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The Med-CORDEX initiative: status of the simulations and first achievements

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The areas surrounding the Mediterranean basin have quite a unique character that results both from their complex morphology and socio-economic conditions . It is indeed surrounded by various and complex topography channelling regional winds (Mistral, Tramontane, Bora, Etesian, Sirocco) than defined local climates and from which numerous rivers feed the Mediterranean sea. Many small-size islands limit the low-level air flow and its coastline is particularly complex. Strong land-sea contrast, land-atmosphere feedback, intense air-sea coupling and aerosol-radiation interaction are also among the regional characteristics to take into account when dealing the Mediterranean climate modeling. In addition, the region features an enclosed sea with a very active regional thermohaline circulation. It is connected to the Atlantic ocean only by Gibraltar strait and surrounded by very urbanized littorals.
The Mediterranean region is consequently a good case study for climate regionalization and was naturally chosen as a CORDEX sub-domain (MED) leading to the Med-CORDEX initiative endorsed by Med-CLIVAR and HyMeX. This initiative has been proposed by the Mediterranean climate research community as a follow-up of previous and existing initiatives. Med-CORDEX takes advantage of new very high-resolution Regional Climate Models (RCM, up to 10 km) and of new fully coupled Regional Climate System Models (RCSMs), coupling the various components of the regional climate.
Med-CORDEX is a unique framework where research community will make use of both regional atmospheric, land surface, river and oceanic climate models and coupled regional climate system models for increasing the reliability of past and future regional climate information and understanding the processes that are responsible for the Mediterranean climate variability and trends.
We present here an update of the status of Med-CORDEX as well as some first multi-model results. Today, Med-CORDEX gathers 20 different modelling groups from 9 different countries (France, Italy, Spain, Serbia, Turkey, Israel, Tunisia, Germany, Hungary) in Europe, Middle-East and North-Africa. It includes 9 atmosphere RCMs, 8 regional ocean models and 12 Regional Climate System Models. Evaluation runs use the ERA-Interim reanalysis as lateral boundary conditions. Historical and scenario runs use 6 different GCMs from CMIP5. Most of the ERA-Interim driven runs are finished as well as the first RCP scenarios. The database hosted at ENEA is now publicly open at www.medcordex.eu.