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A PRELIMINARY STUDY ON MECHANISM OF LAI INVERSION SATURATION

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Abstract. Many parameters, such as albedo, vegetation index and leaf area index (LAI) inversed from satellite images, often get saturated when the surface vegetation cover reaches a certain high level. In order to analyze the saturation phenomena in parameter inversion, we analyze the changing of canopy reflectance and backscattering with increasing of LAI through PROSAIL and MIMICS model respectively. The results show that the canopy reflectances get saturated when LAI exceed 3, and the crown backscatters have strong relationship with biomass, which changes at various incident angles and frequencies. When LAI>3, the reflectance variations between red band and near-infrared band were no longer obvious with the vegetation growing, which directly leaded to the vegetation indices and LAI saturation. This paper is an exploratory research about the LAI saturation, and the reducing saturation methods still need further studies.

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