

Detection of recent vegetation change in ecotone of eastern Siberia by satellite images

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NDVI (Normalized Difference Vegetation Index) datasets by AVHRR (Advanced Very High Resolution Radiometer) onboard NOAA satellites enable the detection of vegetation changes in extensive and remote area. PAL (Pathfinder Advanced Very High Resolution Radiometer Land) datasets are used to analyze long-term changes in NDVI over eastern Siberia.

Annual integrated NDVI (SigmaNDVI) and annual maximum NDVI (MaxNDVI) are used to examine inter-annual trend of each index. The resultant trend maps of SigmaNDVI and MaxNDVI are verified by Mann-Kendall rank statistics and their validity are confirmed.

The increasing trend of SigmaNDVI in Boreal forest as described by Myneni et al. (1997) is recognized in the trend map, however, another trend is appeared in the MaxNDVI trend map. The area with plus trend in MaxNDVI is located to the north of boreal forest. The area is described as Subtundra Light Larch or North Taiga Light Larch. These vegetation zone is ecotone between boreal forest and tundra.

Although actual condition of vegetation change is not yet clear, the signal that denote some vegetation changes means the requirement for northern vegetation monitoring in Siberia region.