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## Understanding and reducing seasonal prediction errors of the ECMWF system in the tropical Indian Ocean

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Accurate forecasts of tropical Indian Ocean variability are crucial for skilful predictions of climate anomalies on a range of spatial and temporal scales. Here we assess the ability of ECMWF's operational monthly and seasonal prediction systems to represent variability in the Eastern Equatorial Indian Ocean (EEIO), an important center of action especially for the Indian Ocean Dipole (IOD) Mode. Strong air-sea coupling is present in this region. In ECMWF's currently operational seasonal prediction system, this leads to rapid amplification of a weak cold bias of the oceanic initial conditions in the EEIO, resulting in too frequent occurrences of positive IOD events. Diagnostics show that this is related to winds in the EEIO exhibiting a biased relationship with local and remote sea surface temperatures when compared to reanalysis. The impact of the forecast bias in the EEIO on the skill of ENSO predictions via interbasin interactions is evaluated. We furthermore present results from numerical experiments with, i.a., changed atmospheric model physics and oceanic initial conditions which help to better understand causes of the diagnosed forecast errors as well as mechanisms of interbasin interaction, and provide guidance for model development.