



Meridional movement of wind anomalies during ENSO events and their role in event termination

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Observational analysis has shown that when El Niño-Southern Oscillation (ENSO) events typically reach their peak amplitude in boreal winter, the associated zonal wind anomalies abruptly shift southward so that the maximum anomalous zonal wind is located around 5 –7 S. Here, an analysis utilizing multiple wind products identifies a clear ENSO phase nonlinearity in the extent of this meridional wind movement and its dynamically linked changes in equatorial heat content. It is shown that the meridional wind movement and its discharging effect increase with increasing El Niño amplitude, while both remain relatively small regardless of La Niña amplitude. This result implies that asymmetries in the extent of the meridional wind shift may contribute to the observed asymmetry in the duration of El Niño and La Niña events. We also evaluate the result sensitivities to wind product selection and discuss Eastern Pacific (EP) and Central Pacific (CP) El Niño event differences.