A tool for "Improving bias-corrected Climate Change scenarios with local OBServational data" (ICC-OBS)

Maria Wind (1), Barbara König (1), Igor Skoric (2), and Herbert Formayer (1)

(1) University of Natural Resources and Life Sciences, Vienna, Austria (maria.wind@boku.ac.at), (2) Skoric IT, Graz, Austria

The Project „Enhancing Environmental Performance and Climate Proofing of Infrastructure Investments in the Western Balkan Region from an EU integration perspective " (ClimaProof) aims to increase the capacities of the countries involved in climate proofing investments in the transport infrastructure sector by improving the information base on future climate in the target region.

Within the project we analysed existing regional climate models and developed an ensemble of bias corrected and localised climate change scenarios for the Western-Balkan Region. These scenarios are based on freely available regional climate change projections (EURO-CORDEX, MED-CORDEX) using the best freely available observational data for each sub-region.

For further localisation of the scenarios, we developed a tool for "Improving bias-corrected Climate Change scenarios with local OBServational data" (ICC-OBS). By merging available gridded observational data for a selected area with station time series, the ICC-OBS tool first creates a dataset of gridded observations that is better tailored to the area of interest.

In order to do so, gridded observations are interpolated to the location of the stations using nearest neighbour interpolation. Residuals are then calculated at the stations and interpolated to the grid. Depending on the number of stations either inverse distance weighting interpolation or ordinary kriging is used. The improved dataset is calculated by adding the interpolated residuals to the original gridded observations. Subsequently bias correction (scaled distribution mapping) is applied to climate model data using the modified gridded observations.

To enhance the usability of the tool, an easy-to-use graphical user interface for the ICC-OBS tool was developed. It can be downloaded free of charge and used offline. Hence, the tool allows national experts to integrate their own observational data to further improve the climate model scenarios without having to share sensitive station data.