

Third International Conference on Spatial Data Mining and Geographical Knowledge Services

(ICSDM 2017)

Sept. 20-22, 2017, ISPRS Geospatial Week 2017, Wuhan, Hubei, China

ICSDM2017 aims to provide a unique inter- and multi-disciplinary forum for all the professionals involved in spatial data mining and geographical knowledge services. ICSDM2017 (the 3rd conference of ICSDM) will be held from September 20-22, 2017 in Wuhan, China. The 1st ICSDM was held from June 29 to July 1, 2011 in Fuzhou, China, and the 2nd ICSDM (ICSDM2015) was held from July 8-10, 2015 in Fuzhou, China.

This 3rd event will take place in Wuhan, China in 2017 during the ISPRS Geospatial Week. This ISPRS international workshop, co-organized by ISPRS WG IV/3, Wuhan University and Fuzhou University, will provide a dedicated scientific forum for researchers, professionals, government decision-makers and students to exchange and discuss current and state-of-the-art advances in spatiotemporal big data analysis, trajectory mining, stream data mining, nighttime light remote sensing data mining and geographical knowledge services.

Totally, we have 50 oral reports and 15 posters. We schedule TEN oral sessions and ONE poster session. Researchers will have the opportunity to share knowledge, exchange scientific ideas and results, and develop long-term research collaborations.

Organizing ISPRS Working Groups

ISPRS WG IV/3: Spatial Data Analysis, Statistics and Uncertainty Modelling

Local Organization Committee:

Chair:

Kun Qin, Wuhan University, China

Co-Chairs:

Chongcheng Chen, Fuzhou University, China

Shuliang Wang, Beijing Institute of Technology, China

Members:

Jiangping Chen, Wuhan University, China

ZhipengGui, Wuhan University, China

Qingwu Hu, Wuhan University, China

Tao Jia, Wuhan University, China

Limin Jiao, Wuhan University, China

Chaogui Kang, Wuhan University, China

Xi Li, Wuhan University, China

Binbin Lu, Wuhan University, China

Li Shen, Wuhan University, China

Hong Shu, Wuhan University, China

Luliang Tang, Wuhan University, China

Rui Xiao, Wuhan University, China

Kai Xu, China University of Geosciences, China

Yang Yu, Wuhan University, China

Kun Zheng, China University of Geosciences, China

Committee

Chair:

Deren Li, Wuhan University, China

Co-Chairs:

Chenghu Zhou, The Chinese Academy of Sciences, China

Mahmoud R. Delavar, University of Tehran, Iran

Program Committee:

Scott Bell, University of Saskatchewan, Canada

Alexis Comber, University of Leeds, United Kingdom

Mahmoud R. Delavar, University of Tehran, Iran

Min Deng, Central South University, China

Jianya Gong, Wuhan University, China

Daniel Griffith, University of Texas at Dallas, United States

DianshengGuo, University of South Carolina, United States

Xulin Guo, University of Saskatchewan, Canada

Paul Harris, Rothamsted Research – North Wyke, United Kingdom

Yuhong He, University of Toronto Mississauga, Canada

Qingwu Hu, Wuhan University, China

Limin Jiao, Wuhan University, China

Hui Lin, The Chinese University of Hong Kong, China

Desheng Liu, The Ohio State University, United States

Yu Liu, Peking University, China

Ana-Maria Olteanu-Raimond, Cartography and Geomatics Laboratory, IGN, France

Tao Pei, The Chinese Academy of Sciences, China

Kun Qin, Wuhan University, China

Jie Shan, Purdue University, United States

Tiyan Shen, Peking University, China

Hong Shu, Wuhan University, China

Christopher Small, Columbia University, United States

Alfred Stein, ITC, University of Twente, Netherlands

Luliang Tang, Wuhan University, China

Fahui Wang, Louisiana State University, United States

Jinfeng Wang, The Chinese Academy of Science, China

Shaowen Wang, University of Illinois at Urbana-Champaign, United States

Shuliang Wang, Beijing Institute of Technology, China

Xinyue Ye, Kent State University, United States

Linwang Yuan, Nanjing Normal University, China

Zuoquan Zhao, The Chinese Academy of Sciences, China

Chenghu Zhou, The Chinese Academy of Science, China

Secretary:

