



## **Analysis of the thermal structure of large Central European cities based on MODIS measurements**

**J. Bartholy**, R. Pongrácz and Zs. Dezső

Dept. of Meteorology, Eötvös Loránd University, Budapest, Hungary  
(bari@ludens.elte.hu/+36 1 372 2904)

MODIS (Moderate Resolution Imaging Spectroradiometer) is one of the sensors on-board satellite Terra and Aqua. They were launched to polar orbit as part of the NASA's Earth Observing System in December 1999, and in May 2002, respectively. Sensor MODIS is capable of viewing the entire globe daily with 1 km spatial resolution. In this study, measurements of sensor MODIS have been used to analyze daytime and nighttime surface temperature of urban areas in Central Europe, and especially, in Hungary. First, the large cities of the region are identified and the pixel representations of urban areas and their rural environment are determined. Then, using the selected representative area of these Central European cities, we determine the spatial structures of the urban heat island (UHI) depending on seasons and different macro-circulation conditions. Further analysis is accomplished by identifying special pixels according to the characteristic surface cover (concrete buildings, parks, residential areas, airports, etc.) and evaluate the time series of surface temperature observed by MODIS.