

A comparison of two above-ground biomass estimation techniques integrating satellite-based remotely sensed data and ground data for tropical and semiarid forests in Puerto Rico

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Two above-ground forest biomass estimation techniques were evaluated for the United States Territory of Puerto Rico using predictor variables acquired from satellite based remotely sensed data and ground data from the U.S. Department of Agriculture Forest Inventory Analysis (FIA) program. The U.S. Environmental Protection Agency (EPA) estimated above-ground forest biomass implementing methodology first posited by the Woods Hole Research Center developed for conterminous United States (National Biomass and Carbon Dataset [NBCD2000]). For EPA's effort, spatial predictor layers for above-ground biomass estimation included derived products from the U.S. Geologic Survey (USGS) National Land Cover Dataset 2001 (NLCD) (landcover and canopy density), the USGS Gap Analysis Program (forest type classification), the USGS National Elevation Dataset, and the NASA Shuttle Radar Topography Mission (tree heights). In contrast, the U.S. Forest Service (USFS) biomass product integrated FIA ground-based data with a suite of geospatial predictor variables including: (1) the Moderate Resolution Imaging Spectrometer (MODIS)-derived image composites and percent tree cover; (2) NLCD land cover proportions; (3) topographic variables; (4) monthly and annual climate parameters; and (5) other ancillary variables. Correlations between both data sets were made at variable watershed scales to test level of agreement.

Notice: This work is done in support of EPA's Sustainable Healthy Communities Research Program. The U.S EPA funded and conducted the research described in this paper. Although this work was reviewed by the EPA and has been approved for publication, it may not necessarily reflect official Agency policy. Mention of any trade names or commercial products does not constitute endorsement or recommendation for use.

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