JURSE 2023
Heraklion - Crete

17–19 MAY 2023

The Joint Urban Remote Sensing Event (JURSE) is a forum of excellence where researchers, practitioners and students present, share, and discuss their latest findings and results. The current JURSE is organized by the **Remote Sensing Lab of FORTH (http://rslab.gr)** after 4 years since the last in person JURSE Conference, due to COVID-19. Thus, the interest of scientists to participate is remarkable.

This event is committed to introduce **innovative methodologies and technological resources recently employed to investigate the manifold aspects of the urban environment through orbital and airborne remote sensing data.**

Emerging topics like new methods for urban land cover and land use classification with detailed discrimination of urban targets, 3D modeling of urban buildings, forecast and impact assessment of natural and man-made hazards in urban areas, urban social studies, urban ecology, urban climatology, air quality, as well as data fusion, algorithms and techniques for remotely sensed data interpretation, and multisource remote sensing data will be approached.

organized by

RSLab

FORTH
FOUNDATION FOR RESEARCH AND TECHNOLOGY - HELLAS
INSTITUTE OF APPLIED AND COMPUTATIONAL MATHEMATICS

in collaboration with

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Tuesday May 16	
8.30-9.00	Registration
9.00-10.30	Tutorial 1. Google Earth Engine - Noel Gorelick (Seminar Room A)
9.00-10.30	Tutorial 2. EnMAP-Box - Andreas Janz (Seminar Room B)
10.30-11.00	Break
11.00-12.30	Tutorial 1. Google Earth Engine - Noel Gorelick (Seminar Room A)
11.00-12.30	Tutorial 2. EnMAP-Box - Andreas Janz (Seminar Room B)
12.30-14.00	Lunch
14.00-15.30	Tutorial 3. DART model - Jean-Philippe Gastellu-Etchegorry (Seminar Room A)
14.00-15.30	Tutorial 4. Geohazards Exploitation Platform - Michael Foumelis (Seminar Room B)
15.30-16.00	Break
16.00-17.30	Tutorial 3. DART model - Jean-Philippe Gastellu-Etchegorry (Seminar Room A)
16.00-17.30	Tutorial 4. Geohazards Exploitation Platform - Michael Foumelis (Seminar Room B)
17.30-19.00	Ice Breaker (including Registration)

Wednesday May 17		
8.30-9.00	Registration	
9.00-9.30	Opening and Welcome Session (Concert Hall)	
9.30-10.30	Advancing AI for Urban Sustainability - Gustau Camps-Valls (Concert Hall)	
10.30-11.00	Break	
11.00-12.30	Special Session 1. Deep learning approaches for multi-temporal and multi-modal data processing and analysis for urban areas (Concert Hall) - Chairs: Jonathan Weber and Sylvain Lobry	
	PID & Title	*Presenter*
	12. Pseudo Features Guided Self-training for Domain Adaptive Semantic Segmentation of Aerial Images	Fahong Zhang
	30. Exploring inference of a land use and land cover model trained on MultiSenGE dataset	Romain Wenger
	47. Building Usage Classification Using a Transformer-based Multimodal Deep Learning Method	Wen Zhou
	78. Investigating Imbalances in SAR and Optical Utilization for Multi-Modal Urban Mapping	Sebastian Hafner
	89. Time Series Analysis of Urban Liveability	Alex Levering
	100. A smoothing layer for SAR image semantic segmentation with fully convolutional networks	Erchan Aptoula
11.00-12.30	Session 1. Urban planning and socioeconomics (Experimental Stage) - Chairs: Hannes Taubenböck and Monika Kuffer	
	PID & Title	*Presenter*
	15. Spatial Accessibility to Hospitals for Informal Settlement Dwellers in Three sub-Saharan Cities	John Friesen
	56. Towards Impactful Applications of AI4EO in the Global South	Isabelle Tingzon
	95. Exploring the link between socio-economic and physical structure in cities to inform heat adaptation options: the case of Stuttgart	Angela Wendnagel-Beck
	104. Association between three-dimensional urban form and depression	Tzu-Hsin Karen Chen
	115. Shining a light on Dar es Salaam - 1992 to 2020: utilizing nightlight intensity data as a tool for modelling rapid urban growth patterns	Ella McCoshan
	118. Investigating Self-Build Densification and Growth within Informal Settlements using the Informal Development Stages Framework	Jota Samper
12.30-14.00	Lunch	

