STANDWISE FOREST INVENTORY ESTIMATION USING ALOS PALSAR AND TERRASAR-X DATA

*Min-Gee HONG [a], Hyo-Suk LIM [b], Yoon-Soo KIM [b], Sun-Gu LEE [b], and Choen KIM [*c]*

[a] Graduate Student, Dept. of Applied Information Technology, Kookmin University, Seoul 136-702, Korea, E-mail: hd21351@kookmin.ac.kr

[b] Researcher, Satellite Information Research Center, Korea Aerospace Research Institute, Daejeon 305-806, Korea, E-mail: hslim, younsoo, leesg@kari.re.kr

*[*c] Professor, College of Forest Science, Kookmin University, Seoul 136-702, Korea, E-mail: choenkim@kookmin.ac.kr*

Abstract: As environmental problem of global warming has been an issue globally, an importance of forest; carbon sinks, is being magnified. It caused by that the forest biomass derived from a result of carbon accumulation for long period is an important part of carbon cycle. Currently, the estimation of forest inventory which is related to quantization of forest biomass is based on National Forest Inventory (NFI), but it takes a long time. Therefore, SAR image is more appropriate for Korea to estimate forest resources since Korea has the long rainy season.

HH-polarization SAR image acquired by ALOS PALSAR and TerraSAR-X during the 2010 are used in the study, along with standwise forest inventory data from 57 stands situated in Korea. The average sizes of forest stands at the study were 22ha. Objective of paper therefore is the derivation and validation of forest canopy height models in various forest stands using TerraSAR-X data. The results indicate that there was no clear saturation level in stem volume estimation. In this case study, stem volumes were predicted up to about 310 m^3/ha.

Keywords: TerraSAR-X, ALOS PALSAR, Forest Inventory, Backscattering coefficient, CHM