



Simulations of wind and precipitation variability in Sardinia using REGCM3

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The seasonal and interannual variability of atmospheric circulation and precipitation is very important to study in this part of the world as the water is the most significant climate resource for households and industry. The climate in the island is entirely influenced by the seasonal development of the Mediterranean Low pressure system, thus the precipitations occur mainly in the cold part of the year. The wind is also of great interest in view of the future plans to increase the share of renewable energy sources in this region.

Taking into account the relatively small area of Sardinia (approximately 300x100 km) and the landscape diversity a model with finer resolution than the global circulation models is needed to account for the orographic effects. Long-term variability of precipitation is analyzed using CRU analysis of daily precipitation in Europe with resolution of 0.25 degree in latitudinal and longitudinal direction. The representative years for "dry" and "wet" climate conditions are identified and the regional climate model RegCM3 is run for those years. The model horizontal resolution is 20 km and the initial and boundary conditions are taken from NCEP 6-hourly reanalysis. The results are verified with the CRU analysis data. Conclusions regarding the adequacy of the results and the model skill to represent the regional climate characteristics are given. The relation between circulation and precipitation during the simulated years is discussed.