Harmonization of pan-tropical biomass maps using an r2-weighted data-fusion approach - a case study for the Amazon biome

Abstract:
Using an R2-weighted data-fusion model two existing above-ground biomass (AGB) maps (Saatchi and Baccini) are combined to derive improved AGB estimates for the Amazon biome. Advantage of this methodology is the increased transparency to hitherto existing approaches and the fact that no AGB reference datasets are necessary for the implementation. Instead, local correlations with independent vegetation cover-related spectral data are analyzed to derive an R2-weighted combination of the input maps. This approach also accounts for vegetation cover changes between the acquisition dates of the input maps. The analysis of three major forest cover types shows a higher consistency with the Baccini map for tropical rainforest (244 t/ha) and tropical mountain forest (269 t/ha), while tropical moist deciduous forest (163 t/ha) is more consistently depicted in the Saatchi dataset. The local harmonization is expected to increase accuracy – but due to missing high-quality AGB reference maps a validation is not yet feasible.

URI:

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