

Interactive comment on “One plausible reason for the change in ENSO characteristics in the 2000s” by V. N. Stepanov

Anonymous Referee #1

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The manuscript "One plausible reason of the change in ENSO characteristics in the 2000s" by V. Stepanov puts forward the plausible explanation why the correlation between the equatorial warm water volume of the tropical Pacific and wind variability in the western equatorial Pacific has almost vanished during the recent decade. The explanation is based on the results of numerical modelling that showed high correlation between the variability of the atmospheric conditions over the Southern ocean (particularly upstream of the Drake Passage as shows the paper) and onsets of ENSO events. A very sensible idea is used to explain the broken link between the origin of equatorial warm water in the tropical Pacific and wind variability in the western equatorial Pacific: the warmer climate conditions cannot lead to substantial atmospheric variability in the tropics (where more homogeneous dynamical conditions are observed in comparison with moderate and high latitudes) while the variability of atmospheric conditions

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over the Southern ocean, which almost did not change, continue impact the triggering ENSO events. The author connects the triggering ENSO events with the change of meridional atmospheric circulation rather with the SOI index change that confirms by his correlation analysis: the significant zero-lag meridional SLP gradient correlation with zonally mean SLP, and that the lag correlation between NINO and SOI indexes is lower than between NINO and his new characteristic describing SLP variability in the southern mid-latitudes. I would like to note a possible explanation given in the paper why usually more warm ENSO than cold ones are observed. Nobody (by now, as far as I know) could give any clear sensible reason explaining this fact. The hypothesis considered by the paper is interesting and it is worth disseminating among scientific society to initiate further investigations. I think the manuscript can be accepted for publication.

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