

The Cryosphere Discuss., community comment CC2
<https://doi.org/10.5194/tc-2021-197-CC2>, 2021
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Reply on CC1

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Community comment on "Towards ice-thickness inversion: an evaluation of global digital elevation models (DEMs) in the glacierized Tibetan Plateau" by Wenfeng Chen et al., The Cryosphere Discuss., <https://doi.org/10.5194/tc-2021-197-CC2>, 2021

We thank Dr David Shean for pointing out this and the information provided. These were very valuable. The offset of ~30 m between ICESat-2 elevation and the global DEM elevations is indeed due to the differences of datum reference. We ignored the reference differences between various DEMs and ICESat-2. In fact, ICESat-2 data, NASADEM_SHHPv001 and TanDEM-X are based on WGS84 ellipsoid reference, and the other four DEMs are all based on EGM96 geoid (Table 1). We have added this information to Table 1. We updated the data and the geoidheight function provided by MATLAB was used to calculate geoid height to unify their references. All the analyses are repeated. All the figures and Tables are updated thoroughly. Our main conclusion doesn't change, we still concluded that NASADEM performed best and would be the best choice for ice-thickness estimates over the TP. The details about the revisions could be found attached.

Please also note the supplement to this comment:

<https://tc.copernicus.org/preprints/tc-2021-197/tc-2021-197-CC2-supplement.pdf>