



## **Predicting precipitation over Southern Africa in DePreSys3**

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We assess the ability of a high-resolution prediction system (i.e. DePreSys3) to predict summer precipitation over Southern Africa (DJF). The prediction system is composed by 57 hindcasts, initialised every years from 1960 to 2016, for a duration of 17 months. A total of 30 members are used for each start dates. DePreSys3 has skill in predicting precipitation over Southern Africa for the first and the second summer. The skill in predicting precipitation is found to be closely associated with the El-Niño Southern Oscillation. A warming over the equatorial Pacific Ocean is associated with a westward shifted walker circulation over both the Pacific and the Indian Ocean, to a northeastward shift of the South Indian Convergence Zone, to a reduction in moisture flux convergence, in the deep convection and finally in precipitation over Southern Africa: ENSO events are associated with a decrease in precipitation. DePreSys3 is able to reproduce such a relationship and to predict ENSO events at least two summers ahead. We finally propose that DePreSys3 is able to predict precipitation over Southern Africa due to its ability to predict ENSO and to simulate the impact of ENSO on the Atmospheric circulation.