Chaogui Kang, Wuhan University, China

Xi Li, Wuhan University, China

Ye Zhang, Wuhan University, China

Yulong Wang, Wuhan University, China

Xiaoxia Xu, Wuhan University, China

Session Overview

DATE	TIME	CONTENTS		CHAIR/ CO-CHAIR	Room	
Thursday 21 st , Sept. AM	09:00-10:30	Invited Speech	Spatial Data Mining: Theory and Application Prof. Deren Li, Wuhan University, China	Jianya Gong	Qianjiang Hall	
			Spatial Scaling of Land Cover Networks Prof. Christopher Small, Columbia University, USA			
	10:30-11:00	Tea Break				
	11:00-12:30	Invited Speech	GIScience for Human Dynamics Research Prof. Shih-Lung Shaw, The University of Tennessee, United States	Shuliang Wang / Tao Pei	Qianjiang Hall	
Spatial and Temporal Remote Sensing of Invasive Species Prof. Le Wang, University at Buffalo, USA						
		ICSDM-01: Night-Time Light Remote Sensing Data Mining		Xi Li /Tao Jia	Moli Hall	
Lunch						
Thursday 21 st , Sept. PM	14:00-15:30	Invited Speech	Urban Computing: Enabling Intelligent Cities with AI and Big Data Dr. Yu Zheng, Microsoft Research Asia, China	Chong cheng Chen / Kun Qin	Qianjiang Hall	
			Spatiotemporal Mining of Earth Observation Data: Challenges and Opportunities Dr. Desheng Liu, The Ohio State University, USA			
			ICSDM-02: Spatially Humanities and Social Science		Jun Xu/ Teng Fei	Moli Hall
	15:30-16:00	Tea Break				
16:00-17:30		ICSDM-03: Trajectory Mining & Smart Transportation		Kun Qin /Jun Li	Qianjiang Hall	
		ICSDM-04: Cluster Analysis		Min Deng / Zhixiang Fang	Moli Hall	
Dinner						
Friday 22 nd , Sept. AM	09:00-10:30	ICSDM-05: Spatiotemporal Knowledge Visualization		Zhipeng Gui / Tao Wu	Qianjiang Hall	
		ICSDM-06: Spatiotemporal Big Data Analysis		Chaogui Kang / Min Xu	Tianmen Hall	
		ICSDM-07: Application of Spatiotemporal Data and Knowledge		Binbin He / Luliang Tang	Moli Hall	
	10:30-11:00	Tea Break				
	11:00-12:30	ICSDM-08: Urban Computing		Limin Jiao/ Kun Zheng	Qianjiang Hall	
		ICSDM-09: Image Processing and Image Mining		Tao Wu/ Kai Xu	Tianmen Hall	
ICSDM-10: Land Change		Yanfei Zhong / Supanat Chaidee	Moli Hall			
Lunch						
Wednesday 20 th , Sept. PM	14:00-17:30	Poster Session: Joint Poster		Chaogui Kang /Xi Li	First Floor	

ICSDM-01: Night-Time Light Remote Sensing Data Mining

Chair: Xi Li, Wuhan University, China

Co-Chair: Tao Jia, Wuhan University, China

Room: Moli Hall

11:00-12:30, Thursday
21st, Sept.

Title: Assessment of Light Pollution Impact on Protected Areas in China

Authors: Wei Jiang (Chinese Academy of Sciences, China), Guojin He and Yuan Ni

Title: Analyzing the Velocity of Urban Dynamic over Northeastern China Using DMSP-OLS Night-Time Lights

Authors: Yuke Zhou (Chinese Academy of Sciences, China)

Title: Spatiotemporal Evolution of the Imbalanced Regional Development in Mainland China Using DMSP-OLS Data

Authors: Kai Chen (Wuhan University, China) and Tao Jia

Title: Tracking Dynamic Changes and Monitoring Socioeconomic Parameters in Algeria Between 1993 and 2012, Using Nighttime Light Remote Sensing

Authors: Bouarouri Faouzi (Wuhan University, China) and Prosper Washaya

Title: Night Time Light Satellite Data for Evaluating the Socioeconomics in Central Asia

Authors: Shuang Li (Wuhan University, China), Tongyao Zhang, Zhiyu Yang, Xi Li and Huimin Xu

ICSDM-02: Spatially Humanities and Social Science

Chair: Jun Xu, LREIS, Institute of Geographic Sciences and Natural Resources Research, China

Co-Chair: Teng Fei, Wuhan University, China

Room: Moli Hall

14:00-15:30, Thursday
21st, Sept.

