40	Session 2	15:20–16:40	Session 7	16:00 – 17:15 ISEE Award & Commemorative lecture	Session 16
16:00–16:30	Student Mixer	16:40–17:10	Break w/ discussion	16:40–17:10	Break w/ discussion		Break w/ discussion
17:00–17:50	O. Santolik	17:10–18:30	Session 3	17:10–18:30	Session 8	17:15 – 18:50 Session 12	17:10 – 18:00 Session 17
18:00–18:50	E. Turunen	18:30–19:00	Break w/ discussion	18:30–19:00	Break w/ discussion	18:50 – 19:00 Break w/ discussion	18:00 – 18:30 Break w/ discussion
				19:00–20:00	Social Gathering (BYOB!)*		18:30 – 19:05 Wrap up & Closing Remarks

\*Bring Your Own Beer! 

# Monday, March 8<sup>th</sup> (School)

## Morning

09:00 – 09:10 School opening

09:10 – 09:45 **K. Shiokawa** (Lecture)

Ground-based observation of aurora and plasma waves for investigation of the inner magnetosphere

09:45 – 10:00 Q&A

**10-min break**

10:10 – 10:45 **Y. Miyoshi** (Lecture)

Highlight and future perspective of the ERG/Arase project

10:45 – 11:00 Q&A

**10-min break**

11:10 – 11:45 **N. Nishitani** (Lecture)

Study of ionospheric plasma dynamics at sub-auroral latitudes using the SuperDARN radars

11:45 – 12:00 Q&A

**12:00 – 13:30 Lunch Break**

## Afternoon

13:30 – 15:30 **ERG Science Center & IUGONET** (Training)

Training session for SPEDAS and IUGONET data analysis tools

**30-min break**

**16:00 – 16:30 Student Mixer**

**30-min break**

17:00 - 17:35 **O. Santolik** (Lecture)  
Spacecraft measurements of whistler mode waves as a tool for investigation of the inner magnetosphere

17:35 – 17:50 Q&A

**10-min break**

18:00 – 18:35 **E. Turunen** (Lecture)  
High-energy particles - atmosphere interaction

18:35 – 18:50 Q&A

## Tuesday, March 9<sup>th</sup> (School)

### Morning

09:00 – 09:35 **S. Ukhorsky** (Lecture) **X CANCELLED**  
Van Allen Probes Mission: a Remarkable Journey and Discoveries in Earth's Radiation Belts

09:35 – 09:50 Q&A

**10-min break**

10:00 – 10:35 **V. Jordanova** (Lecture)  
Inner Magnetosphere Plasma and Field Dynamics

10:35 – 10:50 Q&A

**10:50 – 13:00 Lunch Break**

### Afternoon

13:00 – 13:30 Symposium opening

13:30 – 19:00 Talks (see next page)

**Session 1 (13:30 – 14:50)**

Chair: Y. Miyoshi

<b>13:30 – 13:50</b>	<b>A. Demekhov</b>	<b>Conjugate ground-spacecraft observations of VLF emissions</b>
13:50 – 14:02	Y. Kasahara	Statistical analysis of spatial distribution of wave spectra observed by PWE/OFA on board the Arase
14:02 – 14:14	K. Toyama	Spatio-temporal characteristics of the precipitating electron energy of pulsating aurora derived from multi-wavelength optical measurements
14:14 – 14:26	M. Ozaki	Flash-type auroral model using chorus-ray tracing analysis
14:26 – 14:38	A. Rubtsov	Global observation of poloidal Pc4-5 waves in the magnetosphere induced by substorm
14:38 – 15:20	<b>Break &amp; Discussion</b>	Discussion in breakout rooms

**Session 2 (15:20 – 16:50)**

Chair: S. Oyama

<b>15:20 – 15:40</b>	<b>J. Manninen</b>	<b>Why it is important to have simultaneous ground-based ELF-VLF observations in every satellite project?</b>
15:40 – 15:52	C. Martinez-Calderon	Recent characteristics and propagation of unusually high frequency VLF emissions at Kannuslehto, Finland.
15:52 – 16:04	A. Chernyshov	Detection of auroral kilometer radiation from the northern and southern hemispheres using the ERG satellite
16:04 – 16:16	D. Chugunin	Statistical Properties of Auroral Kilometer Radiation
<b>16:16 – 16:28</b>	<b>D. G. Baishev</b>	<b>Measurements of geomagnetic pulsations and aurora at Zhigansk and VLF registration at Maimaga as part of PWING project</b>
16:28 – 17:10	<b>Break &amp; Discussion</b>	Discussion in breakout rooms

