# Vegetation Structure and Biomass from PALSAR, AVINIR-2, and PRISM

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Vegetation structure, in the form of remotely sensed leaf area density (LAD), derives from multibaseline radar intereferometry and hyperspectral or multispectral data. Demonstrations with 6 airborne radar interferometric instantaneous baselines at C-band and airborne hyperspectral data show agreement between remotely sensed and field-measured LAD. Functions of those LADs yielded biomass with no apparent degradation in accuracy up to 300 tons/ha on 11 sites in Central Oregon. The traditionally cited "biomass saturation" was not observed for C-band structural products on which LAD was based. Simple signal-to-noise arguments demonstrate the potential of L- and C-band interferometry for superior biomass sensitivity to that of radar power at those frequencies. Both zero- and finite-baseline repeat track interferometry with PALSAR (HH+HV) will be used to derive relative vegetation density profile information, which will be normalized with leaf area indices derived from AVINIR-2. PRISM topography will also be used to supplement the understanding of vegetation coverage. Demonstrations will be performed over conifer sites in Central Oregon and tropical sites in the Tapajós and Fazenda Cauxai forests in Brazil.