

**ICS-15**  
**The 15th International Conference**  
**on Substorms**



**October 15-20, 2023**  
**Deqing, China**

Chinese Society of Space Research  
Peking University  
October 4, 2023

## Conference Venue

Mogan Maison New century (Moganshan Yungu Dexin New Century Mingting Hotel)

莫干山云谷德信开元名庭酒店

No. 66 Sanmo Line, Moganshan town, Deqing, Zhejiang, China

浙江省德清县莫干山镇三莫线 66 号

## The Conference Web Page

<http://ics15.cssr.org.cn/Index.asp>

## Scientific Organizing Committee

Elizaveta Antonova, Huishan Fu, Yasong Ge, Andreas Keiling, Larry Kepko, Larry Lyons, Yoshizumi Miyoshi, Mark Moldwin, Rumi Nakamura, Anatoli Petrukovich, Zuyin Pu, Andrei Runov, David Sibeck, Victor Sergeev, Kazuo Shiokawa, Drew Turner, Xuzhi Zhou

## Local Organizing Committee

Yongyong Feng, Zefan Yin, Chao Yue, Xuzhi Zhou

## Conference Contact Information

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**This is a hybrid meeting with online components**

Join us via zoom at

<https://ucla.zoom.us/j/94908597521?pwd=S1VnNmN4aUNjRkNJZkZlU09ueC8wUT09>

Meeting ID: 949 0859 7521

Passcode: 929320

## Event Overview

(Beijing Standard Time, UTC+8)

Oct. 15 Sunday	12:00-24:00	Registration Check-in	Hotel Lobby
	16:00-18:00	Welcome Reception	Hotel Restaurant
Oct. 16 Monday	08:30-12:00	Oral Presentations	Wukang Hall
	13:30-17:30	Oral Presentations	Wukang Hall
Oct. 17 Tuesday	08:30-12:00	Oral Presentations	Wukang Hall
	13:30-17:30	Oral Presentations	Wukang Hall
	18:00-20:00	Banquet	Leidian Hall
Oct. 18 Wednesday	Moring Session	Excursion (Departure from Hotel at 08:15)	
	Afternoon Session	Excursion (Departure from Hotel at 13:45)	
	19:30-21:30	Posters	Qianyuan Hall
Oct. 19 Thursday	08:30-12:00	Oral Presentations	Wukang Hall
	13:30-17:30	Oral Presentations	Wukang Hall
Oct. 20 Friday	08:30-12:00	Oral Presentations	Wukang Hall
	13:30-17:30	Oral Presentations	Wukang Hall

## Meal Schedules

Breakfast: 07:00 – 10:00

Lunch: 11:30 – 13:30

Dinner: 17:00 – 20:30

**\*All meals during the conference are covered by the registration fee.**

## Session Schedules

Presentation types: T (Tutorial); I (Invited); C (Contributing)

Monday, October 16, 2023 (Beijing Standard Time, UTC+8)

Morning Session

Session chairs: Xuzhi Zhou, Binzheng Zhang

Time	Type	Speaker, Title	Onsite?
8:30		<b>Zuyin Pu &amp; Xuzhi Zhou</b> , Greetings & Information	Y
8:40	T	<b>David Sibeck</b> , Substorms from Dayside to Nightside and Back	Y
9:30	I	<b>Lei Dai/Minghui Zhu</b> , Driving Magnetosphere Convection through the ionosphere: A key component in a proposed model of Strongly-Driven Substorms	Y
10:00		Coffee break	
10:20	I	<b>Qiugang Zong</b> , Shock induced Strong substorms and Super substorms: Preconditions and Associated Oxygen Ion Dynamics	Y
10:50	I	<b>Bruce Tsurutani</b> (presented by <b>Rajkumar Hajra</b> ), A Review of Super substorms (SSSs): Their Properties and Their Energetics	Y
11:20	C	<b>Jianjun Liu</b> , Effect of interplanetary shock on an ongoing substorm: Simultaneous satellite-ground auroral observations	Y
11:40	C	<b>Irina Despirak</b> , The features of substorms on a contracted auroral oval	Y

