Analysis of NOAA Pathfinder NDVI time series for Central Europe

A. Kern, J. Bartholy, R. Pongrácz, Z. Barcza, Á. Fassang, Gy. Gelybó

Eötvös Loránd University, Department of Meteorology, Budapest, Hungary

(anikoc@nimbus.elte.hu / Fax: +36-1-372-2904)

Continuous monitoring of the changing environmental conditions is essential to understand the interactions between the climate system and the vegetation. To our knowledge the warming process during the past few decades caused earlier start of the growing season and increasing biome productivity. Remote sensing provides a convenient method to observe globally the changes of the surface of the Earth. One of the most popular methods to monitor the state of vegetation is the application of the Normalized Difference Vegetation Index (NDVI) calculated from remotely sensed data as a proxy information for plant productivity.

Our investigations are based on the NOAA (National Oceanic and Atmospheric Administration) Pathfinder Land NDVI values derived from the data of the Advanced Very High Resolution Radiometer (AVHRR) onboard the NOAA meteorological satellites. This dataset is available from July 1982 to April 2001 in the form of 8 days maximum composites. On the basis of the snow depth reanalysis data of the European Centre for Medium-Range Weather Forecasts (ECMWF), we try to identify the errors occurred in the dataset during winters, and also, to discriminate the low NDVI values caused by snow cover from cloud contamination. Using monthly mean temperature data and monthly total precipitation data of the Climate Research Unit (CRU) with $1/6° \times 1/6°$ horizontal resolution (CRU TS 1.2), we may analyze the relationship between these climate parameters and plant phenology.