



A potential for La Nina-like climate change in the ENSO Recharge-Oscillator framework.

Dietmar Dommenges and Asha Vijayeta
Monash University, Melbourne, Australia

Current projections of climate change suggest an El Niño like climate change with a weakening and eastward shift of the Walker circulation. While, the models do have some agreement on this, it does disagree with the observed changes, it is not understood why the model do this and it needs to be noted that current state-of-the-art climate models have common biases that may support an El Niño like warming bias. In this study we present analysis of ENSO changes in the recharge oscillator (ReOsc) framework. Using the ReOsc framework we will illustrate that CMIP model have substantial biases in important ENSO dynamics and also have projected significant changes in the ENSO dynamics. We will further illustrate that the ENSO ReOsc model within a fully complex atmosphere model will respond to global warming by a strong La Niña like cooling due to enhanced easterly wind forcings. However, the picture is very different if we assume relative SST anomalies in the ReOsc model. Assuming relative SST anomalies in feedbacks suggest that typical ENSO dynamics have no significant response to climate change, but other processes are more important.