Probabilistic and deterministic Heat Health Warnings in Germany and Europe

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Heat events in the last years have shown that heat waves can kill and cause heat related illnesses, even in temperate regions in Europe. As health effects of heat are to a certain degree preventable and heat waves can be predicted, Heat Health Warning Systems have been developed in many European countries.

Two systems will be presented. The German HHWS, which is a deterministic warning system for the short range and bases on the output of the local model of the German Meteorological Service (DWD). The second system that will be presented is the EuroHEAT system. In contrast to the German System the EuroHEAT system is a heat information system that extends all over Europe. It bases on the Ensemble Prediction System (EPS) of the European Centre of Medium Range Weather Forecasts (ECMWF) and provides probabilistic heat information for the following 9 days. Both systems have in common that they use variable thresholds that depend on the local weather situation of the last 30 days to define a heat event. The German HHWS bases on a complex heat budget model of the human body in order to assess the heat load. As uncertainty increases with lead time the meteorological parameters that could be used for the medium range heat forecast are limited to those parameters with a comparatively good skill. Therefore, the EuroHEAT system bases on 2m temperature only.

The German HHWS is running since 2005. In contrast to the German System the EuroHEAT system is running in a pre-operational mode since the beginning of 2007. Experiences and changes that have been implemented in the systems since their first implementation are presented and discussed.