**Session 3 (17:10 – 18:30)**

Chair: S. Nakamura

<b>17:10 – 17:30</b>	<b>I. Kolmasova</b>	<b>On the use of three-component ELF/VLF measurements of radio atmospherics in investigation of lightning related phenomena</b>
17:30 – 17:42	A. Y. Gololobov	Multi-event conjugate measurements of the SAR arcs detachments using all-sky camera at Athabasca, Canada and DMSP satellites (F13-F19)
17:42 – 17:54	M. Chelpanov	ULF wave observations in the ionosphere using the EKB coherent radar
17:54 – 18:06	S. Pilipenko	Interaction of magnetospheric Pc1 waves with the ionospheric resonators and waveguides
18:06 – 18:18	O. S. Mikhailova	Experimental observation of the transverse Alfvénic resonator for Pc4 pulsations: a Van Allen Probes case study
18:18 – 19:00	<b>Discussion</b>	Discussion in breakout rooms

## Session 4 (09:00 – 10:20)

Chair: M. Nose

09:00 – 09:20	D. L. Turner	Efficient particle acceleration in Earth's magnetotail and injection of energetic particles into the radiation belts and ring current
09:20 – 09:40	M. Lessard	The relationship between substorm-onset related IPDP-type EMIC waves and drift-shell splitting
09:40 – 09:52	T. Yamakawa	Excitation mechanisms of the storm-time Pc5 ULF waves by the drift-bounce resonance with ring current ions based on the drift-kinetic model
09:52 – 10:04	A. G. Elias	A theoretical study of mirror-point altitude variability due to geomagnetic field variations
10:04 – 10:16	Y. Tanaka	A Direction finding Method Considering Different Signal to Noise Ratio among Sensors
10:16 – 10:50	<b>Break &amp; Discussion</b>	Discussion in breakout rooms

## Session 5 (10:50 – 12:10)

Chair: N. Nishitani

10:50 – 11:10	S. Claudepierre	Quantifying the drivers of electron loss from the Earth's radiation belts
11:10 – 11:30	W. R. Johnston	Overview of the DSX Satellite Mission
11:30 – 11:42	K. Asamura	Perpendicular heating of low-energy ions by fast magnetosonic waves observed by Arase (ERG) satellite
11:42 – 11:54	Y. Ito	Computer simulations of precipitating energetic electrons through chorus-wave particle interactions
11:54 – 12:06	S. Kumar	Contribution of electron pressure to ring current and ground magnetic depression using RAM-SCB simulations and Arase observations during geomagnetic storms
12:06 – 13:30	<b>Lunch Break &amp; Discussion</b>	Discussion in breakout rooms

## Session 6 (13:30 – 14:50)

Chair: K. Seki

13:30 – 13:50	M. Connors	Athabasca University, PWING, and Arase
13:50 – 14:02	R. Kataoka	Auroral substorm events as seen from Syowa-Arase-Tjornes conjugate observations
14:02 – 14:14	K. Shiokawa	Arase observation of the source region of auroral arcs and diffuse auroras in the inner magnetosphere
14:14 – 14:34	V. Safargaleev	On the influence of the orientation of pulsating auroral structure on associated geomagnetic pulsations in 3±1 Hz frequency range
14:34 – 14:54	B. Kozelov	Evolution of the energetic electron flux observed by ARASE satellite and simultaneous aurora over Kola Peninsula
14:54 – 15:20	<b>Break &amp; Discussion</b>	Discussion in breakout rooms

