Review of HESS Manuscript # hess-2016-424

Title:	A Budyko framework for estimating how spatial heterogeneity and lateral moisture redistribution affect average evapotranspiration rates as seen from the atmosphere

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This paper describes how averaging of P & PET does not lead to an average E. The example used is within-catchment lateral transfers of water.

The paper is very well written. For the first time in many years, I did not locate any suggested correction. (I tried hard but could not find anything.) The presentation is a credit to the authors.

The paper is an interesting analysis on an important topic. One important contribution is that the authors present (analytical) estimates for the maximum effect.

I only have two substantive comments.

Page 3, lines 17-22. The authors use PET here as a generic descriptor of demand. Unfortunately, in Hydrologic practice, PET can mean many things (e.g. Penman Open Water, FAO-56, etc…). However, in the original scheme, Budyko actually used net irradiance (sometimes called available energy). It might be useful to point this out here.

Page 12, lines 26-28. A directly analogous result, based on almost identical logic, for averaging over time has been presented previously in HESS (Lim & Roderick, 2015 HESS 18, 31-45).

p. 13, line 3. A great example of this averaging can be found in Gerrits et al (2009, WRR, Vol. 45)

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