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## Foreword to the European journal of remote sensing special issue: urban remote sensing – challenges and solutions

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## Foreword to the European journal of remote sensing special issue: urban remote sensing – challenges and solutions

This special issue features a collection of ten contributions focusing on urban remote sensing applications. This special issue reflects the thematic diversity and variety of urban remote sensing applications and underlines the importance of this research field. Based on the 5<sup>th</sup> EARSeL Joint Workshop “Urban Remote Sensing – Challenges & Solutions” held in Bochum, Germany in 2018 the participants were invited to contribute to this special issue. The EARSeL Joint Workshop is a new format that was first initiated in 2006 in Berlin, Germany. Further EARSeL Joint Workshops followed in 2008 in Bochum, Germany, 2010 in Ghent, Belgium, 2012 in Mykonos, Greece and 2014 in Warsaw, Poland. The composition of the participating EARSeL Special Interest Groups varied from workshop to workshop. For 2018 the EARSeL Special Interest Groups Urban Remote Sensing, 3D Remote Sensing, Developing Countries and Radar Remote Sensing agreed to organize this workshop together.

High resolution data are a valuable source for urban and suburban areas and can deliver information in high geometric and semantic quality for various cities and urban agglomerations around the world. Due to accelerating urban sprawl and increasing urban population more and more topics arise where remote sensing is able to support planning and other public duties. It also helps to analyse unplanned developments, investigate climate change drivers and can help in risk mitigation plans. For these topics satellite images with very high resolution (VHR) are of great importance. Since 1999 with the first commercial VHR satellites more and more sensor systems came into orbit and offer a wide variety of different image options. Information extraction can be done in 2D and also in 3D.

Parallel to the VHR imagery one also observes studies over large areas with rather coarse pixel sizes. The selection of imagery obviously is connected to the scale of the problem under investigation. This is a traditional geographic approach to select the needed data according to the needed scale.

For this special issue the following topics are included:

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Geo-spatial text-mining from Twitter – A feature space analysis with a view towards building classification in urban regions  
Estimating urban population patterns from stereo-satellite imagery  
SUSM: A scenario based urban growth simulation model using remote sensing data  
Forest management and sustainable urban development in the Curonian Spit  
Detection of illegal constructions in urban cities: comparing LIDAR Data and Stereo KOMPSAT-3 images with development plans  
The continuous built up area extracted from ISS night-time lights to compare the amount of urban green areas across European cities  
Textural segmentation of remotely sensed images using multiresolution analysis for slum area identification  
DSM-based identification of changes for urban planning in highly dynamic urban agglomerations  
Cross-track satellite stereo for 3D modelling of urban areas  
Size distributions of slums across the globe using different data and classification methods

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It is hoped that this issue can be useful for the remote sensing community and many other scientific communities, both contributing with state-of-the-art researches and possibly stimulating new investigations on the same or similar topics.

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