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Comment on nhess-2021-405

Andrew Delorey (Referee)

Referee 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-RC2>, 2022

Comments for manuscript:

Analysis of seismic strain releases related to tidal stress before the 2008 Wenchuan earthquake

Xuezhong Chen et al.

The analysis shows results for PEQ (positive earthquakes) defined as when $(\Delta)TCFS > 0$. Did you also do the analysis on PEQ defined as $TCFS > 0$? If so, what were the results? Can you discuss how the choice of PEQ impacts your interpretation and the underlying physics? I think the observation is pretty robust, but there is a lot more analysis you could provide regarding your interpretation of the underlying physics and earthquake processes. As it stands, it is simply an interesting observation.

Can you resolve any changes in behavior with shorter time resolution? You average over 5-years. Is there any change in behavior that you can resolve within the period of time when R_k is increasing?

Why should $k(\text{neg})$ decrease when approaching the Wenchuan earthquake? It seems more intuitive that both $k(\text{pos})$ and $k(\text{neg})$ should increase, even if $k(\text{pos})$ increases faster.

There is another change in behavior around 1999, which can be seen in Figure 4a and 4c. Is there any explanation for that? Is it related to the change in instrumentation?

Figure 1b, what component of strain are you showing?

You write, "as the length of time with $(\Delta)\text{TCFS} > 0$ is almost the same as that with $(\Delta)\text{TCFS} < 0$ ". What do you mean by almost? Do you account for the difference in your analysis? You should compare observed versus actual expected, not observed versus "almost" expected. This could impact your results.

There are some minor language problems, that could be fixed by having the manuscript reviewed by a more experienced English writer.