

AN APPLICATION OF THERMAL REMOTE SENSING IN DETECTING AND MONITORING TEMPERATURE CHANGE IN DAI TU TEA GROWING AREA, THAI NGUYEN CITY BETWEEN 1990 AND 2015

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ABSTRACT

Nowadays, the demand for tea consumption and export is greatly increasing, the production of tea using the international standard of tea (UTZ) is a mandatory requirement. This paper presents the results of the study on surface temperature determination for tea plantations in Dai Tu district, Thai Nguyen province. The NDVI indicator (normalized difference vegetation index) was used to justify the results by determining the levels of surface thermal reflectance emission. The idea is applied to the heat distribution map with a higher spatial resolution. We conducted a pilot research on two types of high- spatial resolution Sentinel and Landsat satellite imagery, and its result showed the potential applications for agricultural practices. The results were compared with 5 temperature observatory stations corresponding to 5 tea-focused growing areas in Dai Tu district, and error analysis was done in the actual conditions of the study area. The research results of the project may potentially contribute to resolve the problems of detailed determination of meteorological, hydrological, irrigation and soil nutrients to develop tea-specialized areas in Thai Nguyen.

SENTINEL-1A SAR DATA FOR FOREST ABOVEGROUND BIOMASS AND CARBON ACCUMULATION ESTIMATIONS IN THUAN CHAU DISTRICT, VIETNAM

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ABSTRACT

Estimation of aboveground biomass (AGB) and carbon accumulation (CAc) from remote-sensing data is an effective approach to control the carbon emissions in the forested area. This study presents the use of Sentinel-1A SAR data to express retrieval of the spatial variability of AGB and CAc at Thuan Chau districts of Vietnam. From the survey data and forest-covered map in 2015, the regression models were applied in 65 plots to represent the AGB value for each forest-type from mathematical formulation and the performance quality of correlation coefficient (R^2): univariate and multivariate linear regression analysis. With the same remote sensing data were used, the comparison of two methods was chosen to best-fit model to estimate the carbon accumulation accurately. The result of better performing univariate linear regression model ($R^2=0.71$) was more satisfied than the remaining results ($R^2=0.60$). From this comparison, the measurement of carbon accumulation was mainly majority in the extent of evergreen forest in Fold Mountains (72%). This methodology process is an as effective alternative to estimate forest AGB and CAc from remotely sensed data in the tropical region.