

The 1st Youth Innovation Forum on Digital Earth

Programme

**Digital Earth in Support of Global
Sustainable Development**

Beijing, China

August 21-23, 2023



Organizations

Hosted by

International Society for Digital Earth

International Research Center of Big Data for Sustainable Development Goals

Aerospace Information Research Institute, Chinese Academy of Sciences

Organized by

International Society for Digital Earth - Young Scientist Innovation Network

Nanjing Normal University

ORGANIZATIONS



Catalog

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Background

Digital Earth makes use of various forms of digital technologies to understand and model physical and human spaces, and plays a crucial role in sustainable development. Since launched by the United Nations in 2015, the Sustainable Development Goals (SDGs) become a universal call to action to protect the planet and improve the lives and prospects of everyone in the world. How to utilize advanced digital technologies to achieve SDGs becomes increasingly important. Under this context, the International Society for Digital Earth, International Research Center of Big Data for Sustainable Development Goals, and the Aerospace Information Research Institute Chinese Academy of Sciences will host “The 1st Youth Innovation Forum on Digital Earth” on August 21-23, 2023 in Beijing, China. The theme of the Forum is “Digital Earth in Support of Global Sustainable Development”. The Forum welcomes young researchers, scholar, and graduate students in the field of Digital Earth and related disciplines to participate and present their cutting-edge research outcomes.

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About ISDE

Founded in 2004, the International Society for Digital Earth (ISDE) is a non-governmental international academic organization initiated by the Chinese Academy of Sciences and co-founded by relevant institutions at home and abroad. With the mission of benefiting society by promoting the development and realization of Digital Earth, it becomes a major force leading the global development of Digital Earth by advancing international academic exchanges and cooperation, and empowering Digital Earth technologies to play an important role in the sustainable development and other relevant fields.

Over the past two decades, ISDE has established national/regional committees and chapters in China, Australia, Russia, Europe, Japan and India, and has built Young Scientist Innovation Network and six working groups. As a main force in the field of geospatial information, it is a member of the ISC, GEO, and the UN-GGIM GS, and has close ties with CODATA, ISPRS, WGIC and other international organizations.

So far, ISDE has organized 13 International Symposia on Digital Earth and 9 Digital Earth Summits in 16 countries worldwide. It successfully held the Workshop on Digital Earth Vision towards 2020/2030, China Digital Earth Conferences, and ISDE International Lectures series, etc. ISDE launched two international academic journals, the *International Journal of Digital Earth* (IJDE) and *Big Earth Data* journal (BEDJ), and published the world's first scientific book in the field of Digital Earth - *Manual of Digital Earth*, which has got more than one million downloads worldwide.

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About ISDE Young Scientist Innovation Network