Afternoon Session

Session chairs: Sheng Tian, Andreas Keiling

Time	Type	Speaker, Title	Onsite?
13:30	I	<b>Chao Yue</b> , The substorm effect on the ring current	N
14:00	C	<b>Elizaveta Antonova</b> , Storm time substorms and outer radiation belt	N
14:20	C	<b>Li Lu</b> , Simulation of dynamic evolution of ring current ion flux by a lunar-base Energetic Neutral Atom (ENA) imaging	Y
14:40		Coffee break	
15:00	T	<b>Zhonghua Yao &amp; Binzheng Zhang</b> , Substorm-like Processes at Giant Planets	Y
15:50	I	<b>Caitriona Jackman</b> , Global magnetospheric reconfigurations: Substorm-like behaviour at different planets explored with remote radio observations and in situ field and plasma measurements	N
16:20	I	<b>Bertrand Bonfond</b> , Are Dawn Storms Jupiter's auroral substorms?: Clues from the Juno mission	N
16:50	C	<b>Xuzhi Zhou</b> , Trapped and Leaking Energetic Particles in Injection Flux Tubes of Saturn's Magnetosphere	Y
17:10	C	<b>Chao Shen</b> , Charge Separations and effects in the Geomagnetosphere	Y

Tuesday, October 17, 2023 (Beijing Standard Time, UTC+8)

Morning Session

Session chairs: Jianjun Liu, Huishan Fu

Time	Type	Speaker, Title	Onsite?
8:30	T	<b>Larry Lyons</b> , Substorm onset: An east-west aligned instability from spreading of flow channels driven by meso-scale polar-cap flows	N
9:20	I	<b>Yukitoshi Nishimura</b> , Connection between substorm onset and expansion phase activity	N
9:50	C	<b>Sneha Yadav</b> , The role of incident post onset auroral streamers in driving the azimuthal expansion and duration of an auroral substorm	N
10:10		Coffee break	
10:30	C	<b>Sneha Babu</b> , Plasmasheet Counterparts for Auroral Beads and Vortices in Advance of Fast Flows: New Evidence for near-Earth Substorm Onset	N
10:50	C	<b>Sheng Tian</b> , Auroral Beads in Conjunction With Kinetic Alfvén Waves in the Equatorial Inner-Magnetosphere	Y
11:10	C	<b>Run Shi</b> , The Potential Role of Modified Electron Acoustic Wave and Nonlinear Mode Coupling in Mono-Energetic Aurora	Y
11:30	I	<b>Evgeny Panov</b> , Ballooning-Interchange Heads from Midtail: In-Situ, Ground, Low-Altitude and Auroral Signatures	Y

Afternoon Session

Session chairs: Weichao Tu, Akimasa Ieda

Time	Type	Speaker, Title	Onsite?
13:30	I	<b>Ian Mann</b> , A Magnetosphere-Ionosphere Alfvén Wave Exchange Model for Substorm Onset	N
14:00	C	<b>Danila Kostarev</b> , Gyrokinetic model of the Alfvén wave parallel electric field generation in the dipole model of the magnetosphere	Y
14:20	I	<b>Yusuke Ebihara</b> , Generation of field-aligned currents during substorm expansion: The latest updates	N
14:50		Coffee break	
15:10	I	<b>Elena Grigorenko</b> , Electron-scale current structures observed in the magnetotail plasma sheet during substorms	Y
15:40	I	<b>San Lu</b> , Onset of magnetotail reconnection from an electron-only phase	Y
16:10	I	<b>Huishan Fu</b> , Dipolarization front and its role in substorm and particle acceleration	Y
16:40	C	<b>Wenzhe Zhang</b> , Experimental Determination of the Dispersion Relation for Whistler Wave during Substorm	Y
17:00	C	<b>Huijie Liu</b> , Statistics of the high-speed electron flows in the magnetotail	Y

Wednesday, October 18, 2023

Poster Session:

