



Continuously on-going hindcast simulations for impact applications

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Observations for e.g. temperature, precipitation, radiation, or wind are often used as meteorological forcing for different impact models, like e.g. crop models, urban models, economic models and energy system models. To assess a climate signal, the time period covered by the observation is often too short, they have gaps in between, and are inhomogeneous over time, due to changes in the measurements itself or in the near surrounding. Thus output from global and regional climate models can close the gap and provide homogeneous and physically consistent time series of meteorological parameters.

CORDEX evaluation runs performed for the IPCC-AR5 provide a good base for the regional scale. However, with respect to climate services, continuously on-going hindcast simulations are required for regularly updated applications.

In this study two projects are presented where hindcast-simulations optimized for a region of interest are performed continuously.

The hindcast simulation performed by HZG covering Europe includes the EURO-CORDEX domain with a wider extend to the north to cover the ice edge. The simulation under consideration of the coastDat-experiences is available for the period of 1979 – 2015, prolonged ongoing and fulfills the customer's needs with respect of output variables, levels, intervals and statistical measures. CoastDat – customers are dealing e.g. with naval architecture, renewable energies, offshore wind farming, shipping emissions, coastal flood risk and others. The evaluation of the hindcast is done for Europe by using the EVAL-tool of the CCLM community and by comparison with HYRAS - data for Germany and neighbouring countries.

The Climate Research group at the national Austrian weather service, ZAMG, is focusing on high mountain regions and, especially on the Alps. The hindcast-simulation is forced by ERA-interim and optimized for the Alpine Region. One of the main tasks is to capture strong precipitation events which often occur during summer when low pressure systems develop over the Golf of Genoa, moving to the North-East. This leads to floods and landslide events in Austria, Czech Republic and Germany. Such events are not sufficiently represented in the CORDEX-evaluation runs. ZAMG use high quality gridded precipitation and temperature data for the Alpine Region (1-6km) to evaluate the model performance. Data is provided e.g. to hydrological modellers (high water, low water), but also to assess icing capability of infrastructure.