

# 地上と衛星観測によるシベリアの植生フェノロジーの高精度な検出

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## In situ and satellite observations for accurate detection of plant phenology in Siberia

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To accurately evaluate the spatio-temporal variability of ecosystem functioning and service under rapid meteorological and climate changes in Siberia, long-term continuous phenological observations are required. Towards this aim, satellite remote-sensing is very useful but, from the *in situ* ecological research view point, it has not been sufficiently tested and validated by the ground-truthing. In this study, we report a field study that examines the relationship between the seasonal patterns of RGB values extracted from daily images of the canopy surface and those of Terra/Aqua MODIS satellites-observed daily vegetation indices in a deciduous coniferous (larch) forest in Siberia. We found that GRVI (green-red vegetation index)=0.0, which consists of visible red and green reflectance bands, could detect the peak timing of leaf-colouring in a deciduous coniferous forest.

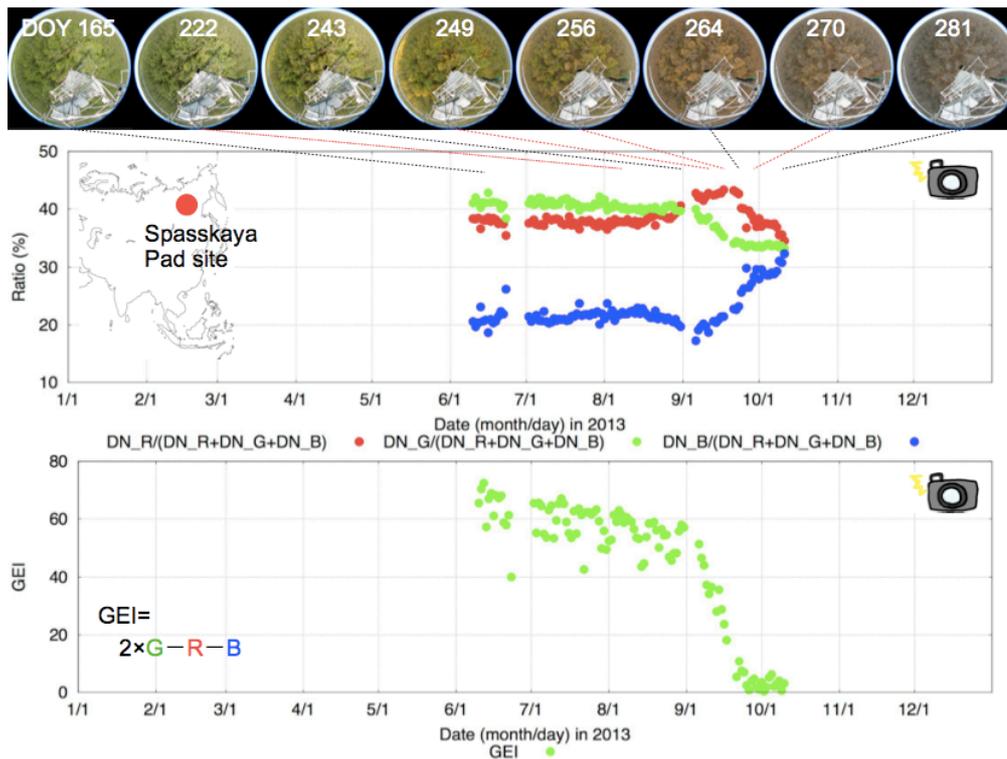


Figure 1. Seasonal patterns of ratio of RGB values and green excess index (GEI) extracted from images of the canopy surface in a deciduous coniferous (larch) forest in Siberia. Typical images of the canopy surface are shown at the top of the figure. Note that DN\_R, DN\_G, and DN\_B mean digital numbers of red, green, and blue, respectively.