No.	Author, Title
1	<b>Andreas Keiling</b> , Alfvénic Aurora during Substorms
2	<b>Yin Xu</b> , Electron-Scale Measurements of Antidipolarization Front
3	<b>Yijia Zhou</b> , A Radial Standing Pc5-6 Wave and its Energy Coupling with Field Line Resonance within the Dusk-sector Magnetosphere
4	<b>Yang Lu</b> , A statistic study of Aurora evolution during Substorms: Boundaries, area and spanning
5	<b>Fan Yang</b> , Revisit on the formation of trunk-like ion spectral structures in the inner magnetosphere
6	<b>Wending Fu</b> , Magnetic Sandglass: A New Formation Mechanism for Electron Cigar-type Distribution during Substorm
7	<b>Ruotan Li</b> , Investigation of Kelvin-Helmholtz Instability on Mercury's Dawnside Magnetopause
8	<b>Yufei Zhou</b> , Jets in Planetary Magnetosheath
9	<b>Lei Dai</b> , A phenomenological model of Strongly-Driven Substorms and Magnetosphere Convection: Perspectives for SMILE
10	<b>Tongkuai Li</b> , Kelvin-Helmholtz Waves and Magnetic Reconnection at the Earth's Magnetopause under Southward Interplanetary Magnetic Field
11	<b>Qiaoling Li</b> , Polar and equatorial Ionospheric electrodynamical coupling under a prolonged Northward Bz Interval
12	<b>Jitong Zou</b> , Solar Coronal Heating Fueled by Random Bursts of Fine-scale Magnetic Reconnection in Turbulent Plasma Regions
13	<b>Liwei Chen</b> , Plasma and Field Variations in the Source Region of Substorm Auroral Brightening in the Inner Magnetosphere: Arase observations for three conjugate Events
14	<b>Rustam Karimov</b> (presented by <b>Dmitry Baishev</b> ), Simultaneous observations of STEVE and bursts of intensity of ELF/VLF emissions during a substorm formation

Thursday, October 19, 2023 (Beijing Standard Time, UTC+8)

Morning session

Session chairs: San Lu, Lei Dai

Time	Type	Speaker, Title	Onsite?
8:30	T	<b>Weichao Tu</b> , The Effects of Substorms on Radiation Belt Dynamics: Current Understanding and Remaining Questions	Y
9:20	C	<b>Rajkumar Hajra</b> , Ultra-Relativistic Electron Acceleration during High-Intensity Long-Duration Continuous Auroral Electrojet (AE) Activity (HILDCAA) Events	Y
9:40	C	<b>Zefan Yin</b> , Localized Excitation of Electromagnetic Ion Cyclotron Waves from Anisotropic Protons Filtered by Magnetic Dips	Y
10:00		Coffee break	
10:20	I	<b>Shasha Zou</b> , High-latitude magnetosphere-ionosphere-thermosphere coupling during substorms	N
10:50	C	<b>Motoharu Nowada</b> , Unfolding the enigmas on the auroral spiral: Formation process and its relevance to solar wind-magnetosphere-ionosphere coupling system	N
11:10	C	<b>Ping Zhu</b> , Signatures of ballooning instability and plasmoid formation processes in near-Earth magnetotail and auroral ionosphere	Y
11:30	I	<b>Desheng Han</b> , Introduction to a model of Throat Aurora	Y

Afternoon Session

Session chairs: Zhonghua Yao, Timo Pitkanen

Time	Type	Speaker, Title	Onsite?
13:30	I	<b>Weijie Sun</b> , Mercury's dynamic magnetosphere and couplings between solar wind, magnetosphere, surface and core	Y
14:00	C	<b>Peng Shao</b> , MESSENGER Observations of Multiple Magnetic Energy Releases During Mercury's Substorm	Y
14:20	I	<b>Aohua Mao</b> , Numerical simulations on 3D asymmetric reconnection for SPERF experiments	Y
14:50		Coffee break	
15:10	C	<b>Maosheng He</b> , MFACE: A high-resolution model of field-aligned currents through empirical orthogonal functions analysis	Y
15:30	C	<b>Marina Evdokimova</b> , Estimation of westward auroral electrojet current with magnetometer chain data	N
15:50	I	<b>Maria Shukhtina</b> , Empirical dynamical model of Energetic Electron precipitation based on drifting electron cloud concept	N
16:20	C	<b>Vladimir Mishin</b> , Interhemispheric asymmetry in the distribution of electric currents of the magnetosphere-ionosphere system in the equinox pre-storm period	N
16:40	I	<b>Qiang Hu</b> , Characterization of Magnetic Flux Contents for Flux Transfer Events and its Implications for Flux Rope Formation at the Earth's Magnetopause	Y

Friday, October 20, 2023 (Beijing Standard Time, UTC+8)