Title: Experiments on Items' Order in Word2vec Based Recommendation

Authors: Ling Cai (LREIS, Institute of Geographic Sciences and Natural Resources Research, China) and Jun Xu

Title: Applying Remote Sensing Technique to Monitoring Spatial Expansion of Important Cities in China-Indochina Peninsula Economic Corridor

Authors: Jiayu Li (Liaoning Technical University, China), Huabin Wang, Guanghui Wang, Haoran Zhai, Min Han and Xiao Liu

Title: Population Estimation in Singapore Based on Remote Sensing and Open Data

Authors: Hui Guo (National University of Singapore, Singapore), Kai Cao and Peng Wang

Title: Mapping the Sensitivity of the Public Emotion to the Movement of Stock Market Value: A Case Study of Manhattan

Authors: Yuhao Kang (Wuhan University, China), Yueyao Wang, Jialin Wang, Stephan Angsuesser and Teng Fei

Title: Analysis of Spatial Pattern and Influencing Factors of E-Commerce

Authors: Yaxuan Zhang (Wuhan University, China), Jiangping Chen and Shuming Zhang

ICSDM-03: Trajectory Mining & Smart Transportation

Chair: Kun Qin, Wuhan University, China

Co-Chair: Jun Li, China University of Mining and Technology, China

Room: QiangJiang Hall

16:00-17:30, Thursday,
21st, Sept.

Title: Hotspots Detection from Trajectory Data Based on Spatiotemporal Data Field Clustering

Authors: Kun Qin (Wuhan University, China), Qing Zhou, Tao Wu and Yuanquan Xu

Title: Dynamic Evaluation of Urban Community Adaptability Based on Multi-source Spatiotemporal Data

Authors: Yang Yu(Wuhan University, China), Huijuan Jiang, Meiling Ning

Title: Correction of Measured Taxicab Exhaust Emission Data Based on CMEM Model

Authors: Qi Li (Wuhan University, China) and Tao Jia

Title: Analyzing Impact Factors of Airport Taxiing Delay Based on ADS-B Data

Authors: Jun Li (China University of Mining and Technology, China), Xiang Wang, Yubin Xu, Qingqi Li and Yunpeng Li

Title: The Impact of Large Urban Structural Elements on Traffic Flow – A Case Study of Danwei and Xiaoqu in Shanghai

Authors: Hao Lyu (Technische Universität München, Germany), Linfang Ding, Hongchao Fan and Liqiu Meng

ICSDM-04: Cluster Analysis

Chair: Min Deng, Central South University, China

Co-Chair: Zhixiang Fang, Wuhan University, China

Room: Moli Hall

16:00-17:30, Thursday,
21st, Sept.

Title: Study on Adaptive Parameter Determination of Cluster Analysis in Urban Management Cases

Authors: Jiayun Fu (Beijing University of Civil Engineering and Architecture, China), Changfeng Jing, Mingyi Du, Yanli Fu and Peipei Dai

Title: Association Rule Analysis for Tour Route Recommendation and Application to WCTSNOP

Authors: Hui Fang (Fuzhou University, China), Chongcheng Chen, Jiaxiang Lin, Xianfeng Liu and Dong Fang

Title: Clustering-Based Approaches to the Exploration of Spatio-Temporal Data

Authors: Xiaojing Wu (Singapore University of Technology and Design, Singapore), Raul Zurita-Milla, Menno-Jan Kraak, Emma Izquierdo-Verdiguier

Title: A Probabilistic Embedding Clustering Method for Urban Structure Detection

Authors: Xin Lin (Central South University, China), Haifeng Li, Yan Zhang, Lei Gao, Ling Zhao and Min Deng

Title: Labeling Residential Community Characteristics from Collective Activity Patterns Using Taxi Trip Data

Authors: Yang Zhou (Wuhan Land Use and Urban Spatial Planning Research Center, China) and Zhixiang Fang

ICSDM-05: Spatiotemporal Knowledge Visualization

Chair: Zhipeng Gui, Wuhan University, China

Co-Chair: Tao Wu, Lingnan Normal University, China

Room: QiangJiang Hall

09:00-10:30, Friday,
22nd, Sept.

