Linking the Weather Generator with Regional Climate Model: Effect of Higher Resolution

Martin Dubrovsky (1,3), Radan Huth (1,2), Ales Farda (3,4), and Petr Skalak (3)

(1) Institute of Atmospheric Physics, Praha, Czech Republic (madu1110@gmail.com), (2) Dept. of Physical Geography and Geoecology, Faculty of Science, Charles University, Prague, Czech Republic, (3) CzechGlobe - Center for Global Climate Change Impacts Studies, Brno, Czech Republic, (4) Czech Hydrometeorological Institute, Prague, Czech Republic

This contribution builds on our last year EGU contribution, which followed two aims: (i) validation of the simulations of the present climate made by the ALADIN-Climate Regional Climate Model (RCM) at 25 km resolution, and (ii) presenting a methodology for linking the parametric weather generator (WG) with RCM output (aiming to calibrate a gridded WG capable of producing realistic synthetic multivariate weather series for weather-ungauged locations). Now we have available new higher-resolution (6.25 km) simulations with the same RCM. The main topic of this contribution is an anser to a following question: What is an effect of using a higher spatial resolution on a quality of simulating the surface weather characteristics?

In the first part, the high resolution RCM simulation of the present climate will be validated in terms of selected WG parameters, which are derived from the RCM-simulated surface weather series and compared to those derived from weather series observed in 125 Czech meteorological stations. The set of WG parameters will include statistics of the surface temperature and precipitation series. When comparing the WG parameters from the two sources (RCM vs observations), we interpolate the RCM-based parameters into the station locations while accounting for the effect of altitude. In the second part, we will discuss an effect of using the higher resolution: the results of the validation tests will be compared with those obtained with the lower-resolution RCM.