Morning Session

Session chairs: Elena Grigorenko, Weijie Sun

Time	Type	Speaker, Title	Onsite?
8:30	I	<b>Jiang Liu</b> , Field-Aligned Currents of Dipolarizing Flux Bundles and the Associated Plasma Disturbance: Understanding the Asymmetry of Wedgelets—Building Blocks of the Substorm Current Wedge	N
9:00	C	<b>Tony Lui</b> , Dipolarization Fronts and Magnetic Flux Transportation	N
9:20	C	<b>Yue Yu</b> , Formation of Electron Butterfly Distribution by a Contracting Dipolarization Front	Y
9:40	C	<b>Samuel Totorica</b> , Investigating the kinetic dynamics of magnetospheric substorm onset	N
10:00		Coffee break	
10:20	I	<b>Timo Pitkanen</b> , Some aspects of electric field, IMF By influence and magnetic forces associated with fast earthward convection in the magnetotail plasma sheet: Recent studies using MMS observations	Y
10:50	C	<b>Akimasa Ieda</b> , Dusk displacement of plasmoids and reconnection in the magnetotail	Y
11:10	I	<b>Anton Artemyev</b> , Thinning of the Magnetotail Current Sheet: near-equatorial and low-altitude observations	N
11:40	C	<b>Xin An</b> , Configuration of magnetotail current sheet prior to magnetic reconnection onset	N

Afternoon session

Session chairs: Evgeny Panov, Qiang Hu

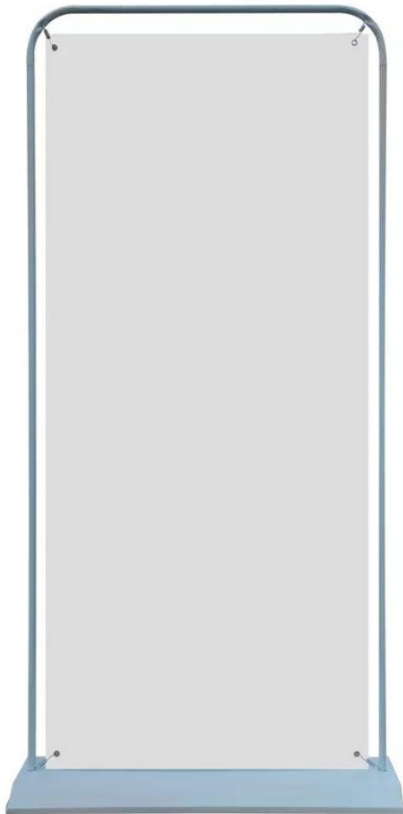
Time	Type	Speaker, Title	Onsite?
13:30	C	<b>Li Li</b> , The Interaction of ULF Waves with Charged Particles in Earth's Magnetosphere	Y
13:50	C	<b>Maksim Chelpanov</b> , ULF wave-electron drift resonance observed with the MMS spacecraft	Y
14:10	C	<b>Xingxin Zhao</b> , Multiple Auroras Induced by Interplanetary Shock: Plasma Wave Effects	Y
14:30	C	<b>Aleksandr Vlasov</b> , The electron flux formation by kinetic Alfvén waves near a dissipative layer	Y
14:50		Coffee break	
15:10	C	<b>Haobo Fu</b> , Statistical Analysis of Geomagnetic Substorms with Different Time Durations	Y
15:30	C	<b>Dmitry Baishev</b> , STEVE phenomenon: association to a substorm formation	Y
15:50	C	<b>Vladimir Belakhovsky</b> , The growth of the GIC in power lines during 11 years of observations in the North of Russia	N



## Poster Dimensions

80cm × 180cm

Each presenter will be provided a Door Frame Banner Stand, as shown below\*. Please prepare the banner/poster by yourself.

