

Importance of oceanic decadal trends and westerly wind bursts for forecasting El Nino.

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Sea level data reveal that the Ocean Heat Content (OHC) of the entire tropical Pacific was low in the mid-1980s compared to before 1982 and after 1996.

In the western Pacific, Westerly Wind Bursts (WWB) usually show up in the boreal fall-winter,

but not always. The years with high OHC had WWB and were followed one year later by two big El Niño events. It is demonstrated with a coupled ocean-atmosphere model that WWB are necessary to successfully predict the growth of these events. When OHC is low, the model delivers forecasts that are accurate, independent of whether WWB are active or not. Thus WWB have an impact on the coupled system that depends on the ocean preconditioning. Even though WWB are hard to predict, it is proposed to monitor the OHC as a precursor index,

because if all the conventional conditions are favorable and the OHC is high, a big El Niño event is likely to come the following year.