



Verification of regional climate models over the territory of Ukraine

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Verification of regional climate models (RCMs) over the territory of Ukraine was the first stage of the National project for assessment of possible climate change and its impact on the economic and social life in Ukraine in XXI century.

Since Ukraine has pretty different climates in different parts, the territory of Ukraine was divided on 11 regions with more or less uniform climate conditions: 7 almost equal in space regions in plain terrain, 2 – in coastal zones near the Black and Azov seas and 2 – in the Carpathian and the Crimean mountains. Verification of RCMs for climate characteristics was carried out for each defined region separately. Data of meteorological network in Ukraine (187 stations) and the Climate Research Unit (CRU 10-min global data-set) for multy-year monthly, season and annual means of temperature and precipitation for the period 1961-90 were used for verification of models' results.

Two RCMs were used in the analysis of the past climate of Ukraine: REMO (MPI-M, Hamburg) and RegCM3 (ICTP, Trieste). Both models were constructed with initial and boundary conditions from ERA-40 data-set with horizontal spacing of 25 km and vertically 27 (REMO) and 18 (RegCM3) Z- levels.

In a whole, both models demonstrated better ability for temperature than precipitation characteristics. Very high correlation of 0.9 was found between models, network and CRU for temperatures and 0.7-0.8 for precipitation. Generally, models were warmer especially for summer months up to 2 oC. More precipitation in the models was found for winter season and less – for summer and in the mountainous subregions comparably with observations. In perspective we intend to run RCMs initialized with GCMs for the same period and for XXI century and account for the obtained systematic models' errors in the analysis of possible climate change over the territory of Ukraine.