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Potential of Equatorial Atlantic Variability to Enhance El Niño Prediction

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Extraordinarily strong El Niño events, such as those of 1982/83 and 1997/98, cause havoc with weather around the world and have major socio-economic impacts. Despite significant advances in our understanding of this phenomenon, improved modelling systems, and enhanced observational networks our ability to predict such major events is lacking. Here we show, through seasonal prediction experiments with a climate model, that Equatorial Atlantic SST significantly improves prediction of major El Niño across boreal spring, by impacting the Equatorial Pacific atmospheric circulation during the critical development phase of El Niño. These results imply that better prediction of major El Niño events might be achieved through enhancing seasonal prediction skill in the Equatorial Atlantic. They also have implications for our understanding of the dynamics of major El Niño events.