Wednesday May 17		
	Poster Session 1	
	PID & Title	*Presenter*
	11. The 'ghost city' phenomenon in China: mapping and categorization at intra-urban scale	Hannes Taubenböck
	13. Comparing SAR X and L bands to map the urban extent in a metropolis of South America. The potential of multitemporal data	Antonietta Sorriso
	20. Raster Representation of Ground Motion Service Data and Automated Hot-Spot Detection	Katrin Krzepek
	22. Identification and mapping of areas and buildings with high roof greening potential	Daniel Navarro
	26. Urban Land Cover Classification from Sentinel-2 Images with Quantum-Classical Network	Fan Fan
	36. Indoor LiDAR Point Clouds Upsampling for Object Detection Enhancement	Jonathan Li
	38. Geolocation of a panoramic camera by reference pairing	Chahine-Nicolas Zede
	40. Development of a Deep Urban Time Series Using Historical Aerial Photos to Document the Evolution of Recreational Urban Spaces	Sasha Mullally
14.00-15.30	41. Oriented aircraft object detector using YOLOv4 on very high resolution satellite and synthetic datasets	Benjamin Palmaerts
	42. From DL approach conception to operational product design: identifying roof materials for policy makers	Coraline Wyard
	48. Linking remote sensing data and online engagement in flood events in Nigeria	Johannes Mast
	51. Urban structures retrieved by satellite imagery correlate with socio-economic household data. Insights from the City of Kigali, Rwanda	Andreas Braun
	54. Climate change will exacerbate demographic challenges for urban planners	Friedemann Roy
	55. Vertex Aided Building Polygonization from Satellite Imagery Applying Deep Learning	Yajin Xu
	59. Spatial-Temporal Analysis of Urban Green Space and the Impact on Land Surface Temperature of Beijing, China	Yue Zeng
	62. Efficiency of CNNs for Building Extraction: Comparative Analysis of Performance and Time	Dorothee Stiller
	64. Direct Window-to-Wall Ratio Prediction Using Deep Learning Approaches	Xiangyu Zhuo
	87. Nationwide Monitoring of Urban Surface Motion in Greece using GEP SNAPPING Online Service	Michael Foumelis
	120. RSLab Global Land Surface Albedo from MODIS	David Parastatidis
15.30-16.00	Break	
	Session 2. Urban form characterization and dynamics (Concert Hall) **- Chairs: Anne Puissant and Eleanor Stokes**	
	PID & Title	*Presenter*
	9. Semi-supervised segmentation of individual buildings from SAR imagery	Qingyu Li
16.00-17.15	29. Categorizing urban areas into "core", "fringe", and "periphery" based on the built-up morphology	Ines Standfuß
	67. Multimodal Co-learning: A Domain Adaptation Method for Building Extraction from Optical Remote Sensing Imagery	Yuxing Xie
	74. Feature-Level Based Hyperspectral and Lidar Data Fusion for Urban Analysis	Agnieszka Kuras
	77. Multi-temporal recognition of built-up area and land cover changes using machine learning approach in the Metropolis of Aix-Marseille-Provence in France	Sébastien Gadal

Wednesday May 17		
	Special Session 2. GeoAI for Monitoring Rapid Urbanization Processes (Experimental Stage) - Chairs: Claudio Persello and Monika Kuffer	
	PID & Title	*Presenter*
16.00-17.15	19. Unraveling global multifaceted urbanization-land-energy-air nexus based on Earth Observation	Yunyu Tian
	70. Detecting challenging urban environments using a few-shot meta-learning approach	Thomas Stark
	86. Establishing an operational and continuous monitoring of global built-up surfaces with the Copernicus Global Human Settlement Layer	Thomas Kemper
	94. Mapping the Invisibles: Global Urban Inequalities through Night Lights	Angela Abascal
	102. Using CNNs on Sentinel-2 data for road traffic noise modelling	Jeroen Staab
17.15-19.30	Cultural Tour	

