

The 15th USCCC Annual Meeting

Water-Heat-Carbon Nexus Fluxes in Terrestrial Water Bodies

Workshop Program



USCCC 15th
ANNUAL WORKSHOP

Sponsor: US-China Carbon Consortium (USCCC)

Organizer:

Nanjing Institute of Geography and Limnology (NIGLAS)
Chinese Academy of Sciences (CAS)

Co-organizers:

Water Resources Research Center for Large-Lake Basin;
Hydrological Bureau of Poyang Lake of Jiangxi Province;
Jiujiang Science and Technology, Jiangxi Province;
Poyang Lake Laboratory for Wetland Ecosystem Research, CAS

August 15-17, 2018

Jiujiang City, Jiangxi Province, China

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1. General Information

1.1 Background and Objectives

The US-China Carbon Consortium (USCCC) was established in 2003. Since then, the USCCC researchers have been focusing on fundamental issues of water, carbon and energy fluxes as well as their changes in responding to human activities and climate change. The USCCC network has been expanding to over 20 institutions and has made substantial achievements in this field, including understanding heat, water, and carbon processes and their underlying mechanisms, as well as in situ flux data and data sharing for integrative analysis and modelling. It has provided support for a large number of junior scholars and graduate students.

Terrestrial ecosystems have been experiencing profound changes under the influences of global climate change and human activities. Extensive in situ flux observations and advanced remote sensing modeling can improve our understanding of the fluxes in water, heat, and carbon of terrestrial ecosystems. Our annual meetings offer a platform for USCCC researchers to exchange ideas, update new findings, and discuss potential collaborations. The annual meeting in 2018 will also include a field trip to one of our field stations and model simulations of interactive surface processes, their responses to climate change and human activities, and adaptive management of terrestrial ecosystems. A particular focus of this annual meeting will be on the current knowledge and future research needs on freshwater ecosystems, through collaborations with GLEON leaders and researchers.

The annual meeting in 2018 will be held in Jiujiang City near Poyang Lake -- the largest freshwater lake in China. Globally, lakes occupy less than 5% of the continental area, but they provide invaluable ecosystem services for human beings and society. Water, heat, and carbon fluxes in freshwater ecosystems have been recently recognized for their value and importance by the scientific community. This meeting will provide an up-to-date view of the spectrum function. A special session will be held for this topic.

Poyang Lake is located on the south bank of the middle reaches of the Yangtze River. It provides abundant water resources to the golden waterway of Yangtze River. Jiujiang City is a part of the core area of the Yangtze River Economic Belt -- the China's Economic Golden Belt. The water-heat-carbon cycle is undoubtedly among the most important environmental issues for the program. This meeting offers updates on scientific knowledge and technology for effective ecological protection and management of the river at watershed-to-regional scales.

1.2 Themes

- Fluxes in the water-heat-carbon nexus in freshwater and wetland ecosystems
- Observations, mechanisms, and model integration & simulations
- Climate change and anthropogenic influences
- Ecological services and low-carbon strategies for sustainable development

1.3 Scientific Writing Workshop

Researchers from China have made impressive progress in delivering findings through experimental studies, observational studies, modelling, and data synthesis. Yet developing quality publications remains challenging, especially for graduate students. A training workshop on writing compelling manuscripts (e.g., through hypothesis development) will be organized through lectures and interactive discussions with students by inviting leading scholars and editors. They are Prof. Xuhui LEE, Prof. Jiquan Chen, Prof. Kathie Weathers, and Prof. Jinfeng Xiao. The four leading scholars in the fields of hydrology, meteorology, and ecosystem analysis and remote sensing modelling will share their experiences in developing sound hypotheses for proposals and constructing high quality manuscripts. Students will have the opportunity to interact with the instructors through face-to-face communications during the workshop. An interactive webpage will be available for promoting collaborations among USCCC students and senior researchers.

