Spectral signatures in Landsat 8 OLI image and their interpretation for land cover study

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Abstract

Spectral signature is defined in general as characteristics of surface objects in transmit absorption and reflection of electromagnetic radiation. Spectral signature is expected stable unique for given surface material. Spectral signature has been used long time for object detection and classification. The Landsat 8 OLI image data with 6 reflective bands and 30 m spatial resolution is very excellent data source for land cover mapping in both local and global scale. Due to very huge data volume automation of data analysis is crucial if land cover map is to be achieved in short time. In this paper the authors introduce a concept to use modulation of spectral signatures for automated land cover classification. The first step in this concept is to understand correctly meaning of each modulation of spectral signature and its relation to land cover class. Three Landsat 8 OLI images over Vietnam in 2013 and 2014 have been used in this research. Ground GPS field photos were collected to support this study.