
Regional reanalysis activities at DWD: review and outlook

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Abstract

In 2011, the development of a regional reanalysis based on the COSMO model began within the Hans-Ertel-Centre for Weather Research. The Meteorological Institute of the University of Bonn and the Institute of Geophysics and Meteorology of the University of Cologne focused on the question of whether it is possible to produce a long-term regional reanalysis for applications in the field of climate analysis and climate services by using DWD's weather forecast model.

A regional reanalysis for Europe (COSMO-REA6, 6 km spatial resolution, available from 1995) and Central Europe with Germany in the center (COSMO-REA2, 2 km spatial resolution, currently available for 2007-2013) was produced with the COSMO model and the quality has been evaluated with various methods. The data product is widely used by a large and diverse community of researchers, companies, and governmental institutions alike.

In this presentation, we summarize the background and current status of DWD's reanalysis activities and present quality estimates and evaluation results. We provide an overview over recent studies as performed at DWD and at the Hans-Ertel-Centre in combination with REA6. Examples are shown addressing renewable energy applications with a focus on offshore wind speeds as well as for the analysis of weather and climate extremes. Finally, we provide an outlook on our near future plans, which include the preparation of an ICON based reanalysis.

Keywords: regional reanalysis, Europe, COSMO, REA6, ICON, DWD, renewable energy

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