



The Phase I CORDEX REgCM hyper-Matrix (CREMA) experiment

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We introduce the Phase I CORDEX REgCM hyper-Matrix (CREMA) experiment. This is the first contribution to the CORDEX effort by a sub-set of the user community of the ICTP regional climate modeling system RegCM. The latest version of this system, RegCM4, was used to produce an ensemble of scenario simulations (each spanning the period 1970-2100) over 5 CORDEX domains: Mediterranean, Africa, South America, Central America, West Asia. For each domain, in order to explore relevant sources of uncertainty to the extent possible, at least two RegCM model configurations, two driving global models and two greenhouse gas concentration scenarios (RCP4.5 and RCP8.5) were utilized. A total of 33 scenario simulations were completed on about 1000 dedicated processors provided by the ARCTUR-1 supercomputing facility in Gorjansko, Slovenia, during the summer of 2012. In this paper the CREMA project will be described and illustrative results will be presented, in particular concerning changes in extreme events and relative contributions of different sources of uncertainty. The results from the CREMA ensemble will be made available for the CORDEX and impact assessment communities and the ensemble will be incrementally enlarged in time with the addition of further simulations.