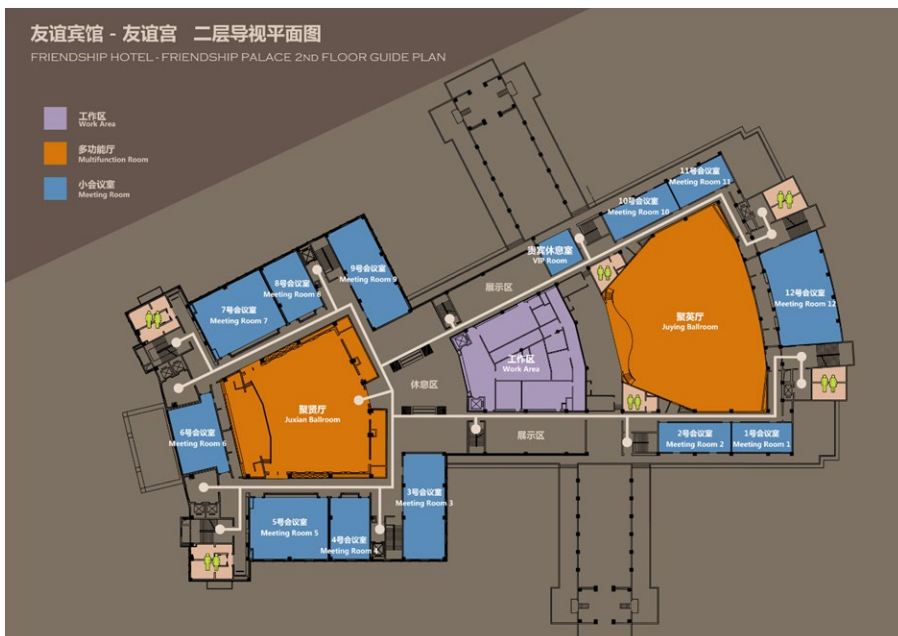
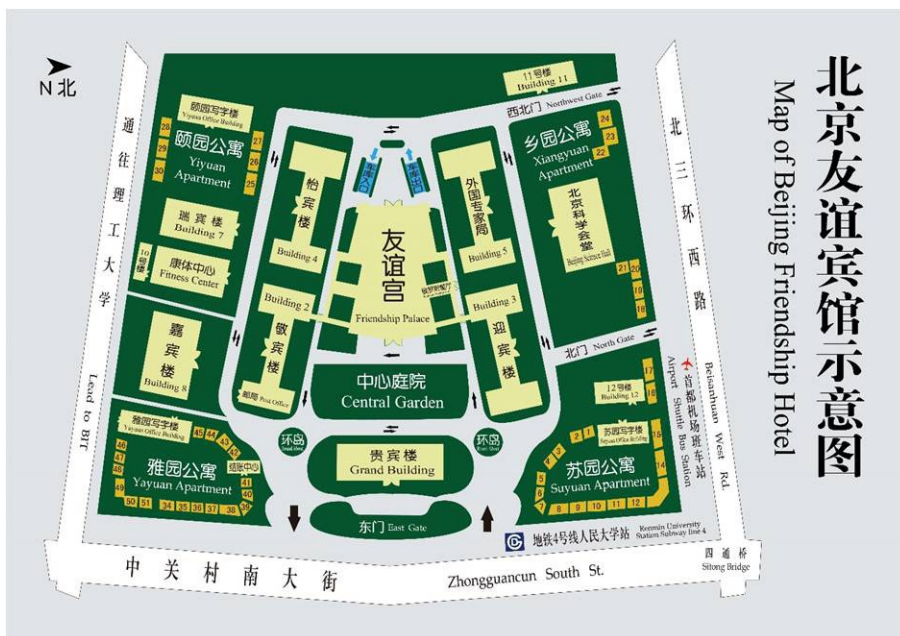
The International Society for Digital Earth (ISDE) is a non-governmental organization to disseminate the vision of Digital Earth and the mission of benefiting society by promoting the development and realization of Digital Earth. The International Society for Digital Earth - Young Scientist Innovation Network (ISDE-YSIN), launched on May 26, 2023, aims to promote the development of crucial concepts and innovative technologies of the Digital Earth and contribute to the power of young scientists for earth observation, big earth data, the Sustainable Development and other significant scientific programs. The overall goal is to focus on serving innovation and development in the field of Digital Earth, unite young scientists and support their academic innovation, as well as organize international academic events with young scientist involvement.

Website: http://isde_ysin2023.digitalearth-isde.org/

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Contact us: Ya Tian (15623252570), Kai Wu (18955506767), Zifeng Yuan (13063512186)

Venue Map:



05 / Committees

5.1 Academic Committee

Chair:

Prof. Huadong Guo	International Research Center of Big Data for Sustainable Development Goals
Dr. Alessandro Annoni	International Society for Digital Earth

Members:

