



Concept and application of the Heat Health Warning System in Germany

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After the heat waves in the year 2003 and the statements of IPCC about the increase and the related consequences several countries in Europe decided to develop or implement a Heat Health Warning System (HHWS) and provide information for general public and public health. Weather Forecast is used to predict specific conditions (e.g. heat episodes), which are associated with an increase of consequences, like increase in mortality and morbidity on human population. The aim of the HHWS is the identification of weather situations that adversely affect human health based on human-biometeorological approaches. Therefore a heat balance model of the human body and an extracted equivalent temperature (Perceived Temperature) is applied. Thresholds for strong and extreme heat stress based on thermal perception classification are used and build the first approach of the HHWS. The threshold of strong heat stress includes and short term adaptation component and includes the previous thermal stress conditions of the last thirty days. This specific thresholds and approaches have a physiological meaning and are able to assess the levels of heat stress to which humans are exposed. The second step includes nocturnal conditions, based on minimum air temperature and statistical percentiles of the specific period or the calculation of indoor temperature simulations for typical houses. Both criteria are important for the decision about warnings for the present and next days. Warnings are generated by daily weather forecast and the biometeorology forecaster confirms or adjust. The warning is valid on county level including several elevation classes. The heat warning is available as maps in internet and registered users can receive information by daily newsletter. A specific smartphone app is also available for general use. The main target groups are the public, nursing homes and ministries of the federal states and other authorities.

The HHWS is in operation since 2005 and preliminary studies indicate after implementation a reduction in the heat related mortality.