

The 1st International Symposium on Lightning Physics and Lightning Meteorology

September 23-26, Beijing, China

Organized by

Key Laboratory of Middle Atmosphere and Global Environment Observation (LAGEO)
Institute of Atmospheric Physics (IAP)

Sponsored by

Chinese Academy of Sciences (CAS)
National Natural Science Foundation of China (NSFC)
Institute of Atmospheric Physics (IAP)

Topics of Symposium

1. Lightning Physics
2. Lightning Detection Technologies
3. Thunderstorm Electrification and Microphysics
4. Lightning Meteorology and Severe Thunderstorm
5. Lightning Effects on Middle and Upper Atmosphere
6. Lightning Attachment and Protection

Committee members

Chairperson:

Xiushu Qie (China)

Scientific committee member:

Paul Krehbiel (USA)	Pierre Laroche (France)	Edward Mansell (USA)
Joan Montanyà (Spain)	Xiushu Qie (China)	Vladimir Rakov (USA)
Xuan-Min Shao (USA)	Serge Soula (France)	Daohong Wang (Japan)
Earle Williams (USA)	Yijun Zhang (China)	Mingli Chen (China)

Local organizing committee:

Xiushu Qie (Chair)	Gaopeng Lu (Secretary)	Rubin Jiang (Secretary)
Dongxia Liu	Weitao Lu	Abhay Srivastava
Jing Yang	Ye Yu	Qilin Zhang
Dong Zheng	Baoyou Zhu	

Website Administrator

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Message from Chairperson

Dear Colleagues,

The International Symposium on Lightning Physics and Lightning Meteorology (ISLP&M), to be launched in Beijing during fall of 2017, provides an excellent opportunity to present and discuss our recent progress in different aspects in lightning studies. We are honored to host this event, and look forward to welcoming our friends and colleagues from all over the world.

Lightning is becoming increasingly important in recent years. Lightning-induced damage is more and more extensive because of the much wider usage of electronic devices, and causes serious economic losses and social problems around the world. Nowadays, sophisticated observation by ground-based and satellite-based lightning detection techniques can provide new information on severe convection and improve short-term forecasts of severe weather events. All of these pose challenges for lightning research. The overall aim of this symposium is to exchange recent progress in lightning studies, bridge gaps between lightning physics and meteorology, discuss scientific problems and develop suitable solutions by joint efforts.

While attending the 1st ISLP&M, we hope that you will socialize with friends and new acquaintances, and establish future collaborations. We extend the warmest welcome to all, and hope that you enjoy the meeting in Beijing.

Prof. Xiushu Qie

On behalf of the 1st ISLP&M Committee

ISLP&M 2017 General Schedule

Sept 23 (Sat.)		Sept 24 (Sun.)		Sept 25 (Mon.)		Sept 26 (Tue.)	
S1. Lightning Physics S2. Lightning Meteorology and Severe Thunderstorm S3. Lightning Effects on Middle and Upper Atmosphere S4. Lightning Detection Technologies S5. Thunderstorm Electrification and Microphysics S6. Lightning Attachment and Protection L-Invited Lecture Note: 10-12 mins. for presentation; 3-5 mins for Q&A; total time=15 mins.							
08:00-08:30	Registration		L4 Serge Soula		L8 Earle Williams		
08:30-09:00	Opening Ceremony		L5 Xuan-Min Shao		S5-1 Xiushu Qie		
09:00-09:30	L1 Paul Krehbiel		L6 Ningyu Liu		S5-2 Yajun Li		S5 Chair Edward Mansell Fengxia Guo
09:30-10:00	S1-1 Zhuling Sun		S3-1 Jing Yang		S5-3 Bin Wu		
10:00-10:30	S1-2 Yanhui Wang		S3-2 Paul Krehbiel		S5-4 Tie Yuan		
10:30-11:00	L2 Joan Montanya		L7 Mingli Chen		S5-5 S.S.Davydenko		
11:00-11:30	S1-3 Ningyu Liu		S4-1 Dongjie Cao		S5-6 Shanfeng Yuan		
11:30-12:00	S1-4 Feifan Liu		S4-2 Shanhong Xia		Coffee Break		
	S1-5 Dmitry Iudin		S4-3 Mingyuan Liu		L9 Edward Mansell		S5 Chair Dong Zheng Yang Zhang
	S1-6 Caixia Wang		S4-4 Abhay Srivastava		S5-7 Liangtao Xu		
14:00-14:30	L3 Rubin Jiang		S4-5 Earle Williams		S5-8 Pengguo Zhao		
14:30-15:00	S1-7 Yakun Liu		S4-6 Anirban Guha		S5-9 Zheng Shi		
15:00-15:30	S1-8 Yanan Zhu		S4-7 Hengyi Liu		S5-10 Wei Deng		
15:30-16:00	S1-9 Muhammad Haziq		S4-8 Yu Wang		Lunch		
	S1-10 Yunjiao Pu		POSTER		L10 Vladimir Rakov		S6 Chair Ningyu Liu Yongbo Tan
16:00-16:30	S2-1 Sakurai Namiko		S2 Chair Joan Montanya Zhuling Sun		L11 Daohong Wang		
16:30-17:00	S2-2 Fengxia Guo		Zhuling Sun		S6-1 Gaopeng Lu		
17:00-17:30	S2-3 Rudi Xia		S2-4 Xian Xiao		S6-2 Zhiguo Su		
17:30-18:00	S2-5 Zhixiong Chen		S2-6 Wani Li		Coffee Break		
	S2-7 Perinann Dinesh		S2-8 Xueke Wu		L12 Weitao Lu		S6 Chair Daohong Wang Tie Yuan
18:00-	Reception		Banquet		Closing Ceremony		

Time Table of ISLP&M 2017

September 24-26, 2017

Beijing International Convention Center, Beijing, China

Oral Session

Sept 24 (Sun.)

8:30-9:00	<i>Opening Ceremony</i>	
Session 1: Lightning Physics		
Chair: Xuan-Min Shao; Weitao Lu		
9:00-9:30	Invited Lecture 1: Narrow Bipolar Events and Lightning Initiation	Paul Krehbiel
9:30-9:45	Interferometric Observations of Positive Recoil Leaders	Zhuling Sun
9:45-10:00	Some special phenomenon of lightning discharges in clouds	Yanhui Wang
10:00-10:30	<i>Coffee Break</i>	
Chair: Yijun Zhang; Abhay Srivastava		
10:30-11:00	Invited Lecture 2: VHF emissions and video records from positive lightning flashes producing ELF Q-bursts	Joan Montanyà
11:00-11:15	Streamer Interpretation of Fast Breakdown in Narrow Bipolar Events	Ningyu Liu
11:15-11:30	A case study of extremely high occurrence of negative narrow bipolar events in the parent thunderstorm	Feifan Liu
11:30-11:45	A new hypothetical scenario of lightning initiation	Dmitry Iudin
11:45-12:00	High-speed Camera Observation of Leaders of Natural Lightnings on Beijing 325 Meters Meteorological Tower	Caixia Wang

Chair: Vladimir Rakov; Jing Yang		
14:00-14:30	Invited Lecture 3: Recent advances in SHandong Triggering Lightning Experiment (SHATLE)	Rubin Jiang
14:30-14:45	Avulsion in the DC arc channel and its effects on luminosity and current amplitude	Yakun Liu
14:45-15:00	Modeling of Lightning Strikes to Tall Objects	Yanan Zhu
15:00-15:15	Initial electric field changes of lightning flashes in a tropical thunderstorm	Muhammad Haziq Mohammad Sabri
15:15-15:30	Upward negative leaders in positive triggered lightning: Stepping and branching in the initial stage	Yunjiao Pu
15:30-16:00	<i>Coffee Break</i>	

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Session 2: Lightning Meteorology and Severe Thunderstorm

Chair: Joan Montanyà; Zhuling Sun

16:00-16:15	Tokyo Lightning Mapping Array in "Lifecycle of Cumulonimbus Experiment	Sakurai Namiko
16:15-16:30	Occurrence Conditions of Positive Cloud-to-Ground flashes in Severe Thunderstorm	Fengxia Guo
16:30-16:45	Environmental Control of the Rainfall Rates and Cloud to Ground Lightning Frequencies in Warm-Season Mesoscale Convective Systems over North China	Rudi Xia
16:45-17:00	A cloud-scale assimilation method of lightning data based on 4-dVar technique	Xian Xiao
17:00-17:15	A Blended Lightning Data Assimilation Method and Its Application to A Squall Line Simulation	Zhixiong Chen
17:15-17:30	Simulation of quasi-linear mesoscale convective systems in northern China: lightning activities and storm structure	Wanli Li
17:30-17:45	Tropical hailstorm and its relationship with negative narrow bipolar event and positive ground flashes	Periannan Dinesh
17:45-18:00	Relationship of lightning and convective characteristics of thunderstorms over different terrain conditions based on the TRMM satellite	Xueke Wu

Sept 25 (Mon.)