Title: Spatiotemporal Visualization of Tsunami Waves Using KML on Google Earth

Authors: Hosein Mohammadi (University of Tehran, Iran), Mahmood Reza Delavar, Mohammad Ali Sharifi and Moharram Dolatshahi Pirooz

Title: Complex Network Simulation of Forest Network Spatial Pattern in Pearl River Delta

Authors: Yuhuai Zeng (Key Lab of Guangdong for Utilization of Remote Sensing and Geographical Information System, China)

Title: Artistic Visualization of Trajectory Data Using Cloud Model

Authors: Tao Wu (Lingnan Normal University, China), Yingchun Zhou and Limin Zhang

Title: Research on the Intensity Analysis and Result Visualization of Construction Land in Urban Planning

Authors: Jian Cui (Shandong Jianzhu University, China), Bing Dong, Jian Li and Lufeng Li

Title: A Web-Based Platform for Visualizing Spatiotemporal Dynamics of Big Taxi Data

Authors: Hui Xiong (Wuhan University, China), Lei Chen and Zhipeng Gui

ICSDM-06: Spatiotemporal Big Data Analysis

Chair: Chaogui Kang, Wuhan University, China

Co-Chair: Min Xu, Chinese Academy of Sciences, China

Room: Tianmen Hall

09:00-10:30, Friday,
22nd, Sept.

Title: Spatial-Temporal Analysis of Openstreetmap Data after Natural Disasters: A Case Study of Haiti under Hurricane Matthew

Authors: Jin Xu (China University of Geosciences, China), Longxi Li and Qi Zhou

Title: Analysis of Big Data from Space

Authors: Juan Tan (International Space University, France) and Barnaby Osborne

Title: Expression and Organization of Geographic Spatial Relations Based on Topic Maps

Authors: Huijiao Liang (Tianjin Normal University, China), Hui Wang, Tiejun Cui and Jifa Guo

Title: Spatiotemporal Analysis of the Ebola Hemorrhagic Fever in West Africa in 2014

Authors: Min Xu (Chinese Academy of Sciences, China), Chunxiang Cao and Haifang Guo

Title: Geospatial Analysis of Atmospheric Haze Effect by Source and Sink Landscape

Authors: Tiantian Yu (China University of Geosciences (Wuhan), China), Kai Xu, Zhaoxiang Yuan

ICSDM-07: Application of Spatiotemporal Data and Knowledge

Chair: Binbin He, University of Electronic Science and Technology of China, China

Co-Chair: Luliang Tang, Wuhan University, China

Room: Moli Hall

09:00-10:30, Friday,
22nd, Sept.

Title: Spatiotemporal Patterns and Its Instability of Land Use Change in Five Chinese Node Cities of the Belt and Road

Authors: Bin Quan (Hengyang Normal University, China), Tao Guo, Peilin Liu and Hongge Ren

Title: Information Mining of Spatio-Temporal Evolution of Lakes Based on Multiple Dynamic Measurements

Authors: Wanshu Feng (Wuhan University, China) and Jiangping Chen

Title: Change Analysis on Soil Erosion of Fujian Province from 1990 to 2015

Authors: Xiaoqin Wang (Fuzhou University, China) and Shu-Jiao Zeng

Title: Assessment of Global Wind Energy Resource Utilization Potential

Authors: Minjie Ma (University of Electronic Science and Technology of China, China), Binbin He, Yuwei Guan, Hongguo Zhang and Shujun Song

Title: The Relative Importance of Three Specific Climatic Factors on North American Breeding Bird Species Richness

Authors: Mengdan Zhang (Peking University, China) and Yi Lin

ICSDM-08: Urban Computing

Chair: Limin Jiao, Wuhan University, China

Co-Chair: Kun Zheng, China University of Geosciences, China

Room: QiangJiang Hall

11:00-12:30, Friday,
22nd, Sept.

