



An Analysis of Possibilities of Forecasting the AVISO Agrometeorological Model Input

Petr Münster, Filip Chuchma, Petr Hora, Marie Doleželová, Gražyna Knozová, Miloslav Hradil, and Andrea Kvapilová

Czech Hydrometeorological Institute, Brno, Czech Republic (pobocka.brno@chmi.cz)

We use an agrometeorological model called AVISO at the Czech Hydrometeorological Institute for the computation of real evapotranspiration and soil moisture depots for 198 automated meteorological or climatic stations in the Czech Republic in summer periods. Daily averages of air temperature, air humidity, wind speed and daily sums of global radiation and total precipitation input the AVISO model. For regional meteorologists these inputs are available in the form of term forecasts of numerical model ECMWF up to 240 hours. Therefore, the possibility of AVISO output applicability in predictive mode up to 8 days was studied. 6-hour frame forecast grid data of every midnight run were used from the beginning of March till the end of October in 2014 and 2015. The aim of this analysis was to evaluate the possibility of daily averages computation from the term forecasts for air temperature, air humidity and wind speed. Final daily averages and sums of all parameters were compared to station measurements. Comparison with individual term forecasts were also accomplished for air temperature, air humidity and wind speed to find out extreme errors. Global radiation daily sums were compared with values calculated from sunshine duration for most of station. Total precipitation deviations served for finding typical synoptic situations with 10 mm or greater errors for single station prediction. Average seasonal deviations of particular parameters were used to reveal potential systematic errors. According to daily deviations inaccuracy predictions connected to synoptic situations were evaluated. The final values of deviations will be applied in automatic correction of systematic errors. And according to determination of synoptic situation in long-term weather forecast by meteorologists selected inputs will be able to manually correct. In a high uncertainty of total precipitation quantitative statement of expected numerical prediction success rate will be applied. A comparison of analysis results of more detailed ECMWF grid data since 2016 is expected to be the next step together with the transformation of station deviations to the area information displayed in maps.