**FOREST RESOURCES MAPPING IN MONGOLIA USING MULTISOURCE IMAGES**

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**ABSTRACT**

Forest is a very important natural resource that plays a significant role in keeping an environmental stability, ecological balance, environmental conservation, food security and sustainable development in both developed and developing countries. In recent years, deforestation and forest land degradation have become the main concern for forest specialists and ecologists as well as policy and decision-makers dealing with the environment.

It has been found that much of the existing forests have been destroyed, mainly by shifting cultivation, timber preparation, legal and illegal logging, forest fires and increased number of people involved in agricultural activities. To protect and conserve the deteriorating forest, there are needs to conduct thorough planning and management. For rapid planning and management, one needs very accurate and real-time spatial information. Although, such information can be collected from many different sources, the most reliable source that could provide data for the real-time analysis might be remote sensing (RS).

The aim of this research is to conduct forest resources mapping using optical and microwave RS images. For this purpose, a test site located in northern Mongolia has been selected. As RS data sources, visible and infrared bands of Landsat ETM+ data with a spatial resolution of 28m and ALOS PALSAR L-band HH polarization data with a spatial resolution of 25m and SAR coherence data were used. To produce a land cover map from the multisensor images, two different parametric classification methods have been applied and the results were compared. For the accuracy assessment an overall accuracy was used selecting more randomly distributed pure pixels. Overall, the study demonstrated that the combined of optical and radar images could be successfully used for forest resources mapping.