Special Session Proposal

Title: Land Cover Analysis from Remote Sensing Images

Land cover refers to the type of feature on the Earth's surface. Detailed information about land cover types is crucial for various planning and management activities. An accurate assessment of the land cover is a valuable input to the planners and resource managers in understanding the influence of human activities on the environment and thereby reacting appropriately.

Remote sensing datasets provide a large area synoptic view of the Earth's land cover with frequent temporal coverage. Hence, it serves as a significant asset for their characterization. These datasets are broadly categorized according to the electromagnetic spectrum, viz., multi-spectral, hyperspectral, and microwave. Each modality has its advantages and limitations regarding the land cover analysis. Land cover analysis with multi-spectral images relies on spectral reflectance properties of objects widely exploited for various land cover analyses. Hyperspectral data have contiguous spectral bands throughout the spectrum and image the Earth's surface in extraordinary detail across a large frequency range. These datasets are helpful in surface mineralogy mapping, water quality assessment, vegetation condition monitoring, crop-type classification, forest species mapping, etc. In addition, microwave remote sensing datasets are also valuable in several land cover analyses. Microwave data corresponds to information obtained by the sensors operating at the longer wavelength region of the electromagnetic spectrum. The backscatter intensity at different polarization can be suitably utilized for various land cover characterization. Studies regarding built-up area mapping, agriculture, forest, wetlands, and ocean applications can be performed owing to their sensitivity to geometry, roughness, density, height, and dielectric properties.

Several naive and sophisticated segmentation, classification, and regression algorithms have been developed to analyze these multi-source, multi-scale, high-dimensional, remotely sensed data for various land cover studies. This session will provide a chance to discuss the challenges and opportunities of analyzing Earth observation data among researchers across the globe.

Themes:
1) Remote sensing data for land cover characterization.
2) Land use land cover dynamics using remote sensing techniques.
3) Remote sensing applications to urban environment monitoring.
4) Remote sensing techniques for sustainable agriculture.
5) Big Data in Remote Sensing

6) Machine Learning and Deep Learning techniques in remote sensing for land cover characterization.

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