



Relationships of cardiovascular mortality and morbidity in Prague to weather types

A. Urban (1,2), R. Huth (1,2), and J. Kyselý (1)

(1) Institute of Atmospheric Physics, Prague, Czech Republic (urban@ufa.cas.cz), (2) Department of Physical Geography and Geoecology, Faculty of Science, Charles University, Prague, Czech Republic

The synoptic approach based on classifications of weather types (usually referred to as air masses) is widely used in studies of heat-related mortality. The method consists in identifying oppressive air masses, i.e. those associated with increased mortality, and in the following step, relationships of meteorological (e.g. air temperature, heat index) as well as non-meteorological variables (day in sequence, time of season, year) to excess mortality are evaluated within the oppressive air masses.

In this study, two different classification methods are compared for extended summer season (May to September): 'Temporal Synoptic Index' (TSI) and 'Spatial Synoptic Classification' (SSC). The classifications are applied into examining links between weather patterns and excess cardiovascular mortality (number of deaths) and morbidity (number of hospital admissions) in Prague over 16-year period of 1994-2009. Regression models are applied within the oppressive air masses in order to account for and predict excess mortality and morbidity. Advantages and drawbacks of TSI/SSC are identified, and the applicability of the synoptic approach is compared for mortality and morbidity data. To our knowledge, such comparison has not yet been carried out in detail in any study for a European population.