1.4 Organization & Sponsors

- **Sponsors**

US-China Carbon Consortium (USCCC)

Co-Chairs: Ge Sun & Zhiqiang Zhang

- **Organizers**

Nanjing Institute of Geography and Limnology (NIGLAS), CAS

- **Co-organizers**

Water Resources Research Center for Large-Lake Basin

Hydrological Bureau of Jiangxi Province

Jiujiang Science and Technology, Jiangxi Province

Poyang Lake Laboratory for Wetland Ecosystem Research, CAS

Hydrological Bureau of Poyang Lake of Jiangxi Province

Nanchang University

Jiangxi Normal University

Jiangxi Agricultural University

Nanjing University of Information Science and Technology

Hohai University

Hydrography Branch, the Geographical Society of China

Meteorological Association of Jiangsu Province, China

Academic Board

- **Chair:** Jiquan Chen

- **Committee Members:** Shiping Chen, Ken Clark, Gang Dong, Eugenie Euskirchen, Jixun Guo, Xuhui LEE, Linghao Li, Xianglan Li, Guanghui Lin, Yuanbo Liu, Mingguo Ma, Askö Noormets, Changliang Shao, Ge Sun, Jim Tang, Jinfeng Xiao, Dan Wang, Huiyu Wang, Tianshan Zha, Xudong Zhang, Zhiqiang Zhang, Bin Zhao, Min Zhao, Guangsheng Zhou

Local Organizational Committee

- **Chairs:** Yuanbo Liu, Shigang Wang
- **Secretariat:** Yuwei Chen, Guiping Wu, Guojing Gan
- **Committee Members:** Yuwei Chen, Shuguang Deng, Xingwang Fan, Fidele, Guojing Gan, Yuyin Guo, Lu Hao, Xiaodan Hu, Xiaolin Huang, Meixin Jiang, Geying Lai, Mei Li, Baogui Liu, Jinfu Liu, Qian Liu, Shiyu Liu, Yuanbo Liu,

Yongwei Liu, Zheng Liu, Lei Ouyang, Xin Pan, Liangliang Shan, Fei Sheng, Meng Wang, Ruonan Wang, Shigang Wang, Ying Wang, Yuqin Wang, Chuanhong Wu, Guiping Wu, Jinying Xu, Qi Xie, Lei Yang, Jingping Ye, Fangmin Zhang, Lu Zhang, Qi Zhang, Xize Zhang, Xiaohan Zhao, Lilin Zheng, Han Zhou

1.5 Location

The S&G International Hotel Jiujiang, Nanhu Road 116, Xunyang District, Jiujiang City, Jiangxi Province, China

1.6 Registration Fees

Activities	Fee (CNY)
Training	400
Meeting	500

* Fees for invited speakers and USCCC PIs will be exempted.

1.7 Contacts

	Person in charge	Cell phone
Secretary General	Yuwei Chen	13951695436
Registration	Guojing Gan	15105189656
Conference Hall	Xingwang Fan	15150513026
Reception	Yongwei Liu	15724870416
Food & Drinks	Ruonan Wang	15905163064
Field Trip	Guiping Wu	15195996220
Exhibition	Xin Pan	15850507262

Emergency Contacts:

Guiping Wu, 15195996220, gpwu@niglas.ac.cn

Guojing Gan, 15105189656, gigan@niglas.ac.cn

USCCC15 Email address: USCCC15@163.com

1.8 Invited Speakers

Name	Affiliations
Jiakuan Chen	Nanchang University/Fudan University, China
Jiquan Chen	Michigan State University, USA
Xuejun Duan	Nanjing Institute of Geography and Limnology, CAS
Eugenie Euskirchen	University of Alaska Fairbanks, USA
Lianhong Gu	Oak Ridge National Laboratory
Paul Hanson	University of Wisconsin, USA
Zhenpeng Hu	Research & Promotion Association for Ecological Civilization
Li Jia	Institute of Remote Sensing and Digital Earth, CAS
Weimin Ju	Nanjing University, China
Xuhui Lee	Yale University, USA
Xiaoyan Li	Beijing Normal University, China
Shaomin Liu	Beijing Normal University, China
Xiaoyun Luo	Water Resources Department of Jiangxi Province, China
Ivan Mammarella	University of Helsinki, Finland
Asko Noormets	Texas A&M University, USA
Dario Papale	University of Tuscia, Italy
Ji Shen	Nanjing Institute of Geography and Limnology, CAS
Jianwu Tang	University of Chicago, USA
Huimin Wang	Institute of Geographic Sciences and Natural Resources
Jiemin Wang	Northwest Institute of Eco-Environment and Resources, CAS
Kathleen Weathers	Cary Institute of Ecosystem Studies, USA
Jinfeng Xiao	University of New Hampshire, USA
Yonghui Yang	Institute of Genetics and Developmental Biology, CAS
Xueqin Zhang	Institute of Geographic Sciences and Natural Resources
Yinsheng Zhang	Institute of Tibetan Plateau Research, CAS
Zhiqiang Zhang	Beijing Forestry University, China

2. Agenda

Date: August 15 – 17, 2018

Location: The S&N International Hotel Jiujiang, Nanhu Road 116, Xunyang District,
Jiujiang City, Jiangxi Province.

