

Interactive comment on “Towards an unbiased estimate of fluctuations in reef abundance and volume during the Phanerozoic” by W. Kiessling

Anonymous Referee #2

Received and published: 13 November 2005

General Comments

Deposition history of sedimentary carbonates through Phanerozoic time provides important information, as it has been constrained and interacted with some key earth system parameters: tectonics, climate, sea level and ocean and earth surface chemistry. However, its reconstruction is biased by several factors as is argued by the author, thus the volume may have been underestimated further past in the previous studies. The effort in this paper to subtract these biases to obtain a realistic curve based on his database is highly appreciated.

Specific Comments

The subtraction was done by some assumptions at each step (e.g. oceanic reef sites have little chance of a lasting geological history; more reefs are known from countries with a high GDP density). However, only the resultant curves are shown after

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

subtraction, so the readers cannot evaluate these assumptions. Addition of difference between two curves before and after the subtraction will help readers to evaluate the assumptions and further it will show some implications on the processes contained in them.

The meaning of the finally obtained curve should be discussed in more detail in relation to the key earth system parameters. The curve should also be compared with the previous ones such as Mackenzie and Morse (1992). I hope to see how the scope of earth system history has changed by the new curve over the previous ones.

Calibration by GDP is rather complicated and difficult for me to evaluate. Some examples to test its validity is necessary. The difference between the curves before and after this calibration will also helpful.

Interactive comment on Biogeosciences Discussions, 2, 1487, 2005.

BGD

2, S689–S690, 2005

Interactive
Comment

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper