Geophysical Research Abstracts,
Vol. 11, EGU2009-4055, 2009
EGU General Assembly 2009

Antarctic glaciation during Eocene-Oligocene transition – A model study

P. Herrmann (1), F. Lunkeit (1), E. Kirk (1), A. Paul (2), K. Fraedrich (1), T. Frisius (1), X. Zhu (1), and D. Heslop (2)

(1) University of Hamburg, Germany (Peter.Herrmann@zmaw.de), (2) University of Bremen, Germany

The process of Cenozoic Antarctic glaciation during Eocene-Oligocene transition (around 34 Ma before present) is investigated utilizing a version of the Hamburg Planet Simulator coupled with surface and sub-surface compartments of the University of Victoria Earth System Climate Model.

A series of time slice experiments supports the hypothesis derived from recent analysis of oxygen isotope ratios that the joint effect of orbital configuration, decreased atmospheric carbon dioxide and opening of the Drake passage and the Australia-Antarctic gateway not only leads to Antarctic, but to a rapid bipolar glaciation.