We greatly appreciate the reviewers providing valuable and constructive comments on our manuscript HESS-2022-417. We considered each comment and will revise/improve the manuscript accordingly. The individual comments are replied below. In the following the reviewer comments are formatted in black font and our responses are blue.

Reply to RC1:

In this study, entitled 'Technical note: Improved handling of potential evapotranspiration in hydrological studies with PyEt' , the authors present a new python-based software to calculate potential evaporation using a variety of semi-empirical equations. The paper is well-written and the package, in my opinion, is a useful addition to the variety of tools available for calculating hydrologic fluxes. I only have a few comments which can be addressed relatively easily.

Thank you for your encouraging and constructive comments. Your individual comments are replied to below.

1. A major issue I have is the suitability of HESS for this study. To me the study is the presentation of a software package and does not present 'new developments, significant advances, and novel aspects of experimental and theoretical methods and technique…' as required of a 'technical note'. It reads more like a GMD paper rather than a HESS paper.

While we acknowledge that our manuscript may also be suitable for publication in GMD, our main objective was not only to describe the software itself (which we consider more appropriate for GMD), but also to showcase a novel technique for estimating potential evapotranspiration (PET) using multiple PET methods for gridded datasets. We believe that by providing an environment in which users can estimate PET using up to 20 different PET methods, working with both time-series and gridded datasets (taking advantages of the xarray package) , can be considered a new development in the field of PET estimation techniques. By publishing our manuscript and software in HESS, we aim to benefit the widest possible community in the fields of hydrology and earth system studies.

2. The name PyEt is misleading as the python package calculates potential evaporation rather than evaporation.

The P in PyEt stands for both Python and »Potential«.

3. The manuscript is missing details of compute times. I think this information is vital for any software package. How fast is the computation for gridded datasets? It would also be useful to have information about how efficient the software is regarding memory usage. I guess the use of xarray allows lazy loading and thus alleviates large memory usage.

In the revised manuscript, we will provide more detailed information on the compute times and memory usage for time series and gridded datasets.

4. Potential evaporation is not just used in hydrologic studies but in several ecological and climate-impact related studies. Therefore, the title does not completely do justice to potential use cases of the package.

We understand that the title of our manuscript may not fully reflect the potential use cases of the PyEt package. In fact, our manuscript is mainly aimed at hydrologists who need to calculate PET, which is why we try to illustrate and discuss the application of the package rather than the details of the technical implementation. Referring to comment no. 1, this is why we submitted the manuscript to HESS. Yet, we agree that the PET methods are also relevant in more general earth system studies

addressing ecological aspects or climate impacts. We will therefore change the title to: »Technical note: Improved handling of potential evapotranspiration in hydrological and earth system studies with PyEt«.

Line 65–70: ‘hydrologists’ is misspelled.

Line 2015: ‘regions’ should be ‘region’.

We will correct the typos in the revised manuscript.