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Validation of the regional climate model MAR over the CORDEX Africa domain and comparison with other regional models using unpublished data set

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In the framework of the CORDEX project, we have applied the regional model MAR over the Africa domain at a resolution of 50 km. ERA-Interim and NCEP-NCAR reanalysis have been used as 6 hourly forcing at the MAR boundaries over 1950-2015. While MAR was already been validated over the West Africa, it is the first time that MAR simulations are carried out at the scale of the whole continent. Unpublished daily measurements, covering the Sahel and more areas up South, with a large set of variables, are used as validation of MAR, other CORDEX-Africa RCMs and both reanalyses. Comparisons with the CRU and the ECA&D databases are also performed.

The unpublished daily data set covers the period 1884-2006 and comes from 1460 stations. The measured variables are wind, evapotranspiration, relative humidity, insolation, rain, surface pressure, temperature, vapour pressure and visibility. It covers 23 countries: Algeria, Benin, Burkina, Canary Islands, Cap Verde, Central Africa, Chad, Congo, Ivory Coast, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Mali, Mauritania, Morocco, Niger, Nigeria, Senegal, Sudan and Togo.