Session 3: Lightning Effects on Middle and Upper Atmosphere

Chair: Baoyou Zhu; Gaopeng Lu

8:00-8:30	Invited Lecture 4: General characteristics of lightning flashes generating sprites above thunderstorms	Serge Soula
8:30-9:00	Invited Lecture 5: Ionosphere disturbances introduced by thunderstorms and lightning discharges	Xuan-Min Shao
9:00-9:30	Invited Lecture 6: Overview of Lightning Effects Research at the University of New Hampshire	Ningyu Liu
9:30-9:45	Characteristics of thunderstorm structure and lightning activity causing negative and positive sprites	Jing Yang
9:45-10:00	Ground detection of TGFs with the Telescope Array in central Utah	Paul Krehbiel
10:00-10:30	Coffee Break	

Session 4: Lightning Detection Technologies

Chair: Qilin Zhang; Rubin Jiang

10:30-11:00	Invited Lecture 7: Experimental study of the effect of rough ground on lightning electromagnetic pulses based on LLS data and its interpretation with modeling	Mingli Chen
11:00-11:15	Preliminary performance assessment of the Lightning Mapping Imager on the FengYun-4A Geostationary Meteorological Satellite	Dongjie Cao
11:15-11:30	Miniature electric field sensor and its applications	Shanhong Xia
11:30-11:45	The design of electric field sounding system	Mingyuan Liu
11:45-12:00	Performance assessment of Beijing Lightning Network (BLNET) and comparison with other lightning location networks across Beijing	Abhay Srivastava

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Chair: Serge Soula; Yanhui Wang		
14:00-14:15	Rigorous Validation of a Schumann Resonance Method for Global Lightning Mapping in Absolute Units	Earle Williams
14:15-14:30	Comparison of UT Diurnally-Resolved Global Lightning Activity for a Single Day by Distinct ELF and VLF Methods	Anirban Guha
14:30-14:45	A dual band 3D lightning locating system	Hengyi Liu
14:45-15:00	The Effect of Lightning Return Stroke Speed on Lightning Peak Current Inversion Using Lightning Location System	Yu Wang
Chair: Yang Zhao; Tinglong Zhang		
15:00-18:00	Poster	

Sept 26 (Tue.)

Session 5: Thunderstorm Electrification and Microphysics		
Chair: Edward Mansell; Fengxia Guo		
8:00-8:30	Invited Lecture 8: Overview of the Electrical Structure of Storms and Attendant Cloud Microphysical Conditions	Earle Williams
8:30-8:45	Overview on the charge structure researches in the thunderstorm over Tibetan Plateau and surrounding regions in the last three decades	Xiushu Qie
8:45-9:00	Observation and analysis of electrical structure change and diversity in thunderstorms on the Qinghai-Tibet Plateau	Yajun Li
9:00-9:15	Correlation analysis between initial preliminary breakdown process, the characteristic of radiation pulse, and the charge structure on the Qinghai-Tibetan Plateau	Bin Wu
9:15-9:30	The relationship between lightning and ice-phase particles based on the TRMM satellite and its application in lightning data assimilation	Tie Yuan
9:30-9:45	Relay Transfer of the Electric Charge Due to Small-scale Discharge Activity in the Thundercloud	S.S. Davydenko
9:45-10:00	Characteristics of upward lightning on the Beijing 325 m meteorology tower and corresponding thunderstorm conditions	Shanfeng Yuan
10:00-10:30	Coffee Break	
Chair: Dong Zheng; Yang Zhang		
10:30-11:00	Invited Lecture 9: Simulated Microphysics and Electrification Across a Spectrum of Storms	Edward Mansell

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11:00-11:15	The Construction of WRF-Electric Model and Its Preliminary Application	Liangtao Xu
11:15-11:30	Aerosol effects on thunderstorm electrification under different water vapor conditions	Pengguo Zhao
11:30-11:45	Effects of the Inductive Charging on the Electrification and Lightning Discharges in Thunderstorms	Zheng Shi
11:45-12:00	Numerical Simulations for Cloud Droplet Diffusion Growth with a Newly Developed Three-moment Scheme	Wei Deng

Session 6: Lightning Attachment and Protection

Chair: Ningyu Liu; Yongbo Tan		
14:00-14:30	Invited Lecture 10: Lightning Attachment Process	V.A.Rakov
14:30-15:00	Invited Lecture 11: Optical observation of lightning attachment process by using LAPOS	Daohong Wang
15:00-15:15	Application of high-sensitivity magnetic sensor to the current measurement of rocket-triggered lightning	Gaopeng Lu
15:15-15:30	Vertical electric field at the top of a tall building due to nearby lightning strokes considering other buildings in its vicinity	Zhiguo Su
15:30-16:00	<i>Coffee Break</i>	
Chair: Daohong Wang; Tie Yuan		
16:00-16:30	Invited Lecture 12: Tall-Object Lightning Observatory in Guangzhou (TOLOG): Recent Results	Weitao Lu
16:30-16:45	Correlation between Current and Luminosity in Air Gap Discharges	Mi Zhou
16:45-17:00	The Induced Voltage of Dipole Antenna Element Caused by Lightning Strikes to the Tower of Mobile Communication Base Station	Kun Liu
17:00-17:30	<i>Closing Ceremony</i>	