Schedule:

- Aug 14 12:00 ~ 22:00 Registration for Writing Workshop
- Aug 15 07:30 ~ 22:00 Registration
- Aug 15 08:00 ~ 17:30 Scientific Writing Workshop
- Aug 15 18:00 ~ 20:00 Welcome Banquet
- Aug 15 20:00 ~ 22:00 USCCC-PI Meeting (by invitation only)
- Aug 16 08:30 ~ 12:35 Invited Presentations
- Aug 16 14:00 ~ 18:00 Invited Presentations
- Aug 16 19:00 ~ 21:00 Parallel Sessions: Scientific Reports
- Aug 17 08:30 ~ 18:30 Field trip to the Eco-Hydrological Observatory of Poyang Lake

Morning Exercise (6:00 am -7:00 am)

(6:00am: gather at the gate of the conference hotel)

Course One: Brisk walking around Nan-Lake (5~6km) (coordinator: Prof. Yuanbo Liu)

Course Two: Taiji/MaWangDui Exercise (coordinator: Prof. Jiquan Chen)

August 15, 2018	
Hypothesis Development: Paper Writing Training Courses	
Instructors	
<ul style="list-style-type: none"> • Dr. Jiquan Chen (coordinator), Michigan State University; jqchen@msu.edu • Dr. Xuhui Lee, Yale University; xuhui.lee@yale.edu • Dr. Kathleen Weathers, Cary Inst. of Ecosystem Studies; weathersk@caryinstitute.org • Dr. Jingfeng Xiao, University of New Hampshire; j.xiao@unh.edu • Dr. Yuanbo Liu (host), NIGLAS/CAS; ybliu@niglas.ac.cn 	
Schedule	
08:00~08:15	Introduction (Chen & Liu)
08:15~09:00	Writing scientific papers (Lee)
	<ul style="list-style-type: none"> • Recommendation of good writing resources • Descriptive papers versus hypothesis-driven papers • The process of funneling • Citation mechanics • Common errors found in manuscripts by authors in China
09:00~09:50	Q &A, with case examples (Lee)
09:50 ~ 10:15	Break & interactions with instructors
10:15 ~ 11:00	How to write good research papers (Xiao)
	<ul style="list-style-type: none"> • How to come up with good ideas • Conduct sound and thorough analysis/experiments • Know the literature and novelty of your research • Take advantage of the expertise of coauthors • Niche and productivity
11:00 ~ 11:50	Q &A, with case examples (Xiao)
11:50 ~ 12:15	Feedback from students (Chen & Liu)
12:15~13:30	Box lunch

	The publication process from authorship to responding to reviews (Weathers)
13:30~14:15	<ul style="list-style-type: none"> • Authorship • Use of conceptual frameworks and key figures/tables to guide writing • Responsibilities as authors • Manuscript structure and styles • Responding to reviews
14:00~14:50	Q &A, with case examples (Weathers)
14:50~15:15	Break & interactions with instructors
	Keys in developing a compelling manuscript (Chen)
15:15~16:00	<ul style="list-style-type: none"> • Conceptual framework • Hypotheses & tests • Parallel structure • Topic sentences • Quality illustrations and tables
16:00~16:50	Q &A, with case examples (Chen)
16:50~17:30	Panel discussion (all instructors)
17:30~17:45	USCCC Initiative – Interactive webpage for promoting collaborative development of publications (Liu & Chen)
17:45~18:00	Adjourn
	Distribution of lecture notes in PDF
18:30~20:00	Welcome Dinner

