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Evaluation and Verification of Decadal Predictions using the MiKlip Central Evaluation System – a Case Study using the MiKlip Prototype Model Data

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MiKlip is project for medium-term climate prediction funded by the Federal Ministry of Education and Research in Germany (BMBF) and aims to create a model system that is able provide reliable decadal climate forecasts.

During the first project phase of MiKlip the sub-project INTEGRATION located at Freie Universität Berlin developed a framework for scientific infrastructures (FREVA). More information about FREVA can be found in EGU2016-13060. An instance of this framework is used as Central Evaluation System (CES) during the MiKlip project.

Throughout the first project phase various sub-projects developed over 25 analysis tools – so called plugins – for the CES. The main focus of these plugins is on the evaluation and verification of decadal climate prediction data, but most plugins are not limited to this scope. They target a wide range of scientific questions. Starting from preprocessing tools like the “LeadtimeSelector”, which creates lead-time dependent time-series from decadal hindcast sets, over tracking tools like the “Zykpak” plugin, which can objectively locate and track mid-latitude cyclones, to plugins like “MurCSS” or “SPECS”, which calculate deterministic and probabilistic skill metrics. We also integrated some analyses from Model Evaluation Tools (MET), which was developed at NCAR.

We will show the theoretical background, technical implementation strategies, and some interesting results of the evaluation of the MiKlip Prototype decadal prediction system for a selected set of these tools.