



Easterly and westerly wind events in the equatorial Pacific ocean and their oceanic response

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Intraseasonal wind variability is known to influence the onset and evolution of the El Niño Southern Oscillation (ENSO), in particular through the occurrence of Westerly Wind Events (WWEs) in the western Equatorial Pacific. For predictability purposes, it is important to identify the large scale atmospheric controls of the occurrences of those WWEs. We hence carefully assess the link between equatorial WWEs and large-scale atmospheric waves. We find that WWEs preferably occur during convectively active phases associated to equatorial atmospheric Rossby waves (74% against 15% if the distribution was random) and to the MJO (60% against 15%). We also find that WWEs that occur in relation with those atmospheric waves tend to be stronger. The results also show that WWEs that occur in relation with the MJO tend to be longer than others, and tend to have a larger impact on SST, both on the eastern edge of the warm pool and in the eastern Pacific. We further show that the central and eastern equatorial Pacific is home to frequent easterly wind events (EWEs). These EWEs are further shown to be influenced by atmospheric Rossby waves and the MJO, but to a lesser extent than WWEs. We will discuss the potential influence of EWEs on the ENSO cycle, and propose a modeling strategy to test the influence of these EWEs / WWEs on the ENSO evolution.