

Research on relationship between average evapotranspiration with forest cover change: Case study at The Central Highlands in Vietnam

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Abstract: The Central Highlands is one of the regions of Vietnam. It contains the provinces of Gia Lai, Kon Tum, Dak Lak, Dak Nong, Lam Dong. The impact of forest cover change on average evapotranspiration (ET) of mountainous tropical rain forest area in the Central Highlands was quantified using average ET products and forest cover and change data while the average ET considered in this study are the monthly and annual average ET products in two year 2000 and 2010. The key controls on ET are rainfall interception, net radiation, advection, turbulent transport, leaf area, and plant-available water capacity. We collected forest cover data in 2000 and 2010 from FIPI and it was classified 15 classes. The results from the statistic of monthly and annual average ET with each forest cover class show that good relationship between long-term average evapotranspiration and forest cover. The average ET correlated strongly with each forest cover in each month of one year. The highest average ET values occurred at the mixed and deciduous forest except the open water class with average ET more than 1300 mm/year. The lowest average ET occurred at the agriculture and residential area range from less than 600 mm/year to 850 mm/year. The average ET also changed based on the forest cover change from 2000 to 2010. The present analysis provides a theoretical basis for evaluate the relationship between average ET with forest cover change for the forest management system.

Keyword: evapotranspiration, forest cover, central highlands, remote sensing.