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# Systematic Errors in the ECMWF long range Forecasting System over Africa

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In this study the key systematic errors of the ECMWF model over Africa are described by comparing the new operational seasonal forecasting system (Sys4) with the previous system 3 (Sys3) which used the same model cycle of the ECMWF re-analysis product ERA-Interim. Focal points of this analysis are (1) documenting the climate errors and forecast skill of the latest seasonal system, (2) the evolution of model errors across the two systems, (3) characteristics of the growth of errors throughout the forecast including monthly, and seasonal time scales.

Results are presented for temperature and humidity fields, cloud related parameters and the atmospheric circulation. Furthermore, misrepresentation of some key phenomena related to the monsoon activities in the west Africa and the south-east Africa regions are discussed. Sys3 seasonal forecast system suffered from a systematic bias whereby monsoon rains were constantly shifted to the south. This is thought to be related to the cause of a dry bias in the precipitation amount predicted by short range forecasts initialized from era-interim analysis over the Sahel.The magnitude of these model errors has been reduced considerably in the new system. The spatial structure of systematic model errors, however, remains more or less unchanged for most of the parameters.