



ESTIMATION OF BIOMASS AND CARBON STOCKS IN RUBBER PLANTATION USING THAICHOTE SATELLITE IMAGERY

Kitsanai Charoenjit (1), Pierpaolo Zuddas (1), and Pascal Allemand (2)

(1) Institut des Sciences de la Terre de Paris (ISTeP, UMR 7193) Université Pierre et Marie Curie, Paris-Sorbonne, Tour 56-55, 4 place Jussieu 75252 Paris cedex 05 France., (2) Laboratoire de Géologie de Lyon, Terre, Planètes, Environnement (LGLTPE, UMR 5276) Université Claude Bernard, Lyon1, bât. GEODE ,2 rue Raphaël Dubois 69622 Villeurbanne Lyon , France.

This goal of study is to improve model for estimate biomass and carbon stocks of rubber plantation (clone RRIM 600) in sub-basin of mae num prae, East Thailand with total area is 232 Km². We mapped 2011 of the biomass and carbon stocks with the used of integrated Thaichote satellite imagery and field data. In order to tree girth prediction and tree density population, we applied the objected based image analysis (OBIA) which include image mining and modeling by linear multiple regression, then estimate biomass and carbon stocks in rubber plantation. The image mining includes spectral, vegetation, textural and mask information for modeling construction. We found an parameters of the Global Environmental Monitoring Index (GEMI) and texture of homogeneity, dissimilarity, contrast and variance were accepted relationship of tree girth prediction with R² 0.865. The total amount of biomass and carbon stocks in study area is 2,227 Kt and 991.5 KtC respectively. For summary of study area, the annual sequestered in 2011 is 121.3 tCO₂ from the atmosphere and the rubber plantation at mature age stage (25 years) had highest capacity of sequestered at 33.53 tCO₂ ha⁻¹ yr⁻¹.