## Session 7 (15:20 – 16:40)

Chair: M. Ozaki

15:20 – 15:40	A. Kero	<b>Energetic particle precipitation characteristics and its atmospheric impacts derived from electron density profile measurements</b>
15:40 – 15:52	N. Thomas	Statistical survey of Energetic Electron Precipitation events using coordinate observations from Arase and ground Riometer network
15:52 – 16:04	H. Ohya	Energetic Electron Precipitations Showing ULF Modulation of VLF/LF Transmitter Signals
16:04 – 16:16	F. Tsuchiya	Energetic electron precipitations associated with pulsating aurora: statistical analysis of low altitude satellite and VLF subionospheric propagation
16:16 – 16:28	E. Antonova	Acceleration and loss of the outer radiation belt electrons and auroral processes
16:28 – 16:40	M. Shafique	Kinetic instability driven by using non-Maxwellian kappa ( $\kappa$ ) and ( $r$ , $q$ ) distribution function. <b>X CANCELLED</b>
16:40 – 17:10	<b>Break &amp; Discussion</b>	Discussion in breakout rooms

## Session 8 (17:10 – 18:30)

Chair: R. Kataoka

17:10 – 17:30	I. A. Daglis	<b>SafeSpace: Designing Radiation Belt Environmental Indicators for the Safety of Space Assets</b>
17:30 – 17:42	D. Wang	Simulations of the Relativistic Radiation Belt Electrons Using the VERB-3D Code
17:42 – 17:54	S. Rathi	Analysis of Relativistic Electron Fluxes in the Outer Radiation Belt during an Intense and a Moderate Storm
17:54 – 18:06	G. B. Belayneh	Driving parameters for energetic electron fluxes variation in outer radiation belt <b>X CANCELLED</b>
18:06 – 18:18	A. Yahnin	Evening side EMIC waves and related proton precipitation induced by a substorm
18:18 – 18:30	T. N Bhatt	Fermi acceleration in Saturn magnetosheath at corotating magnetic reconnection site
18:30 – 19:00	<b>Discussion</b>	Discussion in breakout rooms

## 19:00 – 20:00 Social Gathering

Take some time to catch up with your colleagues in [SpatialChat](#).  
Bring your beverage and/or food of choice to share with friends.

**Session 9 (09:00 – 10:20)**

Chair: S. Kurita

<b>09:00 – 09:20</b>	<b>M-C. Fok</b>	<b>Modeling the Inner Magnetosphere with the CIMI Model</b>
09:20 – 09:32	S. Yadav	On the origin of equatorward detachment of auroral arc inferred from conjugate space-ground observations and the BATS-R-US – CIMI model
09:32 – 09:44	Z. Xu	Inter-hemispheric asymmetries in the ground magnetic response and interplanetary shocks inclination
09:44 – 09:56	L. R. Alves	Chorus waves in the outer radiation belt driven by recurrent solar wind structures <b>X CANCELLED</b>
09:56 – 10:08	S. Noh	A statistical investigation of magnetospheric and Ionospheric effects on EMIC wave propagation
10:08 – 10:20	B. S. Zossi	Stormer regions in paleomagnetospheres
10:20 – 10:50	<b>Break &amp; Discussion</b>	Discussion in breakout rooms

**Session 10 (10:50 – 12:10)**

Chair: F. Tsuchiya

<b>10:50 – 11:10</b>	<b>V. Angelopoulos</b>	<b>First results from the ELFIN mission and equatorial spacecraft conjunctions</b>
11:10 – 11:22	S. Zenitani	Multiple Boris integrators for particle-in-cell simulation
11:22 – 11:34	N. Takahashi	Relative Contribution of ULF Waves and Whistler-mode Chorus to the Radiation Belt Variation during the May 2017 Storm
11:34 – 11:46	H. Kim	The Role of Injected Ring Current Ions in Generating EMIC Waves and Scattering Radiation Belt Particles
11:46 – 11:58	M. Nose	Field-aligned Low-energy Ion Flux Enhancements of H <sup>+</sup> and O <sup>+</sup> in the Inner Magnetosphere Observed by Arase
11:58 – 12:10	S. Fukuoka	Forecast of energetic electron flux variations of the outer belt using the machine learning
<b>12:10 – 13:30</b>	<b>Lunch Break &amp; Discussion</b>	Discussion in breakout rooms