Title: Spatial Linkage and Urban Expansion: An Urban Agglomeration View

Authors: Limin Jiao (Wuhan University, China), Xin Tang and Xiaoping Liu

Title: Urban Expansion: A Geo-Spatial Approach for Temporal Monitoring of Loss of Agricultural Land

Authors: Neema Simon Sumari (Sokoine University of Agriculture, Tanzania), Zhenfeng Shao, Camilius Aloyce Sanga, John L. van Genderen and Min Huang

Title: Spatiotemporal Data Organization and Application Research

Authors: ChengguoTan (Wuhan University, China) and Suiyu Yan

Title: Exploration of Urban Spatial Planning Evaluation Based on Human-Land Harmony

Authors: Xingshu Hu (Hainan Geomatics Center of National Administration of Surveying, Mapping and Geoinformation, China), Qingrong Ma, Wenqiong Liang, Chunxiao Wang, Xiaoqing Xiong and Xuehua Han

Title: Visualization of Spatio-Temporal Relations in Movement Events Using Multi-View

Authors: Kun Zheng (China University of Geosciences, China), Danpeng Gu, Fanlin Fang, Yanghui Wang, Wenyu Zhao, Miao Zhang and Qi Li

ICSDM-09: Image Processing and Image Mining

Chair: Tao Wu, Lingnan Normal University, China

Co-Chair: Kai Xu, China University of Geosciences, China

Room: Tianmen Hall

11:00-12:30, Friday,
22nd, Sept.

Title: A Rough Set Decision Tree Based MLP-CNN for Very High Resolution Remotely Sensed Image Classification

Authors: Ce Zhang (Lancaster University, England), Xin Pan, Shuqing Zhang, Huapeng Li and Peter Atkinson

Title: Object-Based Spatial Knowledge Network for Integrating GlobeLand30 and Urban Resource

Authors: Juju Hu (National Geomatics Center of China, China University of Mining and Technology, China) and Jun Chen

Title: Built-Up Area and Land Cover Extraction Using High Resolution Pleiades Satellite Imagery for Midrand, in Gauteng Province, South Africa

Authors: Emmanuel Fundisi (University of Johannesburg, South Africa) and Walter Musakwa

Title: Detection of Moisture Sources and Paths of Summer Heavy Rainfall in the Pearl River Delta, China

Authors: Lijie Lin (The Chinese University of Hong Kong, China), Ming Luo

Title: A Simple Cloud Detection Method for GF-1 WFV Imagery

Authors: Liangliang Jia (Fuzhou University, China) and Xiaoqin Wang

ICSDM-10: Land Change

Chair: Yanfei Zhong, Wuhan University, China

Co-Chair: Supanat Chaidee, Chiang Mai University, Thailand

Room: Moli Hall

11:00-12:30, Friday,
22nd, Sept.

Title: Interactive Land-Use Optimization Using Laguerre Voronoi Diagram with Dynamic Generating Point Allocation

Authors: Supanat Chaidee (Chiang Mai University, Thailand), Prompong Pakawanwong, Vorapong Suppakitpaisarn and Pat Teerasawat

Title: Monitoring Urban Land Cover/Land Use Change in Algiers City Using Landsat Images (1987-2016)

Authors: Brahim Bouchachi (Wuhan University, China) and Yanfei Zhong

Title: Ecosystem Health Assessment of Mining Cities Based on Landscape Pattern

Authors: Weixuan Yu (Wuhan University, China), Yue Liu, Meng Lin, Feiguo Fang and Rui Xiao

Title: Urban Landscape Spatial Pattern Estimation of Cities in Shandong Province Using Nighttime Luminosity Data

Authors: Junfu Fan (Shandong University of Technology, China), Huixin He, Taoying Hu, Guihua Li, Huixian Gao and Xiaowei Zhao