Prof. Temenoujka Bandrova	University of Architecture, Civil Engineering and Geodesy
Prof. Arzu Çöltekin	University of Applied Sciences and Arts Northwestern Switzerland
Prof. Carlos Antonio da Silva Junior	State University of Mato Grosso
Prof. Cheryl Desha	Griffith University
Prof. Eugene Eremchenko	Lomonosov Moscow State University
Prof. Hiromichi Fukui	Chubu University
Dr. Gregory Giuliani	University of Geneva
Prof. Michael F. Goodchild	Arizona State University
Prof. Changchun Huang	Nanjing Normal University
Prof. Milan Konecny	Masaryk University
Prof. Kamal Labbassi	Chouaib Doukkali University
Prof. Hui Lin	Jiangxi Normal University
Dr. Joan Masó	Centre for Ecological Research and Forestry Applications, Universitat Autònoma de Barcelona
Dr. Paolo Mazzetti	Institute of Atmospheric Pollution Research (National Research Council of Italy)
Prof. Graciela Metternicht	Western Sydney University
Dr. Zaffar Sadiq Mohamed-Ghouse	Woolpert, Australia
Dr. Stefano Nativi	National Research Council of Italy
Prof. Luis Perez-Mora	Griffith University
Prof. Faramarz Samavati	University of Calgary
Dr. Sven Schade	Joint Research Centre, European Commission
Dr. Richard Gordon Simpson	Meta Moto, Australia
Prof. Josef Strobl	Paris Lodron University Salzburg

Dr. Mario Hernandez Valdes	International Society for Digital Earth
Prof. Cuizhen (Susan) Wang	University of South Carolina
Prof. Linwang Yuan	Nanjing Normal University

Forum Chair:

Prof. Changlin Wang	International Society for Digital Earth
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5.2 Organizing Committee

Chair

Prof. Min Chen	Nanjing Normal University
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Members:

Mr. Renyu Chen	Nanjing Normal University
Dr. Linlin Guan	International Society for Digital Earth
Ms. Min Li	International Society for Digital Earth
Dr. Jian Lin	The Chinese University of Hong Kong
Ms. Jingna Liu	International Society for Digital Earth
Dr. Zhen Liu	International Society for Digital Earth
Ms. Ya Tian	Jiangxi Normal University
Mr. Kai Wu	Nanjing Normal University
Mr. Zifeng Yuan	Nanjing Normal University

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Overall Schedule

Date	Time	Content	Venue
Aug 21	09:00-21:00	Registration	Building 4
Aug 22	07:30-08:30	Registration	Friendship Palace, Juxian Ballroom
	08:30-08:45	Openning Ceremony	Friendship Palace, Juxian Ballroom
	08:45-12:25	Keynotes	Friendship Palace, Juxian Ballroom
	12:25-14:00	Lunch Buffet	Friendship Palace, First Floor Restaurant
	14:00-17:45	Parallel Sessions	Friendship Palace, Meeting Room 3, 5, 7, 9
	18:00-20:00	Welcoming Banquet	Friendship Palace, Juxian Ballroom
Aug 23	08:30-11:45	Parallel Sessions	Friendship Palace, Meeting Room 3, 5, 7, 9
	11:45-14:00	Lunch Buffet	Friendship Palace, First Floor Restaurant
	14:00-15:40	Parallel Sessions	Friendship Palace, Meeting Room 3, 5, 7, 9
	15:40-16:10	Awards Announcement & Closing Ceremony	Friendship Palace, Meeting Room 5

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Session Agenda

Note	Time	Meeting Room 3	Meeting Room 5	Meeting Room 7	Meeting Room 9
Aug 22	14:00-15:20	session 13	session 1	session 7	session 5
	15:20-15:35	Tea/Coffee Break			
	15:35-17:45	session 13	session 1, 12	session 7	session 5
	18:00-20:00	Welcoming Banquet			
Aug 23	8:30-9:50	session 2	session 11	session 9	session 8
	9:50-10:05	Tea/Coffee Break			
	10:05-11:45	session 2	session 11	session 9	session 8
	11:45-14:00	Lunch Buffet & Break			
	14:00-15:40	session 6	session 4	session 3	session 10
	15:40-16:10	Awards Announcement & Closing Ceremony			

