Goldschmidt 2000
September 3rd–8th, 2000
Oxford, UK.

Journal of Conference Abstracts
Volume 5(2), 571

Global Carbon Cycle Model in the Cenozoic

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Various global carbon cycle models have been proposed (e.g. Berner et al. (1994)). Most of them take notice of the Mesozoic climate change but do not discuss Cenozoic. Now we construct a carbon cycle model (revised GEOCARB-type and BLAG-type models) to investigate the climate change since 65 Ma to the present and discuss (a) the cause of the warming in the Middle Miocene and (b) the cooling trend during the last 15 Ma, which have not been revealed by previous computer models . Concretely, we focused the following points in this model : (1) CO_2 flux from back-arc basin, (2) CO_2 flux from island arc, (3) influence of albedo change on temperature, (4) influence of dissolution rate of CO_2 in the ocean. The results of the computation suggests that we can not explain (a) only by (1) and (2) and that we can not find the large effect on the climate change by (3) and (4) about (b), therefore that we must take into account of other factors in order to reveal the cause of (a) and (b). Then it is considered that we might need to consider the change of the ocean system, for example, the ocean circulation, in such a computer model to estimate the climate change especially about (b).

Berner R, *American Journal of Science*, **294**, 56-91, (1994).