

Nat. Hazards Earth Syst. Sci. Discuss., community comment CC5 https://doi.org/10.5194/nhess-2021-405-CC5, 2022 © Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.

Reply on CC4

Xuezhong Chen

Community comment on "Analysis of seismic strain release related to the tidal stress preceding the 2008 Wenchuan earthquake" by Xuezhong Chen et al., Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2021-405-CC5, 2022

The Earth tide produces cyclic stress variations in the Earth. These stress variations, of the order of 1000~10000 Pa, are far smaller than the tectonic stress. When the stress in the focal region is at lower values, the tidal stress can not influence the occurrence of earthquakes, but when it is close to a critical condition to release a large rupture, the tidal stress could take effect on the occurrence of earthquakes. The tidal stress increase will promote the occurrence of earthquakes, making the seismic strain release accelerate for PEQs (corresponding to the increase of k in Fig.4c), and when the tidal stress decrease will inhibit the occurrence of earthquakes, making the seismic strain release decelerate for NEQs (corresponding to the decrease of k in Fig.4c).