Thursday May 18		
8.30-9.00	Registration	
9.00-10.00	Municipality of Heraklion towards the challenge of Sustainable Urban Development on the horizon of 2030 - Ioannis Anastasakis (Concert Hall)	
10.00-10.30	Call to contribute to the IPCC Special Report on Cities and Climate Change in the 7th Assessment Cycle - Karen Seto (Concert Hall)	
10.30-11.00	Break	
11.00-12.30	Poster Session 2	
	PID & Title	*Presenter*
	23. Seasonal semi-supervised domain adaptation for linking population studies and Local Climate Zones	Basile Rousse
	30. Exploring inference of a land use and land cover model trained on MultiSenGE dataset	Romain Wenger
	65. Learning General Representations for Semantic Segmentation and Height Estimation from Remote Sensing Images	Wufan Zhao
	68. Multiple regression model for estimating vertical characteristics of built-up areas at 100 m resolution from open and global Digital Elevation Models	Thomas Kemper
	71. Innovative Soil Sealing products around the Mediterranean sea	Antoine Masse
	72. Revealing landslisde exposure of informal settlements in Medellín using Deep Learning	Thomas Stark
	83. Weakly-Supervised Semantic Segmentation of Airborne LiDAR Point Clouds in Hong Kong Urban Areas	Qiaosi Li
	85. Image-based measurement of clear sky radiation distribution from 0 to 5000 meters above sea level	Jairo Acuna Paz y Miño
	91. Correlation between remotely sensed solid waste on streets and socioeconomic class of an urban area	Yrneh Zarit Ulloa Torrealba
	98. Are citizens' perceptions on urban green spaces influenced by their immediate environment? the case of Grand Nokoue, Benin Republic	Marta Sapena
	99. An Improved Method for Analyzing Three-Dimensional Human Walking	Aya Otahara
	103. On the use of remote sensing and modeling techniques for urban heat detection, an operational study	Mario Al Sayah
	105. Change detection from Remote Sensing imagery based on the Tasseled Cap Transformation applied to the region of Oran	Mohammed Amine Riffi
	106. Thermal anomalies and crustal deformation related to the November 26, 2019, Albania (Durrës) earthquake	Sofia Peleli
	110. The contribution of InSAR deformation time series for geohazard in urban environment for HARMONIA project	Christian Bignami

