



On the diversity of moderate El Niño events evolution

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Moderate El Niño events are about six times more frequent than extreme El Niño events over the last six decades. Although the amplitude of Sea Surface Temperature (SST) along the equator at the peak phase of such events is comparable, there is a significant diversity in the development and decaying phases. Here we use observations and Reanalyses to investigate the processes associated to such diversity. It is first showed from observations that inter-event variability is largest in the far eastern Pacific in austral winter prior to the peak phase. Such variability can be understood in terms of the modulation of the Bjerknes feedback, resulting in two classes of evolution for moderate events: one encompassing the canonical El Niño events and the other one corresponding to the central Pacific El Niño events. It is also shown that there is a negative trend of the strength of air-sea interaction (covariability between wind and SST) in the eastern Pacific over the last 5 decades, which tends to favour central Pacific El Niño events in recent decades. CMIP5 models are analysed in order to document the sensitivity of moderate El Niño events evolution to mean state change.