



## **EC-Earth: The seamless application of a climate forecast system**

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The EC-Earth CGCM has been used to produce subseasonal, seasonal, interannual and decadal re-forecasts to investigate several aspects of the predictability of the global climate system. The main features of the skill of the system on different time scales will be discussed. The impact of the initialization of the soil moisture as well as of the sea ice will be illustrated with examples mimicking the GLACE2 and IceHFP experiments. The suitability of different initialization methods in decadal forecasting to produce the required ensemble spread and formulate reliable probability forecasts will be shown with an experiment similar to the CMIP5 decadal predictions. In this case, three sets of five-year long, five-member ensemble climate hindcasts started every five years from 1960 to 2005 have been run. The three sets of hindcasts are different in the initial perturbations, which are applied to either the atmosphere, the ocean or to both. The results will be discussed in the framework of the seamless prediction paradigm.