

Call for Papers, theme issue on:

INNOVATIVE APPROACHES, TOOLS AND VISUALIZATION TECHNIQUES FOR ANALYZING LAND USE STRUCTURES OF CITIES AND REGIONS

Guest Editors: Robert Hecht, Martin Behnisch and Hendrik Herold

Sustainable land use development is a pressing challenge all over the world. As the world's population will continue to grow and more and more people will be living in cities, land as a limited resource must be treated with particular care. Agricultural land is of enormous importance for securing food supply. The forest areas, for example, provides habitats for millions of species and are an important producer of clean air and water, and play a crucial role in combating climate change.

Today we are experiencing unprecedented soil degradation and the loss of arable land by 30 to 35 times higher than historical rates. Drought and desertification are increasing every year, impoverishing the population and leading to the extinction of endangered animal and plant species. The SDGs established by the UN aim to preserve and restore the use of terrestrial ecosystems such as forests, wetlands, arid areas and mountains by 2020. Stopping deforestation is also an important prerequisite for mitigating the effects of climate change. Measures must be taken urgently to reduce the loss of natural habitats and biodiversity, which are part of our common heritage.

All this requires a responsible land policy with many good and creative ideas, innovative instruments, meaningful measures and powerful actors at all decision-making levels. Spatial modelling and visualisation of land use and its dynamics by means of suitable indicators plays a central role, because they provide basic information for good and meaningful decisions. Only in this way, the gradual land change, such as caused by urban sprawling, can be brought into the consciousness of citizens and politicians. The demands on the quality and availability of spatial data and information services are constantly increasing, and innovative geoinformation technologies and the processing of large amounts of data (Big Data) lead to new challenges.

Introducing and discussing innovative approaches, tools and visualization techniques for analyzing land use/cover structures and their changes in cities and regions is the goal of this Special Issue initiated in conjunction with the International Land Use Symposium held in Dresden, Germany (<http://ilus2017.ioer.info>). It is aimed at academics in the fields of spatial sciences, information sciences, computer science, environmental studies, geography, cartography, GIScience, urban planning and architecture. Contributions focus on the question how recent developments in spatial analysis and visualization can lead to better tools and decision support for urban and landscape planning. The Special Issue is open for contributions related but not limited to the **following topics**:

- Land use/cover mapping and updating
- Multi-scale representation of land use/cover
- Modelling urban sprawl/urban growth
- Visualization of land use/cover dynamics
- Detection and characterization of land use/cover patterns
- Decision support tools for land use planning
- Effectiveness of planning instruments
- Big Data in urban planning and management
- VGI and participation tools in spatial planning
- Mapping and Assessment of Ecosystems and their Services
- Nature-based solutions for sustainable urban development

April 30, 2018: Deadline of final paper submission (according to Springer manuscript guidelines).

Please direct any questions regarding the Special Issue to one of the guest editors:

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