

Interactive comment on “Early–mid Miocene erosion rates measured in pre-Dead Sea rift Hazeva River using cosmogenic ^{21}Ne in fluvial chert pebbles” by Michal Ben-Israel et al.

Marissa Tremblay (Referee)

tremblam@purdue.edu

Received and published: 21 November 2019

This is just a minor clarification of my original review, in light of the response written by Ben-Israel et al. I appreciate that the Miocene samples were sufficiently buried to not worry about thermal loss during burial or during more recent exposure. My concern about neon diffusion was in regard to diffusion that might have occurred during Miocene erosion and sediment transport, prior to burial. The timescales of Miocene exposure to cosmic rays the authors calculate are on the order of 10^5 years, and these are the timescales over which there could be nontrivial diffusive loss of neon at 60-70 C, depending on grain size.

C1

I appreciate that this could be a tricky issue to tackle, because you want to avoid making a circular argument (i.e., the climate during the Miocene was wetter/had less extreme temperatures, so we don't have to worry about diffusion, and not worrying about diffusion gives us a certain range of erosion rates, which indicates that the climate was different). However, I think an attempt to address the potential for neon diffusion during Miocene in the text is worthwhile.

Sincerely,

Marissa Tremblay Purdue University November 21, 2019

Interactive comment on Earth Surf. Dynam. Discuss., <https://doi.org/10.5194/esurf-2019-54>, 2019.

C2