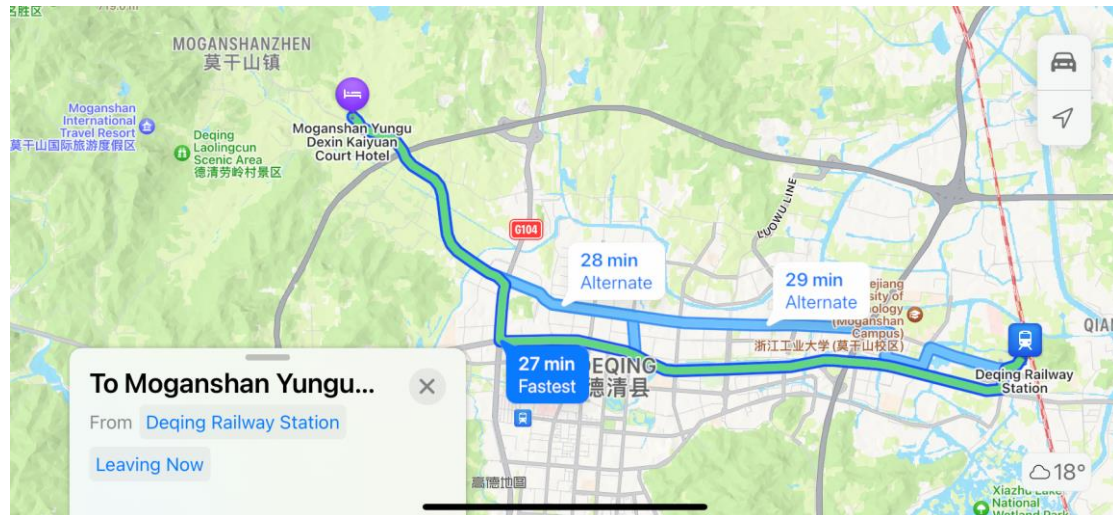


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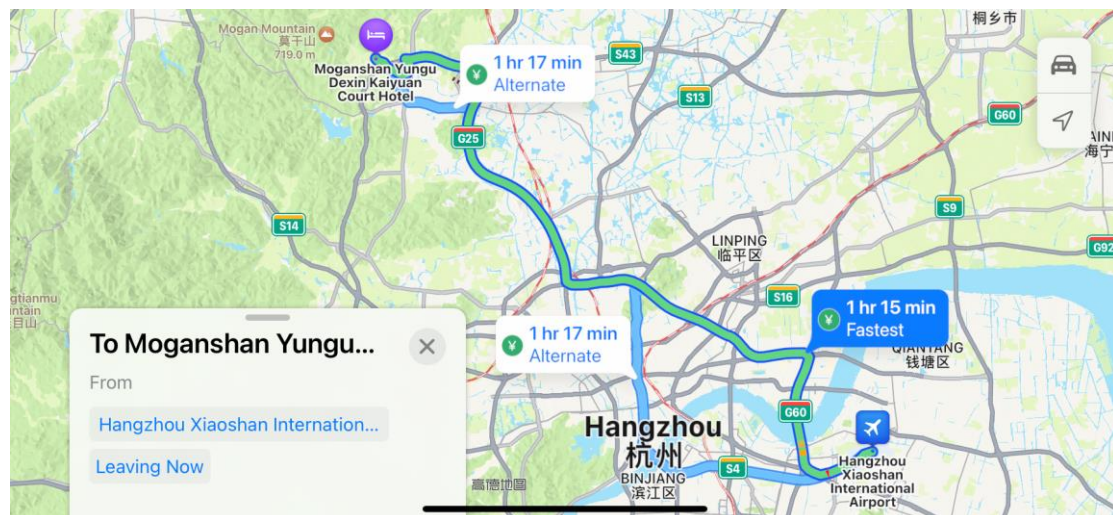
\* Schematic from <https://printgurusupplies.myshopify.com/products/door-frame-banner-stand-for-80cm-x-180cm-print-size-tarpaulin-hook-on-collapsible-and-portable>

## Transportation to Conference Venue

It's probably the most economical way to take the high-speed rail to **Deqing Railway Station** and then take a **taxi (about 30 minutes)** to the conference venue.



If you choose airplane, it is more convenient to travel from **Hangzhou Xiaoshan Airport** to the conference venue, which takes about **one hour and 10 minutes by taxi** and costs about 230 RMB, so we strongly recommend you choose Hangzhou Xiaoshan Airport as your arrival airport.



If you choose Shanghai as your arrival location, it will take longer to travel to the conference venue. For your convenience, we will provide an airport pick-up service. **Please send your name, arrival airport, flight number, and arrival time to [ics152023@gmail.com](mailto:ics152023@gmail.com)** after confirming your flight. We will arrange the pick-up schedule based on the collected information. Please check the website and email for the updated pick-up schedules later.

## Surrounding Area Maps

Moganshan zhen (town) is about 3 kilometers from the conference venue, where you can find some restaurants.

