

## **Forest type classification of Gifu Prefecture using**

### **ETM+ data of different seasons**

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Forest type classification is a basis of the research of forest phenology. Satellite data record the earth surface information in large areas at the same time. The color and leaf status of deciduous forest are different in different seasons, which is beneficial to the forest type classification.

Landsat Enhanced Thematic Mapper Plus (ETM+) images in early summer (2001/6/18) and late autumn (2001/11/25) were used for forest type classification over Gifu Prefecture. Forest and non-forest areas were classified by the maximum likelihood method using the summer image, which recorded the leaf-on stage of deciduous species. Then deciduous forests and evergreen forests were separated by thresholding of the normalized difference vegetation index using the late autumn image which recorded the leaf-off stage of deciduous forests showing difference from evergreen forests. The classification accuracy was validated using aerial ortho photos. Non-forest area which was classified using the summer image showed low classification accuracy. Crop lands where crops grow in June were miss-classified to forest. The autumn image, which showed evergreen forest clearly, was useful to improve forest type classification. The overall accuracy was 82.2% in Gifu Prefecture.