

## ***Interactive comment on “Uncertainty in acquiring elemental fluxes from subtropical mountainous rivers” by T. Y. Lee et al.***

**Anonymous Referee #1**

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The authors evaluate methods of flux estimation for five water quality constituents. The problem of contaminant flux is an old one. In the absence of perfect measurement, estimation depends on some randomisation procedure, or a model of the flux at unobserved measurement points, or some combination of the two approaches.

The analysis considers results from three locations a single river, where a semi-continuous record of flow and solute concentrations is available. The authors sample from this record and assess the selected estimation techniques against values obtained from the complete record (the “reference flux”). It would be useful if the authors compared these with the theoretical properties of the estimators. This would tell us something about the model assumptions used, notably for the rating curve method.

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The authors do not do this, but do investigate empirically the effect of sample size on the estimates obtained.

Figures 8 to 10 show discrete clumping of sampled standard deviations. I do not understand this, and would want an explanation. It also appears that sulphur has at least one source and the concentration is not a simple function of flow. This would suggest the rating curve method is over-simplistic for this contaminant.

It is not clear how the material presented in this paper could be used to infer properties of the estimation methods for a wider population of streams. Without some comparison between empirical and theoretical results, I find publication difficult to justify.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 6, 7349, 2009.