Day 1: Aug 22

Oral Presentations

Juxian Ballroom			
Time	Content		
8:30-8:45	Opening (Moderator: Dr. Zhen Liu, Executive Director, International Society for Digital Earth)		
	Welcome Speech	Dr. Alessandro Annoni (Online)	President of International Society for Digital Earth
		Prof. Min Chen	Professor, Nanjing Normal University Chair of ISDE Young Scientist Innovation Network
		Prof. Fang Chen	Deputy Director General, International Research Center of Big Data for Sustainable Development Goals
	Invited Speaker	Title	
	Distinguished Lecture (Moderator: Prof. Min Chen, Nanjing Normal University)		
8:45-9:15	Prof. Huadong Guo	Digital Earth in Support of Sustainable Development Goals	
9:15-9:30	Group Photo		
	Keynote Speech 1 (Moderator: Prof. Min Chen, Nanjing Normal University)		
9:30-9:55	Dr. László Bertalan	Unmanned Aerial Systems as Tools for Mapping Water Resources	
9:55-10:20	Dr. Huaiyu Tian	Mathematical Modelling Efforts for Understanding Pathogen Evolution and Transmission	
10:20-10:35	Tea/Coffee Break		
	Keynote Speech 2 (Moderator: Dr. Jian Lin, The Chinese University of Hong Kong)		
10:35-11:00	Dr. Martin Sudmanns	Research with Contribution to Science: Examples of Earth Observation Data Cubes	
11:00-11:25	Dr. Bin Chen	Geospatial Big Data in Support of Sustainable Urban Environment	
11:25-11:50	Dr. Yongguang Zhang	Mapping Super Methane Point Emissions from Chinese Hyperspectral Satellites	
11:50-12:15	Dr. Prajal Pradhan (Online)	A threefold approach to rescue SDGs from failing	
12:15-12:25	Prof. Wei Yang	Introduction of The Innovation Geoscience	
12:25-14:00	Lunch Buffet & Break		

Session 13: Excellent Paper Award

Session Chairs: Mingming Jia, Yu Li

Time	Author	Paper Title
14:00-14:20	Ya Tian	Towards One Health: finding potential synergies and trade-offs in global One Health
14:20-14:40	Yaohui Liu	Post-earthquake recovery and its driving forces of ecological environment quality using remote sensing and GIScience, a case study of 2015 Ms8.1 Nepal earthquake
14:40-15:00	Yifeng Cui	Decoding the inconsistency of six 10- and 30-m cropland maps in China
15:00-15:20	Mengdan Guo	Coupling the calibrated GlobalLand30 data and parameter sensitivity analysis for multi-scenario land use simulation and landscape ecological risk based on PLUS model
15:20-15:35	Tea/Coffee Break	
15:35-15:55	Chao Fu	Women’ s intra-household decision-making and household dietary diversity in environmentally and economically vulnerable areas of Asia: The role of crop diversity
15:55-16:15	Zhengrong Wu	Surface urban heat island change response to urban expansion surrounding environment
16:15-16:35	Wen Jiang	Evaluation of waterscape park water quality using behavioral responses of visitors
16:35-16:55	Shenglei Wang	Changes of lake clarity in Qinghai-Tibetan Plateau from 1986 to 2021 observed by Landsat series satellite data with an improved QAARGB model
18:00-20:00	Welcoming Banquet	

Session 1: Study on the Interaction among Sustainable Development Goals

Session Chairs: Junze Zhang, Min Cao

Time	Author	Paper Title
14:00-14:20	Kai Wu	Simulation of land use change along the Silk Road under the constraint of sustainable development goals
14:20-14:40	Caichun Yin	Key axes of global progress towards the Sustainable Development Goals
14:40-15:00	Zonghan Li	Towards one health: assessing coupling global interactions in human, animal, environment health
15:00-15:20	Zhipin Ai	Impacts of sustainable water management on global BECCS potential
15:20-15:40	Zifeng Yuan	Spatio-temporal evolution of causal interactions among Sustainable Development Goals in China

