

Northern Hemisphere teleconnection indices simulated with CMIP3 in winter

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Relationships between Teleconnections Patterns and the precipitation and temperature variability over Europe have motivated this study about the changes of the low frequency atmospheric patterns under climate change conditions. This work presents results for the teleconnection indices that affect climate variability over Europe in winter (DJF), which are the North Atlantic Oscillation (NAO), East Atlantic (EA), East Atlantic/Western Russian (EA/WR) and the Scandinavian (SCAND) patterns. Firstly, we computed the simulated teleconnection indices using data of the 20C3M and A1B experiments from CMIP3 models and then, we analyzed the their spatial and temporal changes. To obtain the indices we have applied the methodology of Partial Least Square regression between the monthly 500 hPa geopotential field and the "observed" teleconnection patterns (TP). The "observed" TP were obtained by projecting the 500 hPa geopotential reanalysis NCEP/NCAR data onto the teleconnection indices from Climate Prediction Center (CPC). Multimodel teleconnection indices are derived taking into account the best models that characterize the NAO, according to the Taylor diagram evaluation. A comparison between CMIP3 and CMIP5 spatial and temporal evaluation results will be shown, in case CMIP5 data are available.