



Some thoughts on atmospheric heat flux feedbacks for the ENSO seasonal phase locking

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ENSO variability has a seasonal phase locking, with SST anomalies decreasing during the beginning of the year and SST anomalies increasing during the second half of the year. In this study it is shown that the seasonal phase locking as observed exist in model simulations of the linear recharge oscillator and in the slab ocean model coupled to a fully complex AGCM. It suggests that atmospheric heat feedbacks can lead to the seasonal phase locking in different ways. In the slab ocean model simulation the seasonal phase locking is primarily caused by state dependent cloud feedbacks that are negative during warm SST seasons (beginning of the year) and positive during cold SST seasons (second half of the year).