15th USCCC Annual Workshop		
August 16, 2018		
08:00~08:30	Opening Ceremony (Chair: Yuanbo Liu) Introduction & Chair's Address	
Presentations (8:30-12:05)		
Theme 1: Global Perspectives on Flux Study for Sustainable Development (Chair: Zhiqiang Zhang, Yuanbo Liu)		
08:30~09:00	Kathleen Weathers	Global Perspectives The power and possibility of networked lake science
09:00~9:30	Xuhui Lee	Highlight Work Response of lake evaporation to climate change: lessons learned from long-term observations at Lake Taihu and from a global climate model
09:30~9:55	Zhenpeng Hu	Green Development Green Jiangxi: an overview for sustainable development
9:55~10:10	Group photo & coffee break	
Theme 2: Water-Heat-Carbon Nexus in Waterbodies (Chair: Yinsheng Zhang, Changliang Shao)		
10:10~10:30	Paul Hanson	Lakes and Reservoir The roles of lakes and reservoirs in the carbon cycle
10:30~10:45	Yinsheng Zhang	Plateau Lake Study on water-heat process in the Great Lakes Basin of the Qinghai-Tibet Plateau
10:45~11:05	Ivan Mammarella	Lake Frontier Benefits and challenges of long-term eddy covariance measurements over lakes
11:05~11:20	Changliang Shao	American Lake Diurnal to annual changes in latent, sensible heat, and CO ₂ fluxes over a Laurentian Great Lake: A case study in Western Lake Erie
11:20~11:35	Xiaoyan Li	Saltwater Lake Interactions between lakes and the atmosphere over the largest high-altitude saline lake on the Qinghai-Tibet Plateau
11:35~11:50	Xueqin Zhang	Plateau Lake Water and heat flux characteristics of Yamdrok Tso in southern Tibet

11:50~12:05	Yuanbo Liu	Freshwater Lake Phase transition of surface heat fluxes over China's largest freshwater lake
12:05~13:30	Buffet Lunch	
Presentations (13:30-18:00)		
Theme 3: Impacts of Climate Change and Anthropogenic Influences (Chair: Weimin Ju, Fangmin Zhang)		
13:30~13:50	Lianhong Gu	Synthetic Review Spruce and peatland responses to the changing environments: Progress overview
13:50~14:05	Guanghui Lin	Human Activity Effects of afforestation on regional microclimate and ecosystem water fluxes
14:05~14:20	Fangmin Zhang	Human Activity Effects of climatic variations and human activities on vegetation dynamics in Inner Mongolia from 1996 to 2015
14:20~14:35	Jianwu Tang	Latest Advances Recent advances in solar-induced fluorescence coupled with eddy fluxes
14:35~14:50	Yongguang Zhang	Remote Sensing Satellite potential of sun-induced chlorophyll fluorescence for monitoring crop stress
14:50~15:05	Jinfeng Xiao	Ecosystem Solar-induced chlorophyll fluorescence is a strong predictor of terrestrial photosynthesis for a wide variety of biomes
15:05~15:20	Li Jia	Synthetic Observation Land surface heat fluxes from ground, airborne and satellite observations
15:20~15:40	Asko Noormets	Low-Carbon Management Managing forests for carbon sequestration
15:40~15:55	Weimin Ju	Carbon Sources & Sinks Characteristics and genesis of carbon source and sink in global terrestrial ecosystems in the past 40 years
15:55~16:05	Coffee Break	
Theme 4: Global Networks for Ecological Services (Chair: Bin Zhao, Huimin Wang)		
16:05~16:20	Jiquan Chen	Network USCCC: Review and perspectives
16:20~16:40	Dario Papale	Network When regional networks work together: the ICOS strategy and FLUXNET future

