INTERNATIONAL JOURNAL OF REMOTE SENSING
SPECIAL ISSUE ON
SPATIAL INFORMATION RETRIEVAL, ANALYSIS, REASONING AND MODELLING
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Data related to various natural, anthropogenic and socio-economic phenomena are now available in numerous formats, most significant of which is spatial data that facilitate visualization at spatio-temporal intervals. Availability of such data from a wide range of sources in a variety of formats poses challenges to Geographic Information Science (GISci) community. The utility and application of such data could be substantially enhanced through developments in technologies related to:

- ❑ **Retrieval**: Retrieval of noise-free information in the forms of themes (layers) from data requires robust image processing, spatial information theory techniques.
- ❑ **Analysis**: Once theme-specific layered information is retrieved, techniques are required to analyse themes.
- ❑ **Reasoning**: Theme specific layered information need to be integrated via spatial relationships and reasoning. Certain map algebraic concepts are of use.
- ❑ **Modelling**: Spatio-temporal behaviour of a phenomenon needs to be visualized

Much success has been achieved in the proper usage of data by addressing the above four aspects by individual groups. It is now at understandable level and there are overlaps between the concepts that emerged from different fields to deal with the above four aspects. In light of these overlaps, there exist demands to choose appropriate mathematical techniques that can offer robust solutions. As it stands, there are various techniques (e.g. mathematical morphology, fuzzy set theory, rough set theory, granular computing, map algebra) to address the challenges.

The motivation to propose this IJRS special issue stems from the following observation. For groups, which are familiar with both spatial information theory and theories involved in digital image processing and analysis, most of these ideas are quite familiar. But, surprisingly there has been little interaction between the groups respectively familiar with image processing and spatial information theory. This special issue is intended to serve as a forum for bringing together specialists in those two groups and facilitate interaction**.

Papers Invited

Papers **with clear and strong remote sensing component** are invited in the areas of, but not limited to, applications of advanced spatial techniques—mathematical morphology, rough set theory, fuzzy set theory, fractal geometry, data mining, evolutionary computing, digital image processing, granular computing, map algebra etc—in (i) information retrieval from spatial data (e.g. remotely sensed data, maps etc), (ii) analysis and characterization of retrieved information, (iii) reasoning of spatial information across spatial/spectral scales and also across temporal scales, and (iv) usage of noise-free layered information in spatio-temporal modelling.

Specific topics under these four tracks include: scaling and multiscaling, spatial information retrieval, feature detection and distribution, spatial complexity analysis, applications of mathematical morphology, fractal geometry, rough set theory, fuzzy set theory, evolutionary computing, and data mining concepts in spatial analysis, reasoning, theme extraction and classification/segmentation, multiscale convexity analysis for segmentation and spatial complexity analysis, shape description—complexity analysis, space decomposition, spatial interpolations and extrapolations, morphologic modelling and simulation, geodesic modelling—simulation and modelling, derivation of object properties, network pruning, map algebra, automatic zonation, conversion of clustered point data into spatial objects, generation of convex hulls for binary and greyscale objects and fields, multiscale convexity analysis, fractal and multifractal analysis, transformation of statistical summaries into visual fields/objects, uncertainty analysis, closing function to convert clustered points into zones, landscape simulations.

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4) Corresponding Author should choose 'Special Issue Paper' from the 'Manuscript Type' picklist, even if you think it is a Research Letter, Tech Note, Research Paper, or Review Article. If you don't, you will be Asked by Editorial staff to do it all over again.
5) Corresponding Author should enter the name of the Special Issue in the box provided. 'Spatial Information Retrieval ' will be enough.

Deadline to Submit Manuscripts for this Special Issue: 30th May 2009.

Please follow the above five points carefully by specifying clearly that this paper is meant for special issue on "Spatial Information Retrieval...". Once Corresponding Author submits the paper successfully, the paper would be assigned by Editor-In-Chief to Dr. Sagar or to Prof. Jean Serra to conduct the review process. If potential authors require any further information or help at any stage, please write to one of the Guest Editors.

Guest Editors

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