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Verification of the performance of global circulation models in monthly temperature and precipitation simulation

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The purpose of this paper is to assess the performance of global ocean-atmosphere models of ECMWF, Met Office and Meteo-France in the 2 meter monthly mean temperature simulation, and as for the precipitation simulation, only those based on the ECMWF model. The ensemble monthly hindcasts obtained in DEMETER project have been utilized. The analyzed interval is 1958-2001. The simulated parameters are compared with the reanalysis from ERA40. The global models have been verified on the Atlantic-European area, by evaluating the differences between the simulated monthly means and the observed ones for the 1958-2001 period. The correlation coefficients have been calculated between the simulated and the re-analyzed fields of temperature and precipitation over Romania's territory. The temporal variability of the models performance was also analyzed. Thus, the monthly mean temperatures simulated and observed for consecutive years from 1958 to 2001 were represented in the nearest grid point to Bucharest (45N, 25E). For the monthly amounts of precipitation was calculated an annual global index, expressed by the spatial average of the differences between the hindcasts and the reanalysis over the interest domain for each year from 1958 to 2001.