

# **Progress in biometeorological forecast in the Czech Republic**

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As early as in the late 70's of the last century research projects set off on the ground of the Branch Office of the CHMI, having resulted into first experimental biometeorological forecast (BMF) for one particular place of interest. This model was tested in cooperation with the Teaching Hospital Plzen in the second half of the 80's. Since the beginning of the 90's the forecast had been issued in a routine manner, in the first instance for the city of Ustí nad Labem, later for the area of the former North Bohemian region. In 1993 was the operation of the BMF expanded over the territory of the whole Czech Republic, which was due to relatively complicated orography divided into seven zones.

Currently operating BMF model shows only slight difference from the original one of 1993. Still, the changes in the model reduced its stability. Another impulse for construction of a brand-new model arises from some important drawbacks of the old BMF model. First of all there is an evident absence of a complex TWH index combining temperature, wind speed and humidity. An important part of subjective decision making is another disadvantage, allowing the meteorologist to influence the final form of BMF. The old model also emphasized too much the role of synoptic interpretation of weather. Contemporary standards of mathematic modeling allows for dynamic interpretation of processes in the troposphere. It is also necessary to implement into the BMF the possibility to compare the predicted values with previous days and with climatological normals.

Development of a new BMF model started within the frame of the grant VaV-1C/5/18/4 of the Ministry of Environment of the Czech Republic at the end of 2004. Considering the interdisciplinary character of biometeorology the grant provides for close cooperation of meteorologists and medical specialists with the aim to rectify the above-mentioned faults. We plan to construct an algorithm of new BMF model involving data transfer from the databases of the CHMI and a combined TWF index as well. The forecaster would be able to enter the synoptic interpretation of a given meteorological situation and to edit inputs from the local model ALADIN. Technical solution is based on databases Firebird (for development of the BMF application) and Oracle (S-DNES - the operational database of the CHMI). The BMF application including GUI will be developed in Java for multiplatform use. The new version of the BMF model should be operational by the end of 2007.