

Public justification (visible to the public if the article is accepted and published):

Once again, this study filled an important data gap in mapping crop management, and the reported dataset nicely complements other newly and under-development regional or global products such as LGRIP30. The manuscript has been reviewed by four experts in this area, unfortunately not all of them are able to follow through the whole process and re-review how the authors' revision addressed their original concerns. But I thoroughly went through the responses and found the authors adequately addressed all the comments raised (especially by the fourth reviewer). With that said, I am happy to recommend Accept, contingent on a minor edit I suggested below.

Response: Thank you for your thorough evaluation of our manuscript and for considering the feedback from all reviewers. We are pleased to hear that you find our study to be a valuable contribution to the field of crop management mapping and that it complements other regional or global products such as LGRIP30.

We appreciate the time and effort you have invested in ensuring that all reviewer comments were adequately addressed in our revisions. We understand the importance of a rigorous review process and are grateful for the expertise provided by the reviewers, even if not all could follow through to the end.

Regarding the minor edit you have suggested, we are more than willing to make the necessary changes.

Additional private note (visible to authors and reviewers only):

I don't really have any technical concerns, but for any scientific writing, there is always room to improve for better clarity. At least, I suggest the authors to consider revising the title a little bit. For example, what does the 100 in "GMIE-100" mean? If that is an important piece of info, it is better to explicitly spell out the resolution in the title. Machine learning methods are not too different from machine learning; even better, it may be more useful to just directly say "deep learning" rather than machine learning methods.

Response: Thank you for your suggestion on improving the clarity of our scientific writing. We have revised the title to "GMIE: A Global Maximum Irrigation Extent and Central Pivot Irrigation System Dataset Derived via Irrigation Performance During Drought Stress and Deep Learning Methods." to eliminates any ambiguity regarding the "100" and emphasizes the use of deep learning methods.

Last but not the least, I highly encouraged the readers to proofread the manuscript a few times to correct for any potential awkward use of English. Here is an example showing what I meant: In the abstract, it says " To our knowledge, this study is the first attempt to identify irrigation methods globally". It makes little sense to say "identify identify irrigation methods globally". Do you mean "mapping irrigation globally" or "developing global-scale irrigation-mapping algorithms"?

Response: We appreciate your attention to detail and agree that clear and precise language is crucial for effective communication of our research.

Upon reviewing the sentence you mentioned, we recognize that the phrase “identify irrigation methods globally” may not accurately reflect our intended meaning. We have revised the sentence in the abstract to state: “To our knowledge, this is the inaugural study to undertake a global identification of specific irrigation methods, with a focus on the CPIS.” This distinction is crucial as understanding the global distribution of irrigation types allows for a more precise estimation of irrigation efficiency. Due to the variation in irrigation efficiency among for different types of irrigation methods, CPIS demonstrate an efficiency exceeding 80%, while gravity-flowing irrigation methods exhibit a comparatively low efficiency of approximately 60% (Waller and Yitayew, 2016). Therefore, irrigation efficiency can be estimated based onin relation to types of irrigation methods in the future. Recognizing this, our study aims to enhance the accuracy of water resource management by mapping these irrigation methods on a global scale.

Additionally, a native English speaker has helped us polish the manuscript once again, making necessary revisions. We have proofread the entire manuscript to avoid minor mistakes or misunderstandings. Please review the changes in the manuscript with tracked changes enabled.