**Session 11 (13:30 – 14:50)**

Chair: N. Takahashi

<b>13:30 – 13:50</b>	<b>A. Hendry</b>	<b>Investigating EMIC/IPDP source regions with conjugation ERG-PWING observations</b>
13:50 – 14:02	P. R. Shreedevi	EMIC wave induced proton precipitation during the 27-28 May 2017 storm: Comparison of BATSRUS+RAM-SCB simulations with ground/space based observations
14:02 – 14:14	C.W. Jun	The characteristics of EMIC (ElectroMagnetic Ion Cyclotron) waves in the magnetosphere using the Van Allen Probes and Arase observations

14:14 – 14:26	M. Shoji	Statistical analyses on low energy ion heating by electromagnetic ion cyclotron waves via wave-particle interaction analyses: Arase observations
14:26 – 14:38	S. Nakamura	Observations of drifting hole structures in radiation belt electrons induced by EMIC waves <b>X CANCELLED</b>
14:38 – 16:00	<b>Break &amp; Discussion</b>	Discussion in breakout rooms

## 16:00 – 17:15 ISEE Award Presentation & Award Commemorative Lecture

### 16:00 Opening

Prof. N. Takahashi, ISEE vice director

### 16:01 Opening address and ISEE award selection committee report

Prof. K. Kusano, ISEE director

### 16:04 Congratulatory address

Prof. N. Sugiyama, Nagoya University, Provost

### 16:07 Award presentation

**Award winners, Prof. Ilya Usoskin & Dr. Stepan Poluianov, University of Oulu**

### 16:10 Introduction of award winners

Profs. F. Miyake and N. Kurita, ISEE

### 16:15 Award commemorative lecture (talk: 45 min, discussion: 15 min)

**Title:** Extreme solar storms: what we know and what we guess

**Speaker:** Prof. Ilya Usoskin & Dr. Stepan Poluianov, University of Oulu

### 17:15 Closing

Prof. Takahashi, ISEE vice director

## Session 12 (17:30 – 18:50)

Chair: K. Shiokawa

17:30 – 17:42	A. Bhargawa	Declining solar activity trends during solar cycles 25 and 26
17:42 – 17:54	D. K. Sonधिya	Statistical (ANOVA) analysis of variations in Solar and Geomagnetic Parameters for Solar Cycle 24 <b>X CANCELLED</b>
17:54 – 18:06	R. Miteva	Geomagnetic and solar activity in solar cycles 23 and 24
18:06 – 18:18	S. K. Kasde	Study of Phase Relationship of Sunspot Numbers with F 10.7 cm Solar Radio-Flux and Coronal Index using Wavelet-Transform Technique
18:18 – 18:30	J. M. Rodriguez Gomez	Geoeffectiveness of CME Clusters
18:30 – 19:00	<b>Break &amp; Discussion</b>	Discussion in breakout rooms

**Session 13 (09:00 – 10:20)**

Chair: C. Martinez-Calderon

09:00 – 09:20	M. J. Engebretson	<b>Electromagnetic ion cyclotron (EMIC) waves in Earth's magnetosphere: Recent satellite and ground-based observations and some future prospects</b>
09:20 – 09:32	A. R. Gutierrez Falcon	Long term features of geomagnetically trapped particles
09:32 – 09:44	Y. Miyoshi	Statistical investigation of cross energy coupling during magnetic storms; Arase observations
09:44 – 09:56	T. Hori	Spatial evolution of injected energetic electrons as observed by Arase and Van Allen Probes
09:56 – 10:08	S. Imajo	Active auroral arc powered by accelerated electrons from very high altitudes
10:08 – 10:50	<b>Break &amp; Discussion</b>	Discussion in breakout rooms

