**Complete Citation**: You, John and Müller, D. R. and Sdrolias, M. and Herold, Nicholas and Ribbe, Joachim (2007). Sensitivity of middle Miocene climate and regional monsoon to palaeo-altimetry. In *14th National Australian Meteorological and Oceanographic Society (AMOS) Conference, 5-8 February 2007, Adelaide, Australia.*

Accessed from USQ ePrints http://eprints.usq.edu.au

# Sensitivity of middle Miocene climate and regional monsoon to palaeo-altimetry

John You[1,*], Dietmar Müller[2], Maria Sdrolias[2], Nicholas Herold[2] and Joachim Ribbe[3]

[1]University of Sydney Institute of Marine Science, Building H11, University of Sydney, NSW 2006, Email: you@geosci.usyd.edu.au
[2]School of Geoscience, Building H11, University of Sydney, NSW 2006
[3] Dept of Biological and Physical Sciences, University of Southern Queensland, Toowoomba, Queensland 4350

It is well-known that plate motions and the elevation of mountains belts have played a major role in palaeoclimate evolution. The present day monsoon in southeast Asia and northern Australia is associated with the Tibetan plateau. We investigate how the Miocene Climate Optimum (MCO) developed in response to altimetry changes in Eurasia and South America impacting changes in regional monsoon, wind stress and precipitation. We carried out a number of numerical experiments with alternative paleo-altimetries, using an updated NCAR coupled climate model, CCSM3, and CAM3.1 and CLM3 with slab ocean and ice models, validated with proxies. Our model results explore the sensitivities of regional climate change to plate motions and rising mountain belts as well as sea-level change. Especially, the model simulations ground-truth the monsoon evolution in the southeast Asia, northern Australia and South America.

* Corresponding author