



Annual- and decadal-scale analysis of NDVI for characterizing the water conditions of different land-use types

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Human activities result in different significant environmental changes, these complex feedback processes may cause dramatic changes in our everyday life. Among others they include land-use and consequently land-cover changes. In order to study such complex variables full spatial coverage of the given area is one of the key issues. Rapid development of satellite use in different topics of research has provided an excellent tool to build agricultural monitoring systems and to improve our understanding of the complex links between air, water and land, including vegetation. Besides temperature and precipitation, potential agricultural activity can be characterized by the Normalized Difference Vegetation Index (NDVI) derived from remote measurements of NOAA satellites (1981-2001). In our investigations NDVI values for the European continent and the Carpathian Basin have been statistically analysed during the last two decades. Variation analyses focus on month-by-month fluctuations and possible tendencies. Annual maximum and minimum NDVI fields have been determined for both areas. Then, we have focused on systematic changes of NDVI both in the Carpathian Basin and the entire European region. The main objectives of our research include detailed analysis of regions in these areas, whether or not local consequences of the global climate warming can be detected. Therefore, tendencies in NDVI time series have been analysed for selected subregions comparing different type of lands where drought can be considered as a natural hazard.