**Session 14 (10:50 – 12:10)**

Chair: Y. Otsuka

10:50 – 11:02	E. P. Macho	Ionospheric climatology at South American sector using amplitude scintillation index S4
11:02 – 11:14	M. D. Hartinger	Inter-Hemispheric Comparisons of the Ground Magnetic Response during Past and Future Eclipses
11:14 – 11:26	N. Maruyama	Identifying the Physical Mechanisms to Explain the Extreme Plasmaspheric Erosion for the September 2017 Storm
11:26 – 11:38	S. Oyama	Event study of the M-I-T coupling in the ionospheric trough region for Kp = 0+
11:38 – 11:50	A. Shinbori	Relationship between the locations of the mid-latitude trough and plasmapause using GNSS-TEC and Arase satellite observation
<b>11:50 – 13:30</b>	<b>Lunch Break &amp; Discussion</b>	Discussion in breakout rooms

**Session 15 (13:30 – 14:50)**

Chair: T. Hori

13:30 – 13:42	M. Takada	Simultaneous observations of a low-altitude ion upflow by the EISCAT radar and molecular ions in the ring current by the Arase (ERG) satellite
13:42 – 13:54	B. Malvi	Ionosphere Behavior during the Geomagnetic Storms over the different latitude Regions
13:54 – 14:06	S. K. Panda	Extracting Plasmaspheric Contributions from Total Electron Content using Digisonde, COSMIC, and GPS Observations and Model Comparisons
14:06 – 14:18	P. Nilesch	Comparison of the ionospheric F2 peak height between digisonde measurements and IRI-2016 predictions over Irkutsk, Russia
14:18 – 15:20	<b>Break &amp; Discussion</b>	Discussion in breakout rooms

## Session 16 (15:20 – 16:40)

Chair: Y. Tanaka

15:20 – 15:40	V. Kurkin	Disturbances of the Subpolar ionosphere over the Asian part of Russia during the geomagnetic storms of 2017-2020
15:40 – 15:52	A. Sinevich	Study of the polarization jet using satellite data
15:52 – 16:04	P. Erdemir	A comparison of upper atmospheric Joule heating resulting from CMEs and HSSs using SWMF/BATS-R-US model
16:04 – 16:16	E. Gulay	Geomagnetic Field Variations During Quiet and Disturbed Days Over Iznik, Turkey
16:16 – 16:28	H. S. Mohamed	The ionospheric response to 27 September magnetic storm on 2017 at the equator.
16:28 – 17:10	Break & Discussion	Discussion in breakout rooms

## Session 17 (17:10 – 18:30)

Chair: A. Shinbori

17:10 – 17:22	T. P. Owolabi	The Effect of Prompt Penetration Electric (PPE) on Total Electron Content during Intense and Super Geomagnetic Storm Events at Low and Mid Latitude Regions X CANCELLED
17:22 – 17:34	O. D. F. Grodji	Estimating some parameters of the equatorial ionosphere electrodynamics from ionosonde data in West Africa X CANCELLED
17:34 – 17:46	D. I. Okoh	Results from a 3-D electron density model developed from COSMIC radio occultation data using artificial neural networks
17:46 – 17:58	V. N. Otugo	Estimation of ionospheric critical plasma frequencies from GNSS-TEC measurements using artificial neural networks X CANCELLED
17:58 – 18:30	Discussion	Discussion in breakout rooms
18:30 – 19:00	Wrap up	Wrap up of the symposium and discussion on future directions

## 19:00 – 19:05 Closing Remarks

## Symposium End

Thank you for joining! 😊

The 3rd ISEE Symposium  
**PWING-ERG conference and school on the inner  
magnetosphere**

**Main Coveners**

Kazuo Shiokawa, Yoshizumi Miyoshi, and Iku Shinohara

**Organizing Committee**

Tomoaki Hori  
Ryuho Kataoka  
Satoshi Kurita  
Claudia Martinez-Calderon  
Yoshizumi Miyoshi  
Tsutomu Nagatsuma  
Satoko Nakamura  
Nozomu Nishitani  
Masahito Nose  
Yuki Obana  
Yuichi Otsuka  
Kaori Sakaguchi

Takeshi Sakanoi  
Kanako Seki  
Atsuki Shinbori  
Iku Shinohara  
Kazuo Shiokawa  
Shin Suzuki  
Naoko Takahashi  
Yoshimasa Tanaka  
Fuminori Tsuchiya  
Shin-Ichiro Oyama  
Mitsunori Ozaki

Miho Sugiyama (secretary)

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