Effect of Continental Drift on Tropical Climate at the Early and Late Cretaceous by a General Circulation Model

Masamichi Ohba[1]; Hiroaki Ueda[2]

[1] TERC, Tsukuba Univ.; [2] Life and Enviromnental Sci., Tsukuba Univ

http://air.geo.tsukuba.ac.jp/~ooba/

Simulations for the early Cretaceous (120000000 years before present: 120 Ma) and the last Cretaceous (65 Ma) have been performed by an atmospheric general circulation model (AGCM) coupled with 1.5-layer reduced ocean model. After the initial spin up periods, both runs are integrated for about 70 years. In this sensitivity study demonstrates that first-order features of the changes in global atmospheric circulation occurring in response to changes of the tectonic forcing. The simulated results show that the continental drift during the Cretaceous significantly affects the Walker and Hadley circulations through the birth of the Atlantic and northward drift of the Indian subcontinent.