

# ALGORITHM DEVELOPMENT AND VALIDATION METHOROLOGY FOR GCOM-C/SGLI AVOBE GROUND BIOMASS PRODUCT

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Japan Aerospace Exploration Agency (JAXA) will launch new Earth observation satellite GCOM-C in this fiscal year. GCOM-C equips Second-generation Global Land Imager (SGLI) as core sensor. Since SGLI can observe nadir and offnadir angle with along track direction simultaneously, it is expected to retrieve forest Above Ground Biomass (AGB) using bi-directional spectral data.

For the estimation of forest AGB, difference of bi-directional reflectance of each observation angle caused by forest canopy structure will be key information. Authors have been developed basic AGB estimation algorithm for SGLI. This algorithm is based on the empirical model related to the relationship between reflectance shift on the Red-NIR plane for different viewing angle and AGB. Since the algorithm requires the bi-directional reflectance on fixed observation geometry, we have also developed bi-directional reflectance simulator, BiRS, which employ not only sun-target-sensor geometry but also forest structure based on canopy structure model.

In this paper, a preliminary result of ARG estimation using MODIS multipass composite data is described. The preliminary result meets good estimation accuracy on the area that has Biomass validation data. As the result of comparison between NDVI value and normalized AGB shows the fact that NDVI cannot describe forest AGB.

Furthermore, validation plans of SGLI AGB product will be introduced including non-direct AGB measurements using terrestrial / aerial LiDAR and Structure from Motion technology.

Keywords: Second Generation Global Imager (SGLI), Multi-angular observation, Forest canopy, Biomass Estimation