



## **Upper ocean heat budget and ocean eddy transport in the South-East Pacific in a high-resolution coupled model**

T. Toniazzo (1), C.R. Mechoso (2), L.C. Shaffrey (1), J.M. Slingo (1,3)

(1) University of Reading, UK, (2) University of California at Los Angeles, USA, (3) Met Office, Exeter, UK

We present an analysis of the heat advection and its variability in the upper (0-500m) Southeastern tropical Pacific as simulated by the global coupled model HiGEM. The model produces a realistic climatology for this region and it represents a temperature advection field arising from transient small-scale ( $< 450$  km) features which is consistent with estimates based on long-term observational data. The eddy advection field is characterised by very persistent ( $> 4$  months) structures, which significantly affect the oceanic heat budget on scales of several hundreds of km and over periods of over a year. While several different mechanisms may be responsible, including the ENSO and anomalous ventilation from the extra-tropics, a significant component of this strongly rectifying anomalous advection field is likely to be caused by sharp large-scale, climatological salinity gradients associated with a fresh intrusion of mid-latitude water which penetrates north-westward beneath the tropical thermocline.