

Validation of MODIS LAI product at a coniferous forest site in Finland

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The main object of this study is the validation of MODIS LAI products for a coniferous forest site in Finland. The leaf area index (LAI) is a key biophysical variable involved in vegetation photosynthesis, transpiration, respiration, carbon and nutrient cycle, rainfall interception and the energy balance of the surface [1] [2]. It describes the one-sided green leaf area per unit ground area in broadleaf canopies and the hemi surface needle leaf area in coniferous canopies [3]. To use the LAI in global-scale models a global coverage must be provided as well as data acquisition over a long period of time. One source for global LAI values is the Moderate Resolution Imaging Spectroradiometer (MODIS) operated by NASA. In this case LAI is retrieved by using an algorithm that utilizes spectral characteristics of the canopy. As the algorithm is improved all the time, there have been several studies on validating this algorithm in different types of biomes.

The study area (3 x 7 km) belongs to the southern boreal vegetation zone and it is located in Hyytiälä(61° 50' N, 24° 17' E), Southern Finland. This area mainly consists of Scots pine (*Pinus sylvestris*), Norway spruce (*Picea abies*) and birches (*Betula pubescens*, *Betula pendula*). Based on the LAI measurements of 21 stands made in this area, we will validate MODIS LAI products in a fragmented boreal landscape.

This study examines the MODIS 15A2 LAI 8-day product from 4 July to 12 July (DOY 185-193) in 2015. In order to compare MODIS pixel to ground data, a Landsat 8 image from 03 July 2015 was utilized for upscaling point measurements to a fine resolution LAI map. The study will visualize the differences between the ground scaling data (combined with the Landsat data) and the MODIS data.

References

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