

Challenges in estimating biophysical properties of landscape from remotely sensed imagery

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Abstract

Remotely sensed imagery has been used in numerous applications to estimate biophysical attributes of terrestrial land surfaces. The fundamental theory is that surface properties such as vegetation type, density, structure, soil texture, organic matters, soil water content etc. have unique spectral characteristics as observed by remote sensors. In other words, remotely sensed surface reflectance or emitted energy is a function of a combination of biophysical properties of a landscape. When considering variable atmospheric conditions at the time of remote sensing imaging, the observed reflectance is dependent upon both surface properties as well as atmospheric characteristics. This complexity creates challenges in remote estimation of biophysical properties of a landscape through inversion. The inverse problem in remote sensing may be addressed through approximation but presents a real challenge in a broad use of remotely sensed data in terrestrial applications. This presentation will discuss the nature of remote sensing imagery and the challenges the remote sensing community is facing.