Day 1: Aug 22

Meeting Room 5

Session 12: Climate Change and Environmental Health

Session Chair: Ming Luo

Time	Author	Paper Title
15:45-16:05	Xian Zhang	Typical mountainous areas geological hazard risk assessment—Taking Chengkou County, Chongqing City as an example
16:05-16:25	Kun Xiao	Single and compound extreme climate events contribute to global yield loss of winter wheat, soybean, and Maize
16:25-16:45	Xuechun Wang	Intensification of heatwaves in Central Asia from 1981 to 2020
16:45-17:05	Juan Wang	Spatial heterogeneities of residents' sentiments during heat waves and their association with urban functional areas – a case study in Beijing
17:05-17:25	Ziwei Huang	Different Characteristics of Independent and Compound Extreme Heat and Ozone Pollution Events in the Greater Bay Area of China
17:25-17:45	Hui Zhang	Unequal Urban Heat Burdens Impede Climate Justice and Equity Goals
18:00-20:00	Welcoming Banquet	

Meeting Room 7

Session 7: Geospatial Big Data Analytics and AI for Public Health

Session Chairs: Wei Luo, Ling Yin

Time	Author	Paper Title
14:00-14:20	Yichen Ding	Impact of COVID-19 pandemic on the accessibility of residents to fever medical care - A case study of Xining, China
14:20-14:40	Rui Liu	Analysis of human activities during COVID-19 outbreaks in 30 major cities in China during 2019-2022 based on NPP-VIIRS nighttime light images and AI Earth
14:40-15:00	Bisong Hu	A head/tail breaks-based approach to characterizing space-time risks of COVID-19 epidemic in China's cities
15:00-15:20	Keyi Yu	Identification of potential breeding sites of Aedes albopictus based on deep learning and UAV Images
15:20-15:35	Tea/Coffee Break	
15:35-15:55	Qing Wang	The health effect and disease burden attributed to non-optimal temperature across China: Over-all related excess death and its spatial pattern
15:55-16:15	Ziwei Zhang	Applications of geography in Alzheimer’ s disease research and beyond: A systematic review
16:15-16:35	Mengdie Wu	Cloud detection of spaceborne hyperspectral infrared sounder based on deep learning
16:35-16:55	Die Zhang	Data-driven models informed by spatiotemporal mobility patterns for understanding infectious disease dynamics
16:55-17:15	Ailin Chen	Automatic identification of building structure type using CNN deep learning methods on photos of building
18:00-20:00	Welcoming Banquet	

Session 5: Regional Sustainable Development and Sustainability Transitions

Session Chairs: Shuangshuang Tang, Xiaohui Hu, Xiyao Mao

Time	Author	Paper Title
14:00-14:20	Jili Xu	Coupling characteristics between the demand of high-technology firms in the Pearl River Delta and supply of technological innovation functions and elements of Hong Kong and influential factors
14:20-14:40	Zhiwei Du	Regional economic transitions in Guangdong: based on a dynamic population change perspective
14:40-15:00	Xiaohui Hu	Understanding just transition on the Chinese ground: stakeholders' interpretations of green transition practices in an ecological county
15:00-15:20	Xiyao Mao	Patterns of innovation cooperation in China's manufacturing firms: the role of firm and city boundaries
15:20-15:35	Tea/Coffee Break	
15:35-15:55	Danyang Zhao	Carbon transfer and the influencing factors in domestic and international trade of China's 31 provinces from 1997 to 2017
15:55-16:15	Yuchen Wei	How multi-relation interactions affect transformation effects from the perspective of urban transformation laboratory? A case study of Unmanned bus in Jiangsu Province, China
16:15-16:35	Ke Dong	Exploring the diffusion process of rural PV technologies from a Technological Innovation System Perspective: the case of S village in Jiaying, Zhejiang province
16:35-16:55	Le Ma	Unveiling disparities in carbon emission intensity among Chinese cities: implications for low-carbon transition
16:55-17:15	Haibin Xia	Geographical basis assessment of regional development and its construction of index system
18:00-20:00	Welcoming Banquet	

Day 2: Aug 23

Oral Presentations

Meeting Room 3

Session 2: Big Earth Data in Promote of Marine and Coastal Sustainable Development (SDG 14)

