



Evaluation of 30 year dynamical downscaling experiment over Portugal

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In the scope of regional climate downscaling on complex terrain, the WRF-ARW model is applied in two nested domain configuration covering mainland Portugal (25 km and 5 km horizontal resolution) for a 30 year period between 1981 and 2010. The large scale data to downscale are the ERA Interim reanalysis of the ECMWF. The simulations are performed with frequent re-initializations where the initial conditions are obtained by assimilating surface and upper air data together with a previous model forecast through the use of WRF data assimilation system, using the 3DVAR algorithm. The data to assimilate come from the Computational & Information Systems Laboratory (CISL) Research Data Archive. Surface temperature and precipitation from the higher resolution domain are compared with available gridded data as well as with all available stations in the region, through the computation of mean climatologies and respective variances, as well as through measures of standard statistical errors at timescales ranging from hourly to seasonal. As the results of this simulation are to be used in future hydrological applications, especial attention is paid to the distributions of extreme events.