

## ***Interactive comment on “Synthesis of Global Actual Evapotranspiration from 1982 to 2019” by Abdelrazek Elnashar et al.***

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### Response to Referee 2's Comments

The present article proposes a long-term synthesized ET product at a kilometer spatial resolution and monthly temporal resolution from 1982 to 2019. The authors made a trial application of GIS and remotely sensed data to reach the proposed aim of their study.

» Answer: Thank you very much for your positive comments and suggestions which for sure significantly improved the manuscript.

The presented article would be a good piece of work by supporting the conclusion with the obtained findings.

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» Answer: Thank you for your very thoughtful comment. We have added the obtained findings to the Conclusions section as follows: " The average annual ET from 1982–2019 is 567 mm year<sup>-1</sup>. Although no product performed better in terms of all selected validation criteria in all classification levels, PML, GLDAS20, SSEBop, MOD16A2105, GLDAS21, SEBS, and NTSG are the sequence of their performances. The synthesized ET from PML, SSEBop, MOD16A2105 and NTSG agreed with the flux EC ET with R-values higher than 0.70, a maximum ME (RME) of 13.94 mm (17.13%) and a maximum RMSE (RRMSE) of 38.61 mm (47.45%) over 62% of all comparisons levels, as remotely sensed based ET product spanning from 1982 to 2019 with highest agreements, accuracies and lower biases over most of the land surface types and conditions. It performs well when compared with country-based and continental ET products over China, the United States and the African continent. However, the further synthesis of local ET products is encouraged if regional ET products are available."

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