



## Data Fusion for Improved Forest Inventories and Planning

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### Message from the Guest Editors

The utilization of several sources of remotely-sensed data and field data that may differ in spatial resolution, spatial-temporal coverage, correlation with forest attributes, and sensor origins for the assessment of the state and change of forest variables is becoming increasingly popular due to the recent rapid development in remote sensing techniques. In forest inventory and planning, several statistical applications use data fusion. Model-assisted estimation was introduced in the 1990s as a generalized version of classical regression and ratio estimation in design-based inference. Although the technique has been known to statisticians for a long time, the main exploration of the technique for forest inventories is rather recent and due to recent developments in remote sensing. In forest inventories, so far there are only case studies and, thus, not yet any applications in practical forestry. Hierarchical model-based estimation is a newly-introduced method within model-based inference, which facilitates forest inventories in areas where only sparse samples of field data exist by taking advantage of multiple levels of RS data.





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