

Interactive comment on “A two-dimensional model of the methane cycle in a sedimentary accretionary wedge” by D. E. Archer and B. A. Buffett

Anonymous Referee #2

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Archer and Buffett present a two-dimensional model of sediment column geophysics and geochemistry that is designed to simulate the carbon and methane cycling, as well as the potential methane hydrate inventory in an active margin sediment. The model is used to test the sensitivity of the hydrate inventory to a wide range of geophysical and geochemical factors. The proposed model approach is novel and could potentially provide new insights into the coupled, margin-wide carbon cycling over geologically relevant timescales.

This manuscript is, in contrast to its companion manuscript, well phrased and, therefore, less confusing. However, again, the manuscript is not well structured and the authors need to provide a detailed and comprehensive model description. Such a de-

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scription is a prerequisite for a critical evaluation of the approach and the presented results. Therefore, the authors should consider providing a comprehensive description of SpongeBOB in form of a technical manuscript. A second manuscript could then summarise and compare the results of the sensitivity studies for active and passive margin sediments.

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