

Uncertainty Issues in Forest Monitoring: All You Wanted to Know About Uncertainties and Never Dared to Ask

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Abstract

Uncertainties are a composite of errors arising from observations and the appropriateness of models. An error budget approach can be used to identify and accumulate the sources of errors to estimate change in emissions between two points in time. Various forest monitoring approaches can be used to estimate the changes in emissions due to deforestation and forest degradation. Sample-based approaches often combine remotely sensed data with probabilistic field samples to develop design-based estimates. The survey designer must choose between a host of imagery sources, sampling designs, plot designs, allometric models of tree biomass, and estimators. Each choice has implications for uncertainty and cost. We describe three general areas for improvement: 1) inventory planning, sampling design optimization, 2) technological development focused on use of imagery, and 3) tree biomass estimation.

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