Poster Session

No.	Title	First Author
P1	Stepwise propagation of an upward positive leader initiated from a 325-m tower based on high-speed video observation	Xiushu Qie
P2	Numerical calculation and analysis of lightning induced voltages on inclined overhead transmission lines over mountainous terrain	Qilin Zhang
P3	Characteristics of current surges during continuous/continuing current in rocket-triggered lightning	Zilong Ma
P4	Study on the electrical characteristic of lightning return stroke by spectrum	Bin Fan
P5	Study on the light radiation characteristics for cloud-to-ground lightning return strokes and continuing current processes	Xuejuan Wang
P6	The statistics based on the CG flashes based on the high-speed video camera	Xiangzhen Kong
P7	Characteristics of cloud-top optical radiation signals produced by lightning	Xiaohuang Zhang
P8	Some observational results of the electrical soundings in the thunderstorms in the Chinese inland plateau	Tinglong Zhang
P9	Numerical investigation for aerosol effect on the electrification process with a 1.5D aerosol-cloud bin model	Yi Yang
P10	Lightning climatology over the northwest Pacific region	Wenjuan Zhang
P11	Model study of vertical speed and graupel mixing ratio at lightning initiation sites	Fei Wang
P12	The relationship of lightning activity and short-duration rainfall events during warm seasons over the Beijing metropolitan region	Fan Wu
P13	Vertical Profiles of Radar Reflectivity Factor in Intense Convective Clouds in the Tropics	Shailendra Kumar
P14	Characteristics of lightning activity in a severe squall line with cell merging process	Yan Xu
P15	Studies on characteristics of deep convective systems and lightning over the tibetan plateau	Mengyu Sun
P16	Lightning activity of tropical cyclones and its relationship with thermodynamic parameters	Fang Wang
P17	The impact of urbanization on a thunderstorm developing over Beijing metropolitan area	Dongxia Liu
P18	Estimation of rainfall in convective weather system by using lightning location system and ground microwave radiometers	Jing Sun
P19	Distribution of thunderstorm in Asia observed from the satellite	Jinliang Li
P20	Numerical simulation of 23 June 2016 Yancheng City EF4 tornadic supercell and analysis of lightning activity	Fengxia Guo
P21	Characteristics of Severe Thunderstorms on Inland Plateau of China	Yang Zhao

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P22	Research on the Evolution Characteristics of Hydrometeors in Thunderstorm Cell with X-band Dual-polarimetric Radar	Yunjun Zhou
P23	Environmental Control of Cloud-to-Ground Lightning Polarity in hailstorms over Yunnan province	Yiran Xie
P24	Lightning Low-Frequency E-field Detection Array and its preliminary observation results	Dong Zheng
P25	Detection Efficiency Evaluation of the ADTD Lightning Location Network in Beijing	Zhichao Wang
P26	Characteristics of Thunderstorm and Concentric Gravity Waves over North China on 10 August 2013	Ying Wen
P27	Locating the parent lightning strokes of sprites observed over a mesoscale convective system in Shandong Province, China	Anjing Huang
P28	Remotely low-frequency magnetic sensor measurement and characteristic analysis of M-component in rocket-triggered lightning	Anjing Huang
P29	Azimuthal dependence of lightning-radiated ELF/VLF electromagnetic wave propagation	Wenhao Hou
P30	The effect of gravity waves on the optical emissions of sprite halos at high altitudes	Jinbo Zhang
P31	Influence on Low-voltage Surge Protective Devices of Overhead Distribution Lines Due to Nearby Return Strokes	Shaodong Chen
P32	Effects of geometrical parameters of two height-unequal adjacent objects on corona discharges from their tips during a thunderstorm	Xiufeng Guo
P33	Analysis of the Lightning Attractive Radius for Wind Turbines Considering the Developing Process of Positive Attachment Leader	Ning Yang
P34	Investigation on Influencing Factors of Luminosity Measurement of Arc Discharge Channel	Yongyin Lu
P35	Numerical Study on Influence of Electrical Activity on Microphysical Processes in Thunderstorm	Ling Sun
P36	In-situ measurement and analysis of electric field inside thunderstorms	Hongbo Zhang