

A 21st century shift in the relationship between ENSO SST and warm water volume anomalies

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This presentation documents changes in the relationship between warm water volume (WWV), which is an index for upper ocean heat content, and El Niño/Southern Oscillation (ENSO) SST anomalies during the period 1980–2010. Upper ocean heat content represents a major source of predictability for ENSO, with WWV integrated along the equator leading ENSO SST anomalies by 2–3 seasons during the 1980s and 1990s. For the first decade of the 21st century however, WWV variations decreased and lead-time was reduced to only one season, mainly due to the diminished persistence of WWV anomalies early in the calendar year. These changes are linked to a shift towards more central Pacific (CP) versus eastern Pacific (EP) El Niños in the past decade. The results are consistent with a reduced impact of thermocline feedbacks on ENSO SST development and potentially imply reduced seasonal time scale predictability during periods dominated by CP El Niños.