16:40~16:55	Shaomin Liu	Network Integrated observation network of surface processes in Heihe river basin
16:55~17:10	Eugenie Euskirchen	Eco-station Long term release of carbon dioxide from tundra ecosystems in northern Alaska
17:10~17:25	Huimin Wang	Eco-station Carbon budget of a coniferous plantation in subtropical China
17:25~17:40	Qi Zhang	Eco-station Monitoring and modeling of Poyang Lake Ecosystem
17:40~17:55	Fadong Li	Eco-station Study on the mechanism of carbon emission of farmland ecosystem based on carbon isotope $\delta^{13}C$
17:55~18:10	Minguo Ma	Overview Application of remote sensing big data in land surface process monitoring
18:10~18:20	Bin Zhao	Eco-thinking Reflection and prospect of the development of ecological science
18:20~19:00	Buffet Lunch	
Parallel Session 1 (19:00~21:30)		
Session 1: Land Surface Water-Heat Fluxes (Chair: Yonghui Yang, Xu Le)		
19:00~19:12	Yonghui Yang	Evaporation observation and simulation of the Selincuo Lake in the inflow area of the Qiangtang Plateau
19:12~19:24	Yanhong Guo	Evaporation observation and simulation of the Selincuo Lake in the inflow area of the Qiangtang Plateau
19:24~19:36	Ning Ma	Dynamic process of evapotranspiration in typical alpine steppe of the Qinghai-Tibet Plateau: observation and simulation
19:36~19:48	Binbin Wang	Comparative study on observation and simulation of lake-air interaction process between large and small lakes of Namtso Lake
19:48~20:00	Yingbing Wang	Study on the water dynamics of Poyang Lake before and after the establishment of the Three Gorges Dam——Based on GEE cloud computing platform

20:00~20:12	Ziwei Xu	Temporal and spatial variation characteristics of surface evapotranspiration of typical ground in Heihe River Basin
20:12~20:24	Xianhong Xie	Response of hydrological processes in the Three North Region of China to climate and afforestation
20:24~20:36	Jiaxin Jin	Response of water use efficiency of forest ecosystems to phenological changes
20:36~20:48	Xiuchen Wu	Atmospheric water demand dominates seasonal water use efficiency in alpine meadow, northeastern Tibetan Plateau
20:48~21:00	Zuosinan Chen	Canopy transpiration decreased with increasing stand density decades after thinning in <i>Pinus tabuliformis</i> plantations in northern China
21:00~21:12	Manman Leng	Assessing water and sediment yield on Daning gauged watershed (the Loess Plateau, China) by SWAT model and SWATCUP
21:12~21:24	Xiaolin Huang	Effects of rapid urbanization on water and energy balances in a paddy rice field-dominated basin
Parallel Session 2 (19:00~21:30)		
Session 2: Water-Heat-Carbon Fluxes in Ecological Processes (Chair: Yuhui Wang, Xufeng Wang)		
19:00~19:12	Xufeng Wang	No consistent evidence for advancing or delaying trends in spring phenology on the Tibetan Plateau
19:12~19:24	Xudong Zhu	Synergistic observation of vorticity correlation and canopy chlorophyll fluorescence in mangrove wetlands
19:24~19:36	Xin Jia	Regulation of soil respiration by photosynthesis of typical <i>Artemisia ordosica</i> shrub ecosystem in Mu Us Desert
19:36~19:48	Ruichang Shen	Effects of hydrological changes in dry season on soil microbial respiration in Poyang Lake
19:48~20:00	Shengqi Dai	Assessing the extent and impact of online data sharing in eddy covariance flux research
20:00~20:12	Hong Li	Impact of land use change on methane flux: A case study of Chongming Island, Shanghai
20:12~20:24	Yuan Gao	Effects of atmospheric pollutants on ecosystem productivity of poplar plantation

20:24~20:36	Qian Liu	Monitoring and assessing drought impacts on solar-induced chlorophyll fluorescence
20:36~20:48	Xiaohan Zhao	Effects of human activities and climate change on Inner Mongolia ecological restoration.
20:48~21:00	Yimian Ma	Harmonizing simulations of ecosystem productivity from site level to global scale by reducing uncertainties in meteorology
21:00~21:12	Min Yan	Simulation of forest carbon water flux assimilated by soil parameters
21:12~21:24	Xinlei He	Estimation of vegetation total primary productivity and surface water heat flux based on variable data assimilation method
21:24~21:36	Yuhui Wang	Predominance of precipitation event controls ecosystem CO ₂ exchange in an Inner Mongolian desert grassland, China
Poster Session (08:30~18:00)		
Junqi Wei	Effects of grazing and enclosure on evapotranspiration and soil water/salinity in the Puhu wetland in the Qinghai Lake Basin	
Ji Li	Seasonal variations of sun-induced chlorophyll fluorescence from leaf to canopy level and its relations with plant traits for paddy-rice	
Qian Zhang	Effect of observation angle on sunlight induced chlorophyll fluorescence and its relationship with primary productivity	
Nan Shan	Response of winter wheat to different water stress based on chlorophyll fluorescence	
Chunyi Li	Draining effects on recent accumulation rates of C and N in Zoige alpine peatland in the Tibetan Plateau	
Xin Pan	Two energy balance closure approaches: Applications and comparisons over an oasis-desert ecotone	
Xize Zhang	Satellite retrieval of surface evapotranspiration with nonparametric approach over an arid region under clear sky	
Liangliang Shan	Spatial-temporal variation of evapotranspiration over the Lake Poyang region during 2008-2017	
End of Scientific Workshop		

