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A Simple Protocol for Enhancing the Spatial Resolution of MODIS-Based Leaf Area Index: Application over Boreal-Dominant Forested Region in Alberta, Canada

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Leaf area index (LAI) is one of the most important ecological variables for representing forested ecosystems in particular. Since 2000, Moderate Resolution Imaging Spectroradiometer (MODIS)-based 8-day composites of LAI products at 1 km spatial resolution have been operationally produced and distributed freely by NASA. In this paper, a simple protocol of enhancing the spatial resolution of these LAI products (i.e., 250 m) has been presented by fusing MODIS-based enhanced vegetation index (EVI: 16-day composites at 250 m spatial resolution); and applied over boreal-dominant forested region in Alberta, Canada. This data fusion was possible as strong relations (i.e., r^2 values in the range 0.85–0.95) were observed between the two ecological variables of LAI and EVI for the period April-October (i.e., growing season) during 2005–2008.