

## Satellite-based monitoring the seasonality in canopy leaf area index in Siberian larch forest

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In this study, we describe a method to monitoring the leaf area index (LAI), which is one of important input parameter for global terrestrial ecosystem models. To date, several global LAI data sets have been processed. However, these methods are designed for global monitoring and neglect some particular characteristics of larch forest. On the other hand, Larch forest accounts for over 50% of total forest in East Siberian and the reliability of global LAI datasets in Larch is not still satisfactory.

We first modeled larch forest and perform the 3-D radiative transfer simulation to investigate the relationship between satellite reflectance and larch canopy LAI. Based on these results, we proposed a new reliable algorithm to estimate LAI over Siberian larch by semi-empirical approach. The proposed algorithm is checked by the sensitivity analysis and confirmed the accuracy. Furthermore we produced the multi-year seasonal LAI data sets over Siberia. Then validation, and comparison with the existing global LAI datasets were conducted.