	Thursday May 18	
	111. The impact of the impervious surfaces and the condition of vegetation on the land surface temperature in urban centers on the example of Wloclawek, Poland	Aleksandra Łęczek
12.30-14.00	Lunch	
14.00-15.30	Student Contest Session 1 (Concert Hall) - Chairs: Clément Mallet and Monika Kuffer	
	PID & Title	*Presenter*
	5. Mapping built-up area: combining Radar and Optical Imagery using Google Earth Engine	Soukaina Tayi
	10. A nationwide dataset of building features for Germany	Fengxiang Guo
	14. Polygon-based mapping of photovoltaic systems and estimation of energy generation potential	Qipeng Mei
	23. Seasonal semi-supervised domain adaptation for linking population studies and Local Climate Zones	Basile Rousse
	33. From Relative to Absolute Heights in SAR-based Single-Image Height Prediction	Michael Recla
14.00-15.30	Special Session 3. Urban Thermal Remote Sensing (Experimental Stage) - Chairs: Zina Mitraka and Will Morrison	
	PID & Title	*Presenter*
	17. Monitoring LST at canyon scale for urban micro-climate applications: in-situ, simulation and airborne data comparisons	Laure Roupioz
	53. The Intensity of Surface Urban Heat Islands in the Global North during the COVID-19 Lockdowns	Panagiotis Sismanidis
	63. Surface and canopy-layer urban heat island intensities in Europe – Quantifying differences in the diurnal cycle for three summer periods	Joy Apfel
	96. Local scale surface temperature estimation by downscaling satellite thermal infrared observations using neural networks	Maria Gkolemi
	107. Remote Sensing and In-situ Data Analysis for the Urban Heat Island Effect and Land Surface Temperature in the Vertical Forest area ('Bosco Verticale'), in Milan city	Nerantzia-Julia Tzorzi
	122. Seasonal and diurnal variation of urban park surface temperatures and park cooling effects in different cities	Matthias Roth
15.30-16.00	Break	
16.00-17.15	Student Contest Session 2 (Concert Hall) - Chairs: Hannes Taubenböck and Nektarios Chrysoulakis	
	PID & Title	*Presenter*
	37. Evaluation of Urban Weather Generator for air temperature and urban heat islands simulation over Toulouse (France)	Hiba Hamdi
	49. Impacts of Altered Human Activities due to COVID-19 Lockdown on Air Pollutants and Land Surface Temperatures across European Cities	Patricia Glocke
	50. Advantages of Polarimetry and Interferometry for Semantic Segmentation of Urban SAR Images with Consideration of the Layover	Louis Newman
	58. UCDFormer: Unsupervised Change Detection Using Real-time Transformers	Qingsong Xu
	119. Initial development of the urbisphere urban hyperspectral library: Berlin, Germany	Giannis Lantzanakis
16.00-17.15	Special Session 4. Urban Air Quality (Experimental Stage) - Chairs: Thilo Erbertseder and Lorenza Gilardi	
	PID & Title	*Presenter*
	69. Personal exposure to environmental stressors in different urban residential structures. Linking fieldwork and RS mapping	Ellen Banzhaf
	108. Earth Observation-based analysis of NO_2 air pollution and settlement growth in megacities	Thilo Erbertseder

Thursday May 18		
	112. Global Air Pollution Data for Health Risk Assessments in Lombardy, Italy	Lorenza Gilardi
	113. Enhancing air quality data from multiple platforms towards geospatial health-related information in the intra-urban environment	Eleni Athanasopoulou
	121. Dynamic changes in urban form and function affect Carbon Dioxide Fluxes in a Mediterranean city	Konstantinos Politakos
17.15-18.15	Climate resilient development in the city: Pathways and barriers identified in the IPCC WGII AR6 report - Lisa Schipper (Concert Hall)	
18.15-19.00	Visit to HECMAS Flux Tower	
19.00-22.00	Gala Dinner (including Student Contest Results Announcement)	

Friday May 19		
9.00-9.30	Registration	
9.30-10.30	GEO's eye on the cities - Evangelos Gerasopoulos (Concert Hall)	
10.30-11.00	Break	
11.00-12.30	Special Session 5. Urban remote sensing for the Global South (Concert Hall) - Chairs: Tais Grippa and Stefanos Georganos	
	PID & Title	*Presenter*
	4. Spatiotemporal dynamics of slum populations in Caracas, Venezuela	John Friesen
	16. Mapping intra-urban development trajectories in Nairobi, Kenya	Jasper van Vliet
	46. Integrating multi-source remote sensing data for monitoring urban development in West Africa	Marta Sapena
	57. Mapping urban deprivation from Sentinel 1/2 using artificial intelligence and weakly labelled data	Taïs Grippa
	76. Mapping Urban Population Growth from Sentinel-2 MSI and Census Data using Deep Learning: A Case Study in Kigali, Rwanda	Sebastian Hafner
	101. IDeaMapSudan: Geo-Spatial Modelling of Urban Poverty	Monika Kuffer
11.00-12.30	Special Session 6. Promoting Urban Resilience through Methodologies and Tools Deploying Earth Observation Data (Experimental Stage) - Chairs: Giorgos Somarakis and David Ludlow	
	PID & Title	*Presenter*
	3. Extraction of collapsed buildings in Minami-Aso Village due to the 2016 Kumamoto earthquake based on LiDAR data	Fumio Yamazaki
	73. Towards Digital-Twin solutions for the 15 minute city	David Ludlow
	75. Exploiting Copernicus Core Services for Assessing the Surface Urban Heat Island Intensity	Thomas Esch
	82. InSAR Ground Motion Mapping in Support of Urban Resilience and Regional Landscape Planning	Jan Kolomazník
	97. Assessment of the human heat vulnerability of different Local Climate Zones in Lahore: Coupling remote sensing and socioeconomic data	Nimra Iqbal
	103. On the use of remote sensing and modeling techniques for urban heat detection, an operational study	Mario Al Sayah
12.30-14.00	Lunch	
14.00-15.30	Session 3. New data, algorithms and techniques for urban remote sensing (Concert Hall) - Chairs: Sébastien Lefèvre and Taïs Grippa	
	PID & Title	*Presenter*
	7. Multilingual Augmentation for Robust Visual Question Answering in Remote Sensing Images	Zhenghang Yuan
	25. Long-tailed Regression with Ensembles for Monocular Height Estimation from Single Remote Sensing Images	Sining Chen

