Suggested topics:

NDVI timeseries analysis

Paper title:

A preliminary study on using MODIS NDVI time series for mapping abandoned farmlands in mountainous areas.

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Preference between oral and poster presentation:

poster presentation

Abstract (198words):

This study preliminary evaluated the feasibility of Normalized Difference Vegetation Index (NDVI) time series for mapping abandoned farmlands in mountainous areas in Chiba prefecture, Japan. NDVI time series was derived from 8-day composite of MODIS Surface-Reflectance Product (MOD09) for the period from 2003 to 2013. The noise component in NDVI time series, which was induced mainly by cloud contamination and atmospheric variability, was reduced with the method based on Savitzky-Golay filter. The refined NDVI time series was then decomposed into trend, seasonal, and reminder components. A simple linear regression model was fitted to the trend component for each pixel, and model parameters (i.e., intercept and slope) were regarded as candidate features to detect abandoned farmlands in the pixel area. This idea was based on the assumption that NDVI times series would have different patterns between farmlands and abandoned farmlands due to the effect of cropping activity. Classification performance was evaluated with the area under the receiver operating characteristic (ROC) curve (AUC). The results showed that the candidate features were poor (AUC=0.6) in terms of classification performance. It was found that further efforts are needed to take advantage of NDVI time series for mapping abandoned farmlands in mountainous areas.