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Why can an ENSO development be amplified or decayed?

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It is well known that El Nino Southern Oscillation (ENSO) causes floods, droughts in different regions of the Earth and the collapse of fisheries in the tropical Pacific, therefore forecasting of ENSO is an important task in climate researches. The variability in wind and water volume in the tropical warm pool in the western equatorial Pacific has been considered to be a good ENSO predictor. However, in the 2000s, the interrelationship between these two characteristics and ENSO onsets became weak. A plausible reason for the weakening of the interrelation between these predictors and the onset of ENSO is considered. It is demonstrated that variability in the atmospheric dynamics near the Drake Passage can affect the ENSO development leading to the amplifying/decaying ENSO events. The weakening of the interrelation between ENSO and the variability in wind together with water volume in the tropical warm pool is caused by the fact that the processes of atmosphere-ocean interaction in the tropical Pacific started exerting smaller influence on the ENSO development (as compared with the processes in the Southern Ocean). This is due to warmer ocean conditions registered since the late 1990s that favored the decrease in the zonal gradient of temperature in the ocean surface layer in the tropics and led to lower atmospheric variability in the tropical Pacific whereas this variability remained the same over the Southern Ocean.

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