

Hydrol. Earth Syst. Sci. Discuss., author comment AC1
<https://doi.org/10.5194/hess-2022-326-AC1>, 2022
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Reply on RC1

Shouchuan Zhang et al.

Author comment on "The origin of hydrological responses following earthquakes in a confined aquifer: insight from water level, flow rate, and temperature observations" by Shouchuan Zhang et al., Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2022-326-AC1>, 2022

Dear Dr. Martinelli,

Many thanks for your helpful comments on our manuscript. By following your comments, we have collected the barometric pressure data from the Simao city. And we employed the wavelet coherence analysis to investigate the relationship between barometric pressure and the groundwater level response. We found that the water level and barometric pressure are highly correlated at a 95% pointwise confidence level with coherence coefficients > 0.9 within band between 0.5 and 1 day. Which means that the groundwater level is affected by the barometric pressure fluctuation.

Furthermore, we compare the tidal components extracted from the water level time series under and without the influence of barometric pressure. We employed the widely used tidal analysis program--Baytap-G to remove the effect of barometric pressure, and we found that the tidal components extracted from the water level time series under and without the influence of barometric pressure are similar.

Thus, the new analysis supports our idea that barometric pressure fluctuation would not have an effect on the result of our tidal analysis. The detailed analysis and figures could be found in the attached file.

Please also note the supplement to this comment:

<https://hess.copernicus.org/preprints/hess-2022-326/hess-2022-326-AC1-supplement.pdf>