Interactive comment on "Geo-locate Project: A novel approach to resolving meteorological station location issues with the assistance of undergraduate students" *by* Simon Noone et al.

Simon Noone et al.

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We would like to thank Referee 1 for their helpful and constructive comments, which will help improve the manuscript. We have responded to the general comments as outlined below, but we will respond to the specific suggestions once we have received the comments from Referee 2.

General suggestions

Referee comment: It needs to be made clear somewhere in the paper that the authors are talking about locating the general position of a station, to an accuracy of a certain

number of kilometres, as required for reanalysis or gridding purposes. The authors need to clarify that the updated positions provided by the students are not suitable for homogenisation assessment for example, because the updated locations might not be correct in terms of exposure.

Response: We will make clear in the revisions that the student locations are potential approximations to the actual location. That said, our experience in two- and a-bit years to date of dealing with the data is that, sadly, in the available archives knowing the true location of a station is the exception and not the norm. So, the student locations, while they may be a little more ambiguous than some other locations, are not in reality that different from the case for many of the sources we are dealing with. We would love to know the actual position, and have rich metadata of all sites. The reality, unfortunately, is a lot messier. Anyone trying to assess homogenisation will, for many stations, need to grapple with stations of ambiguous location. At least following the student assessment, the locations are now sufficiently plausible that they can be used for certain applications. We would note that via the relational database approach the full provenance of the student location of the station shall be available to end-users.

Referee comment: In section 6, it would be nice to hear about how the authors plan to improve the experience of future students, or how other centres could incorporate a similar project in their curriculum. For example, do you think the students would have responded better to Dick Dee if he had attended the class in person? Do you need to provide more concrete examples of how the work helps climate research, or why so many stations have incorrect coordinates? Would the students benefit from exploring the climate of a particular station they are correcting? Would the task be more or less appropriate for earlier or later in a degree? Some of this may be covered in the introductory lecture given to the students, but it was not outlined in section 3.

Response: Thanks for the suggestion. We will redraft section 6 to be more explicit. In particular since submitting the manuscript discussion with colleagues at NOAA CIRES has highlighted the potential to use 20th Century reanalysis products to identify dubious

locations and verify potential relocation. It is too late to incorporate this in the 2019/20 class, but we are actively considering doing this for 2020/21 which would add a valuable data analysis aspect.

Interactive comment on Geosci. Commun. Discuss., https://doi.org/10.5194/gc-2019-10, 2019.

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