Title: Analysis of Urban Forest Carbon Sequestration Capacity: A Case Study of Suizhou, Zengdu

Authors: Xiaomin Yu (Hubei Geomatics Information Center, China), Haitao Wang, Wei Cai and Yifei Han

Poster Session

Chair: Chaogui Kang, Wuhan University, China

Co-chair: Xi Li, Wuhan University, China

Room: First Floor

Title: An Adaptive Morphological Mean Filter for Improving the Classification's Performance of Very High Resolution Remote Sensing Imagery

Authors: Zhiyong Lv (Xi'an University of Technology, China), Junfei Shi and Yinghui Wang

Title: Analysis of Human Activities in Nature Reserves Based on Nighttime Light Remote Sensing and Microblogging Data –Illustrated by the Case of National Nature Reserves in Jiangxi Province

Authors: Feng Shi (Wuhan University, China), Xi Li and Huimin Xu

Title: Influence Analysis of Waterlogging Based on Deep Learning Model in Wuhan

Authors: Yin Pan (Wuhan University, China), Zhenfeng Shao, Tao Cheng, Zhiqiang Wang and Zhaoyu Zhang

Title: Parallel Spatiotemporal Spectral Clustering with Massive Trajectory Data

Authors: Yingzhe Gu (Wuhan University, China), Kun Qin, Mengxue Yue, Tao Guo and Yixiang Chen

Title: Relationship Model Between Nightlight Data and Floor Area Ratio from High Resolution Images

Authors: Meichun Yan (Hohai University, China) and Lingli Xu

Title: A Method of Simplification and Keep Characteristic for 3D Reconstruction --- Take Rockery with Irregular Non-Seal Form as an Example

Authors: Yun Li (Xinjiang University, China) and Jianghua Zheng

Title: Spatiotemporal Pattern of Vegetation Growth in Urbanization Using Time Series Landsat-Based Estimates of Impervious Surface Cover and EVI

Authors: Yingchun Fu (School of Geography, South China Normal University, China), Zhe Zhu, Jiufeng Li and Chao Ma

Title: The Role of Venezuelan Space Technology in Promoting Development in Latin America

Authors: Jose Pena (Beihang University, China) and Tan Yumin

Title: Parallel Optimal Variant of Priority-Flood Algorithm for Depression Identification and Filling in Raster Digital Elevation

Authors: Hongqiang Wei (University of Electronic Science and Technology of China, China), Xiaoli Liu and Guiyun Zhou

Title: Parallelizing LDA Algorithm Utilizing CPU/GPU for Massive Mass Media Data Processing

Authors: Hongyan Wang (Wuhan University, China), Rui Li and Huayi Wu

Title: Estimating Effects of the "Communities Opening" Policy on Alleviating Traffic Congestion in China's Big Cities by Integrating Ant Colony Optimization (ACO) and Complex Network Analysis

Authors: Yao Yao (Sun Yat-sen university, China), Ye Hong, Xia Li, Daiqiang Wu and Penghua Liu

Title: Deriving Land Heterogeneity Information from GlobeLand30

Authors: Jing Yu (National Geomatics Center of China, China) and Jun Chen

Title: From Indoor to Outdoor in 3D Space: A New Perspective of Spacy Syntax

Authors: Xixi Ji (The Hong Kong Polytechnic University, China) and Xintao Liu

Title: Patterns of the Intensity of Interaction and Connection Between Administrative Districts of Beijing

Authors: Hui Peng (Institute of Geographic Sciences and Natural Resources Research, CAS, China), Yunyan Du

Title: Augmented GlobeLand30 data for monitoring UN Sustainable Development Goals

Authors: Jon Mills (Newcastle University, United Kingdom), Hao Wu, Martin Herold, Miaole Hou, Klaus Komp, Zhenhong Li, Zhilin Li, Sisi Zlatanova and Jun Chen

Title: A Modeling Method of Fluttering Leaves Based on Point Cloud

Authors: Jing Tang (Xi'an University of Technology, China), Yinghui Wang, Yanni Zhao, Wen Hao, Xiaojuan Ning, Ke Lv, Zhenghao Shi and Minghua Zhao