



## Climate change impacts on summer damages of the orbital motorway of Budapest

A. Hunyady (1), L. Pethő (2), J. Bartholy (1), R. Pongrácz (1), I. Pieczka (1), and T. Pálvölgyi (3)

(1) Department of Meteorology, Eotvos University of Sciences, Budapest, Hungary (esox@metnet.hu), (2) Department of Highway and Railway Engineering, University of Technology, Budapest, Hungary, (3) Env-in-Cent Ltd., Budapest, Hungary

One of the most current challenges of cities in the changing environment of our century is the transport. Increasing traffic load of the growing population of cities has many inconvenient consequences. This is why orbital motorways around big cities are essential to decrease the traffic load of the encircled cities. For analyzing the potential impact of climate change in this area, outputs of PRECIS, a regional climate model, were used. When planning the lifetime of roads, environmental conditions (such as climate and soil type) are the dominant factors besides the expected traffic load. Expected climate change, therefore, may influence not only the expected lifetime of roads, but also the frequency of reconstructions, which results other direct and external costs.

In this paper, we make an attempt to quantify the climate change driven vulnerability for the most critical summer period of asphalt paved part of the orbital motorway around Budapest, the capital city of Hungary for 2071-2100 using A2 and B2 SRES scenarios of IPCC.

Model PRECIS have been adapted for the Carpathian Basin at the Department of Meteorology, Eötvös University. This model is a hydrostatic regional climate model HadRM3P developed at the UK Met Office, Hadley Centre, and nested in HadCM3 global climate model. It uses 25 km horizontal resolution transposed to the Equator and 19 vertical levels with sigma-coordinates.