Friday May 19		
	32. A multi-objective deep learning based approach for SAR image reconstruction in urban environment	Vito Pascazio
	43. AI4GEO: LOD0 Generation for 3D building models	Sara Akodad
	88. Multi-layer Thematic Map Representation for Urban Understanding	Xiangtian Yuan
	116. Sub-pixel Material Fraction Mapping in the UrbanScape using PRISMA Hyperspectral Imagery	Dimitris Poursanidis
14.00-15.30	Special Session 7. EO for integrated risk assessment, urban adaptation towards Climate Change and Sustainable Urban Development (Experimental Stage) - Chairs: Julia Nerantzia Tzortzi and Stefano Salvi	
	PID & Title	*Presenter*
	18. High-resolution monitoring to infer the dynamics of different ecosystem services in a fast-growing city	Ellen Banzhaf
	27. Parallel Acquisition of Airborne and Satellite Nighttime Datasets over Oldenburg	Thomas Krauß
	28. Surface thermal effects of parks in Mediterranean cities: an investigation under typical summer conditions, heatwaves and droughts	Ilias Agathangelidis
	114. Geoinformatics for Caribbean hurricane risk management and improved community resilience	Richard Teeuw
	123. Green Transition from Space: actionable information to support Sustainable Cities planning	Francesca Elisa Leonelli
	124. Integrating Earth-Observation services to improve the resilience of Milan urban area towards Climate Change within HARMONIA project	Julia Nerantzia Tzortzi
15.30-16.00	Break	
16.00-17.15	Session 4. Urban climatology and ecology (Concert Hall) - Chairs: Jean-Philippe Gastellu-Etchegorry and Constantinos Cartalis	
	PID & Title	*Presenter*
	52. Assessing the phenology of urban trees: a comparison of in-situ and optical remote sensing datasets	Clément Bressant
	66. Opposing land surface and air temperatures from remote sensing and Citizen Science for quantification of the Urban Heat Island effect	Tobias Leichtle
	81. Tree species mapping in the Brussels Capital Region using deep learning and data fusion	Robbe Neyns
	93. DART: a 3D radiative transfer model for urban studies	Jean-Philippe Gastellu-Etchegorry
	117. A web-based tool for supporting USM in Heraklion	Emmanouil Panagiotakis
16.00-17.15	Special Session 8. Future settlement growth modelling with EO products (Experimental Stage) - Chairs: Felix Bachofer and Andreas Rienow	
	PID & Title	*Presenter*
	31. Modeling Future Urban Expansion based on Global Settlement Products – A Comparative Study	Andreas Rienow
	35. The Potential of Sentinel-2 Data for Global Building Footprint Mapping with High Temporal Resolution	Jonathan Prexl
	44. Preliminary Study of Urban Land Use Classification Using Historical Aerial Photos and AI Technology	Yun Zhang
	60. Settlement Growth Prediction exploiting EO-based Time Series with the Spatio-Temporal Matrix Approach: a Case Study for the City of Hue, Vietnam	Felix Bachofer
	61. LSTM models for spatiotemporal extrapolation of population data	Christian Geiß
17.15-17.30	Closing Session (Concert Hall)	

Conference Chair
Dr. Nektarios Chrysoulakis, FORTH
http://rslab.gr

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