



Hydrological consequences of annual- and decadal-scale change of vegetation cover using remotely sensed data

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In the last few years serious flood events occurred at the watershed of the river Tisza (both in Hungary and in Ukraine). One of the reasons of these floods is heavy precipitation at the region, which resulted in severe runoff consequences due to significant land-cover/land-use change. In this paper, 10-day composites of the Normalized Difference Vegetation Index (NDVI) values and land-cover change detected in seven subcatchments of the Upper-Tisza watershed area have been analyzed for the last two decades. Decadal tendency of annual, seasonal, and monthly mean values and decadal change of the annual NDVI cycle have been determined. Remotely sensed datasets observed by NOAA and NASA satellites (using sensors AVHRR/3 and MODIS) are available for the 1981-2004 period. Spatial resolution of the datasets is 1 km and 8 km in case of land-cover products and NDVI time series, respectively. According to the results forest area on the upper subcatchments of the river has decreased by about 5% on average, while about 10-20% less forest area has been detected in case of the Eastern subcatchments within the last ten years.