Biometeorological aspects of sudden cardiovascular death cases occurred in the Budapest agglomeration area

J. Bartholy (1), R. Pongracz (1), Zs. Kis (1), K. Toro (2), N. Szlavik (2), Gy. Dunai (2) and E. Keller (2)

(1) Dept. of Meteorology, Eotvos Lorand University, Budapest, Hungary, (2) Dept. of Forensic Medicine, Semmelweis University, Budapest, Hungary (bari@ludens.elte.hu/Fax +36 1 372 2904)

The urban environment of large agglomerations considerably modifies the stress-level of the inhabitants, which may result in increase of the number of sudden death cases. In addition, the effect of more frequent extreme climate events may be also an important factor of human mortality. The rate of sudden death in Hungary is traditionally high comparing to other EU countries, however, the clear evidence of this phenomenon has not clarified yet. The main objectives of our research include the clarification and description of the possible relationship between the incidences of sudden cardiovascular death happened in Budapest (capital of Hungary) and various meteorological parameters (e.g., frontal activities, heat waves, cold events, etc.). Detailed time series of these death cases have been collected and compiled for the period of 1995-2004 based on autopsy reports of the Department of Forensic Medicine, Semmelweis University. Meteorological conditions during these sudden cases have been also collected from the ECMWF ERA-40 datasets, and the observations of urban meteorological station installed at the Department of Meteorology, Eötvös Loránd University. The most important meteorological variables have been evaluated using multi-discriminant analysis. The entire database have been separated to several subsets by gender, age, specific cause of the sudden death, and detailed analysis have been accomplished on annual and seasonal scales.