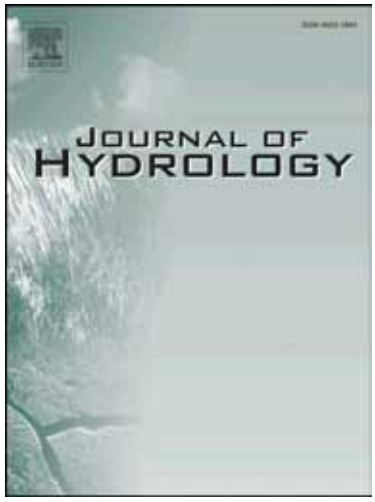

Research papers

Is ET often oversimplified in hydrologic models? Using long records to elucidate unaccounted for controls on ET

Christa A. Kelleher, Stephen B. Shaw

PII: S0022-1694(17)30836-3
DOI: https://doi.org/10.1016/j.jhydrol.2017.12.018
Reference: HYDROL 22429

To appear in: *Journal of Hydrology*

Received Date: 18 July 2017
Revised Date: 12 October 2017
Accepted Date: 4 December 2017

Please cite this article as: Kelleher, C.A., Shaw, S.B., Is ET often oversimplified in hydrologic models? Using long records to elucidate unaccounted for controls on ET, *Journal of Hydrology* (2017), doi: https://doi.org/10.1016/j.jhydrol.2017.12.018

Is ET often oversimplified in hydrologic models? Using long records to elucidate unaccounted for controls on ET

Christa A. Kelleher[1,2] and Stephen B. Shaw[3]

*Corresponding Author: ckellehe@syr.edu

1. Department of Earth Sciences, Syracuse University, Syracuse, NY, USA

2. Department of Civil Engineering, Syracuse University, Syracuse, NY, USA

3. Department of Environmental Resources Engineering, State University of New York College of Environmental Sciences and Forestry, Syracuse, NY, USA

Highlights:

- Over multiple decades, discharge can only be simulated with time varying parameters
- Either time-variability of a PET scalar or innate watershed parameters can be used
- Innate watershed parameters include field capacity and wilting point
- A time-variable scalar on PET is consistent with known biophysical processes
- Temporal variation in innate watershed parameters has little physical explanation

Keywords: watershed modeling; evapotranspiration; potential evapotranspiration; streamflow