



Remote Sensing

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Remote Sensing of Vegetation

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Vegetation is a vital component of the Earth's systems as it is involved in many interactions between the biosphere, atmosphere, hydrosphere, and lithosphere. More particularly, vegetation plays a key role in Earth's biogeochemical cycles and surface energy balance, converting solar energy to biomass to support the food chain, oxygen production and carbon sequestration, soil development and erosion prevention, heat control, and many other benefits to the humans and environment. Accordingly, mapping vegetation dynamics is significant for many interdisciplinary/multidisciplinary studies and making decisions that directly or indirectly support the United Nations SDGs. Furthermore, time-series monitoring deepens our understanding of vegetation response to anthropogenic activities and natural processes from a climate change perspective. Over recent decades, advances in remote sensing, in conjunction with statistical and machine learning algorithms and powerful cloud computing platforms, have enabled efficient mapping and monitoring of the vegetation. The possibility of acquiring remote sensing data from different sensor sources (e.g., multispectral, SAR, LiDAR, and thermal) and with different spatial, temporal, and radiometric characteristics has created unprecedented opportunities to study vegetation dynamics. This Reprint discusses the application of remote sensing data for vegetation mapping, monitoring, and analysis of change drivers.



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