



## Estimating Vegetation Biomass and Carbon Stock Using Remote Sensing

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### Message from the Guest Editor

Earth's vegetation plays a major role in the global carbon cycle. Vegetation biomass stores carbon in long-lived woody pools, but also in the form of humus in the soil. Tropical forests have very abundant vegetation; however, they are often exposed to deforestation and, generally, their soils cannot store a large amount of carbon. Temperate and boreal forests, with less biomass and biodiversity, store a larger quantity of carbon in the soil. Meadows, savannas, and even sparse canopies of semi-desert regions significantly contribute to the global stock of carbon, although their content in vegetation is rather low.

A multitude of retrieval models have been developed, based on either empirical regression techniques, physical-based mathematical models, or machine learning algorithms. The availability of a wide range of observations from space, including LiDAR and P-band SAR, are expected to provide more detailed information regarding vegetation biomass and the vertical structure of tall canopies. Combining multi-source remote sensing measurements and models could give improved answers to the demand for spatially explicit estimates of vegetation biomass and carbon stock.





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