Session Chairs: Mingming Jia, Hongsheng Zhang, Yu Li

Time	Author	Paper Title
08:30-08:50	Chao Chen	Monitoring and evaluating for natural resources and ecological environment in Zhoushan Archipelago using Landsat time series
08:50-09:10	Yu Li	Investigating the potential of complex-valued convolutional neural networks on marine oil spills detection
09:10-09:30	Li Zheng	A 10 m resolution impervious surface map for the greater Mekong subregion from remote sensing images
09:30-09:50	An Wang	High-reliability subsurface temperature reconstruction combining satellite remote sensing and machine learning
09:50-10:05	Tea/Coffee Break	
10:05-10:25	Wei Shan	The impacts of urbanization on mangroves
10:25-10:45	Chen Fan	Automated mapping of tidal flats in Australia using time series Sentinel-2 images and Google Earth Engine
10:45-11:05	Xiuling Zuo	Study of the bleaching alert capability and spatiotemporal pattern of the CRW and CoRTAD coral bleaching heat stress products in China's coral reefs
11:05-11:25	Ruiju Tong	Predicting global distribution of cold-water corals using updated data
11:25-11:45	Yujia Qiu	Offshore oil and gas platforms in the South China Sea remotely sensed by SDGSAT-1
11:45-14:00	Lunch Buffet & Break	

Meeting Room 3

Session 6: Regional Sustainable Development and Strategy Analysis

Session Chairs: Yali Liu, Xutong Wu

Time	Author	Paper Title
13:40-14:00	Yali Liu	Current status and future opportunities for sustainable development in Chinese northern drylands
14:00-14:20	Minghao Zhuang	Closing regional nitrogen gaps for sustainable staple crop production in China
14:20-14:40	Jingling Bao	Spatial and Temporal Evolution and Prediction of Carbon Stocks in Fujian Province Based on PLUS-InVEST Modeling
14:40-15:00	Xutong Wu	Bleak prospects and targeted actions for sustainable development revealed by an SDG data-driven country classification
15:00-15:20	Dandan Yu	Scenario modelling human–natural systems interactions towards the United Nations Sustainable Development Goals: strengths, gaps and promising directions
15:20-15:40	Haonan Bai	Does more efficient transportation improve habitat quality? Evidence from China

Session 11: Research on New Methods for Remote Sensing Monitoring of Surface Water

Session Chairs: László Bertalan, Junsheng Li

Time	Author	Paper Title
08:30-08:50	Junsheng Li	Monitoring of cyanobacterial blooms in Chinese lakes and reservoirs based on Sentinel-2 satellite and deep learning
08:50-09:10	Yao Liu	Inland water quality parameter retrieval based on spaceborne hyperspectral data of Chinese satellite
09:10-09:30	Yongkang Ren	Satellite-based assessment of flood inundation risk in Northwest China under a changing climate
09:30-09:50	Yichen Du	Spatiotemporal variation of cyanobacterial harmful algal blooms based on literature and media information in China
09:50-10:05	Tea/Coffee Break	
10:05-10:25	Xin Zhang	Extraction of freshwater aquaculture ponds based on improved coordinate attention and U-Net neural network
10:25-10:45	Bo Tang	A study on the spatial-temporal patterns and influencing factors of atmospheric vulnerability in the Pearl River Delta
10:45-11:05	Wei Wei	Spatiotemporal variability in extreme precipitation and associated large-scale climate mechanisms in Central Asia from 1950 to 2019
11:05-11:25	Skizing	Monitoring dynamics of wetland around Poyang Lake and its response to drought using multi-source satellite observations
11:45-14:00	Lunch Buffet & Break	

Session 4: Intelligent Monitoring and Evaluation of Agricultural Land Systems

Session Chairs: Lijun Zuo, Qiangyi Yu, Baodong Xu

Time	Author	Paper Title
14:00-14:20	Caixia Rong	Meta-Learning and 3DCNN enhanced crop classification using sentinel data fusion for hunger mitigation
14:20-14:40	Haodong Wei	Multi-scale rice-crayfish field identification based on topology analysis and phenology windows
14:40-15:00	Jingjing Wang	A study on county scale crop rotation mapping based on multi-temporal Sentinel 2 Images
15:00-15:20	Zhiwen Cai	Learning spectral-spatial representations from VHR images for fine-scale crop type mapping: A case study of rice-crayfish field extraction in South China
15:20-15:40	Wenxuan Xu	Fire dynamics in the Amazonian agroforestry ecosystem: New perspectives from satellite observation time-series
15:40-16:10	Awards Announcement & Closing Ceremony	

