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What interrupted the 2014 El Nino? - A possible cause in the South Pacific Ocean

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At the beginning of 2014, westerly wind bursts and large downwelling Kelvin waves were observed. There was a consensus among state-of-the-art forecasting models on the development of a large El Nino in the following summer and autumn. From June 2014, however, cold sea surface temperature anomalies developed unexpectedly in the cold tongue region and prevented development of an El Nino. Interestingly, our experimental seasonal prediction system based on the coupled general circulation model MIROC5 successfully predicted this event. Using this prediction and additional sensitivity experiments, we found an important role of the oceanic circulation in the South Pacific Ocean in the interruption of the El Nino in 2014.

Keywords: ENSO, Seasonal Prediction, Pacific Decadal Oscillation (PDO)