

IMPROVING ESTIMATES OF EVAPORATION WITH THE “BOWEN RATIO” METHOD

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Abstract

The application of the Bowen ratio method to estimate evaporation is heavily affected by uncertainties on the measured quantities. Standard techniques of error propagation can be used to reject, from a time series of hydro-meteorological variables, the measurements collected at time steps for which a reliable estimate of evaporation cannot be computed. However, simply discarding some values might introduce a bias in the cumulative evaporation for long time intervals, also depending on the threshold of acceptance. One solution is to use a direct sampling technique, based on multiple-point statistics simulation, to integrate the time series of reliable evaporation estimates. In this work we test the application of this technique on a two-years-long time series of data collected with a hydro-meteorological station located in the Po plain (Italy). In particular, we explore the impact that a different threshold of acceptance has on the final estimates of evapotranspiration. The results obtained up to date allow to evaluate the impact that a reject-only strategy has on the estimates of evaporation, and provide guidelines for the selection of reliable threshold of acceptance.