August 17, 2018	
Field survey to Eco-hydrological Observatory of Poyang Lake (8:30 ~ 18:30)	
08:30~10:00	Hotel —— Duchang dock (By bus)
10:00~12:00	Duchang dock——Tangyin Island (By ship)
12:00~14:00	Visit the Tangyin Island, Photograph and lunch
14:00~15:00	Tangyin Island——Sheshan Island (By ship), visit the Poyang Lake eco-hydrological observatory
15:00~17:00	Sheshan Island——Duchang Dock (By ship)
17:00~18:30	Duchang Dock——Conference hotel (By bus)
18:30~20:00	Buffet super



Fig 1. Snapshots of Scientific Instruments Installed in the Eco-hydrological Observatory of Poyang Lake located in in Lake Center and Lakeshore

Above: Poyang Lake

Bottom left: the Eddy Covariance (EC) device located in the center island;

Bottom middle: Poyang Lake Laboratory for Wetland Ecosystem Research, CAS;

Bottom right: the Large Aperture System (LAS) located at the lake beach

3. Transportation

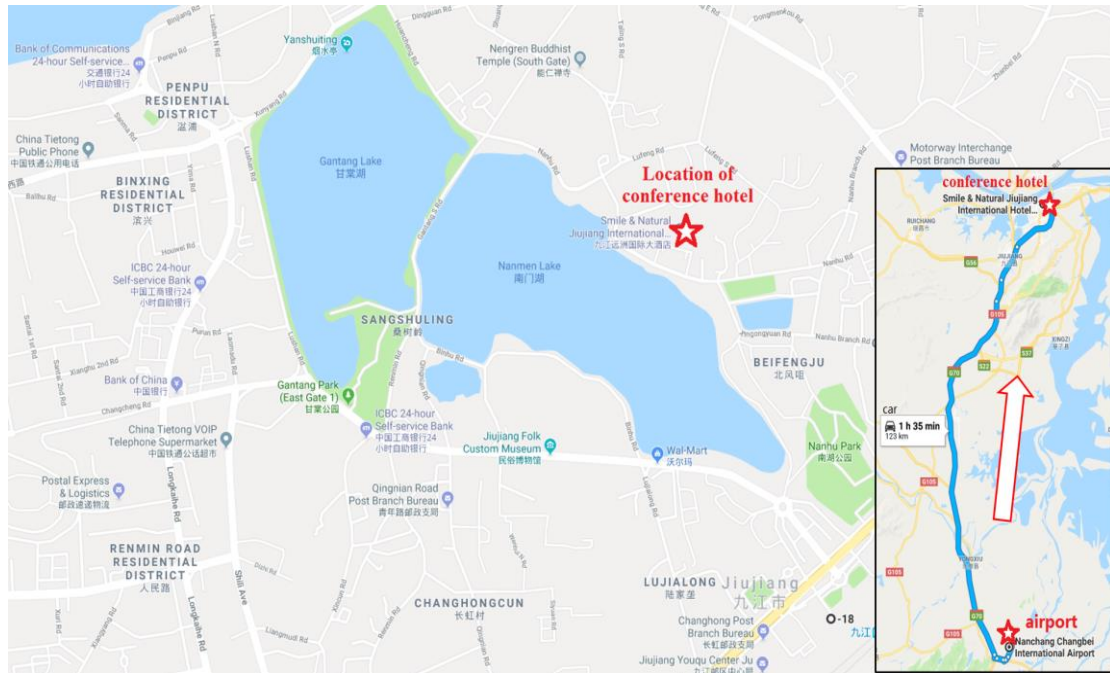


Fig 2. Location of the S&N International Hotel Jiujiang, Jiangxi Province, China

Notes: Transportation from the Nanchang Changbei International Airport to the conference hotel is reserved for invited speakers from abroad. You will be received at the airport by a designated member of the local organization committee.