

Interactive comment on “Creating long term gridded fields of reference evapotranspiration in Alpine terrain based on a re-calibrated Hargreaves method” by K. Haslinger and A. Bartsch

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The manuscript is well-written, well-organized and the research theme has steady interesting around the consistent estimation of PET which is critical component of hydrological cycle. I propose it for publication in HESS with some necessary addendums:

To become the paper a novel must take in to account the longitudinal survey in the parsimonious expression of the PET including physical-based calibration procedures (Tegos et al. 2015, Oudin et al. 2005, Tabari and Talaei 2011).

On the contrary, much simpler methods which use air temperature as a proxy for ra-

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diation (Xu and Singh, 2001) have been developed to overcome the shortcoming of PM of not having sufficient input data. The empirical temperature-based method separate from the other radiation-based methods like Priestley and Taylor, Oudin et al., McGuinness-Bordne, Oudin etc. Maybe you should add the other reference of Xu and Singh, 2011 in this section.

Following the recommendations of the FAO (Allen et al., 1998) the radiation-based Penman–Monteith Method (PM) provides most realistic results and generally outperforms temperature based methods. Not only temperature based methods, you should add and the other radiation-based method.

However, two main methodological frameworks emerged for the interpolation of ET₀ (McVicar et al., 2007): (i) interpolation of the forcing data and then calculating ET₀, or (ii) calculating ET₀ at every weather station and the interpolating ET₀ onto the grid. More references are needed (Tegos et al. 2015, Mancosu et al. 2014).

Somewhere an innovative manuscript (McMahon et al. 2014) also published in HESS must cite. Maybe in the introduction section (lines 10-15).

References

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