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The Biometeorological Forecast of the CHMI and daily mortality in the Czechia in 1996-2017

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Since 1994, the Czech Hydrometeorological Institute has been publishing daily biometeorological forecast (BMF) for the entire territory of the Czech Republic. This territory is divided into 7 areas for the BMF purposes. Area boundaries have been determined on the basis of synoptic-climatological criteria, being not consistent with administrative boundaries.

The BMF contains two basic parts: a forecasted stress level and a medical commendatory text. The stress level is determined by biotropy index value, which is calculated as the sum of the points assigned to the predicted meteorological factors. Both the biotropy index and the stress level, as well as selected meteorological factors influencing their values, show seasonal dependencies. The poster describes, among other things, the basic properties of time series of both biometeorological quantities.

The daily mortality data in the Czech Republic in 1996-2017 was used to verify the current BMF model. However, this dataset is affected by some systematic effects. One of the most significant influences is the marked downward trend in mortality in the Czechia. Therefore, it was necessary to standardize mortality data at first.

Moreover, the standardized daily mortality has its characteristic time behavior. In the next part of the poster, the basic properties of the time series of daily mortality in the studied period are described in more detail.

The last part of the poster consists of a basic BMF verification through standardized daily mortality data. Comparison of both datasets was first executed for total daily mortality without selection of diagnoses or age groups. In the second step, some important groups of diagnoses as well as a group of older people (65+) were selected for comparison with the BMF.

The results of this work show that the CHMI biometeorological forecast describes the basic trends, but it needs to be extended and improved in the coming years. This conclusion is particularly concerned with upgrade of BMF by a description of the complex effect of air temperature, humidity, wind and radiation. For this purpose, numerical weather model ALADIN has initiated regular calculation of UTCI, which will be further used for improvement of BMF.