26. Mapping of net ecosystem productivity based on remote sensing of upper canopy and forest floor in an east Siberian larch forest

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Abstract

We estimated net ecosystem productivity (NEP) distribution in an east Siberian larch forest based on remote sensing of upper canopy leaf area index and forest floor vegetation types. In Siberia and Russian Far East, larch forest occupies 263 million ha, that is 46 % of the forest cover in the regions. Most of the larch forests in the regions are sparse, and forest floor vegetation amount and upper canopy leaf area contribute to NEP in the different manner. In spite of that, past studies on remote sensing of the larch forests have been treated in the context of global standardization and not accounted for the forest floor vegetation types. We observed component spectral characteristics of individual leaves and forest floor vegetation, and modeled spectral reflectance from the larch forests with changes of leaf area index and forest floor vegetation types. By applying the relationship to Landsat ETM+ satellite data, we estimated the forest floor vegetation types and upper canopy leaf area index. Finally, we estimated NEP distribution from the remotely sensed forest-component parameters and component carbon budgets in the literatures.