**FUSION OF OPTICAL AND SAR IMAGES FOR THE ENHANCEMENT OF URBAN FEATURES**

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**ABSTRACT**

Over the years, the image fusion has become a very valuable approach for the integration of optical and microwave data sets. It has been found that the images acquired at different ranges of electro-magnetic spectrum provide unique information when they are integrated. Now image fusion based on the integration of optical and microwave data sets, is being efficiently used for the interpretation, enhancement and analysis of different land surface features. It is evident that a combined use of the optical and SAR images will have a number of advantages because a specific feature which is not seen on the passive sensor image might be seen on the microwave image and vice versa because of the complementary information provided by the two sources.

The aim of this study is to evaluate and compare such data fusion techniques as Brovey transform, Gram-Schmidt method, principal component analysis, modified intensity-hue-saturation method, wavelet-based method and Elhers fusion for the enhancement of spectral variations of different urban land cover types which represent a unique overview of modern and nomadic cultures. As a test site, Ulaanbaatar, the capital city of Mongolia has been selected. As data sources, multispectral Lansat image as well as polarimetric Envisat synthetic aperture radar (SAR) data of 2011 have been used. The actual analysis was carried out using PC-based ERDAS Imagine 10.1 and ENVI 4.9.

Presenter: Prof.D.Amarsaikhan

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