



Cold related mortality in Croatia – the criteria for the forecast

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Cold waves adversely affect human health, and early warning can reduce the risk and protect the population. The aim of this paper is to determine the criteria for cold spells which are associated with an increase in mortality. The relationship between cold spells and mortality was analyzed for the city of Zagreb for period 1983-2008.

The relationship between mortality and the thermal environment was examined by means of scatter plots of the relative deviations from expected mortality and meteorological parameters for the same day and previous three to seven days. The selected meteorological parameters were the minimum and the maximum air temperature and physiologically equivalent temperature (PET) in the warmest part of the day (at 2 p.m.). The temperature thresholds (cold cut points) are defined as the temperature blow at which the mortality deviations were significantly higher than the mean mortality deviation of the entire series (significance level $p=0.05$). By means of the regression lines between mortality and temperature below cold cut point were determined the increase of mortality with temperature decrease. The increase of mortality deviations for 5%, 7,5% and 10% were defined as moderate, high and extreme risk of cold spells. Using the related values of the same percentiles of the temperature thresholds as for risk of cold spells in Zagreb, the risk of cold spells for other parts of Croatia with different climate conditions were determined.