

## ***Interactive comment on “Application of Weighted Semivariogram Model (WSVM) based on fitness to experimental semivariogram on estimation of rainfall amount” by S.-J. Wu et al.***

### **Anonymous Referee #2**

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The paper proposes a weighted variogram model to deal with the determination of the variogram parameters and aimed at improving the quality of estimation models. Although the paper is relatively clear, I am concerned about the methodology they propose and the idea of combining basic variogram structures to "optimize" the fitting.

1. Improvement in results is simply a consequence of adding flexibility to the minimization of the misfit, by adding several structures of different types. However, this approach lacks a reasonable interpretation of the resulting model. Furthermore, no nugget effect is considered.

2. The authors call for a combination of multiple models to automate by cross-validation the weights assigned to each model. One could suppose that by adding other models, further improvement would be reached. However, the approach is presented as a black-box, in the sense that the modeller does not have to intervene to get a result. Hence, in most cases the result will make no sense and will not have a possible interpretation.

3. Cross validation as a method to optimize variogram parameters is quite sensitive to the search parameters considered. Results could change significantly with other search parameters.

4. The authors should discuss the issue of stationarity in the determination of the variogram parameters, and selection of populations to be modelled.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 4229, 2011.

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