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Estimating Tree Height and Forest Classification from Multi Temporal Risat-1 HH and HV Polarized Satellite Aperture Radar Interferometric Phase Data

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Abstract : In this paper the height of the tree is estimated and forest types is classified from the multi temporal RISAT-1 Horizontal-Horizontal (HH) and Horizontal-Vertical (HV) Polarised Satellite Aperture Radar (SAR) data. The novelty of the proposed project is combined use of the Back-scattering Coefficients (Sigma Naught) and the Coherence. It uses Water Cloud Model (WCM). The approaches use two main steps. (a) Extraction of the different forest parameter data from the Product.xml, BAND-META file and from Grid-xxx.txt file come with the HH & HV polarized data from the ISRO (Indian Space Research Centre). These file contains the required parameter during height estimation. (b) Calculation of the Vegetation and Ground Backscattering, Coherence and other Forest Parameters. (c) Classification of Forest Types using the ENVI 5.0 Tool and ROI (Region of Interest) calculation.

Keywords : RISAT-1, classification, forest, SAR data
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