Day 2: Aug 23

Meeting Room 7

Session 9: Opportunities and challenges in achieving integrated health research through Earth's big data

Session Chairs: Jinwei Dong, Cunrui Huang

Time	Author	Paper Title
08:30-08:50	Zehua Zheng	Effect of associated factors on aging level under different urbanization levels in China
08:50-09:10	Yuqi Bai	Health impacts of landscape fire smoke PM2.5 in China under climate change scenarios
09:10-09:30	Jinwei Dong	Understanding the effects of anthropogenic climate and land use changes on Zoonoses with remote sensing big data and cloud computing
09:30-09:50	Yang Ju	Disentangling associations between vegetation greenness and dengue in a Latin American city: Findings and challenges
09:50-10:05	Tea/Coffee Break	
10:05-10:25	Houlang Duan	Coastal wetland variation and its impacts on waterbirds and their habitats
10:25-10:45	Xue Tao	Wildfires, child health and environmental inequality
10:45-11:05	Yang Can	The impact of climate change on avian influenza virus transmission in the Poyang Lake Region
11:45-14:00	Lunch Buffet & Break	

Meeting Room 7

Session 3: Spatial Technologies Facilitate the Conservation and Sustainable Development of Natural and Cultural Heritage (SDG11 & SDG15)

Session Chairs: Lei Luo, Jinhu Bian

Time	Author	Paper Title
14:00-14:20	Jie Ma	A study on approach of the tea agriculture' s cultural heritage value realization- based on configuration analysis within the TOE framework
14:20-14:40	Jinhu Bian	Global high-resolution mapping of UN SDG indicator mountain green cover index
14:40-15:00	Amin Naboureh	Importance of sustainable irrigation expansion for achieving targets of SDGs 11 and 15
15:00-15:20	Lei Luo	Eighteen years of satellite imaging reveal dramatic habitat loss across endangered Asian elephant' s range
15:20-15:40	Matiyas B. Fantaye	Digital documentation of a complex site: The case of the Lalibela WHS

Day 2: Aug 23

Meeting Room 9

Session 8: Big Earth Data in Support of Sustainable Urban Development

Session Chairs: Zhongchang Sun, Zhonghao Zhang

Time	Author	Paper Title
08:30-08:50	Liqun Sun	Change in urban greenness and beneficiary population in large cities in the world
08:50-09:10	Xuecao Li	Global urban environmental monitoring and modeling using remote sensing technologies
09:10-09:30	Zhaofang Wang	Research on wind field simulation of large single building based on BIM and CFD: a case study of 2022 Beijing Winter Olympic Sliding Centre
09:30-09:50	Qixia Man	Fine classification of urban tree species based on fused UAV RGB imagery and LiDAR data
09:50-10:05	Tea/Coffee Break	
10:05-10:25	Taibai Li	Research progress of BDS in earthquake monitoring
10:25-10:45	Zhongchang Sun	Assessing urban sustainability using SDG11.3.1 land use efficiency indicator
10:45-11:05	Shaohua Wang	Learn to Solve the Spatial Optimization Decision with Deep Reinforcement Learning in SDGs
11:45-14:00	Lunch Buffet & Break	

Meeting Room 9

Session 10: Key technologies and paths for achieving the global SDG7 economically applicable clean energy goal

Session Chairs: Mingquan Wu, Rui Zhu

Time	Author	Paper Title
14:00-14:20	Wei Xie	Vectorized rooftop area data for 90 cities in China
14:20-14:40	Xiangyu Ning	Comprehensive quantitative evaluation method of big data for centralized photovoltaic power plant site selection—Taking Hainan Island as an example

Notes

Handwriting practice lines consisting of multiple sets of three horizontal lines (top, middle, and bottom) for letter formation.

Notes

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