

CLIMATE CHANGE IN THE TROPICAL PACIFIC

M. Collins (1)

(1) Hadley Centre, UK Met. Office, London Road, Bracknell, Berkshire, RG12 2SY, UK.

matcollins@meto.gov.uk

There exists a wide range of model responses to global warming in the tropical Pacific region - both in the mean climate and in the interannual variability associated with the El Nino/Southern Oscillation (ENSO). When forced with increases in greenhouse gases, many models exhibit a tendency towards mean climate conditions which are similar to a present day El Nino, whereas other models have a La Nina response or predict a uniform warming over the region. Superimposed on these mean changes, there are further uncertainties in the response of the models ENSO cycle, with some models predicting changes in the amplitude, frequency and phase of the cycle and other models predicting no such changes in ENSO statistics. In this paper we use the Hadley Centre coupled models to examine the physical mechanisms behind both changes in the mean climate and the interannual variability in order to understand and quantify the uncertainties in future climate change in the tropical Pacific.