

Interactive comment on “Soilscape evolution of aeolian-dominated hillslopes during the Holocene: investigation of sediment transport mechanisms and climatic-anthropogenic drivers” by Sagy Cohen et al.

Anonymous Referee #2

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This paper presents a simulation of soil-landscape evolution in a semiarid zone of Israel under fluvial and diffusive sediment transport.

The paper is nicely written and the method is clearly described. The results are stimulating, offering possible soil-landscape evolution pathways.

My comments are that some of the parameters are arbitrarily chosen, e.g. the humped model of weathering. While theoretically it is sound, but no published result yet showing such weathering parameters. The authors wrote: "Limestone bedrock typically results in limited soil production by weathering except for producing a Mollisol" The statement

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on limited production and Mollisol is not necessary true, Mollisol development is due to accumulation of loess and organic matter.

Another limited assumption is aeolian deposition which is uniform, what are the particle sizes of the aeolian deposit? Silt-size? 2-20 μm ?

The simulation is run for 16,000 years. It would be beneficial to see how much of the "soil" is due to bedrock weathering and how much is due to aeolian deposit. There is no mention of vegetation effect? Is there a possible feedback between vegetation and erosion?

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