Hydrol. Earth Syst. Sci. Discuss., 10, C8196–C8198, 2014
www.hydrol-earth-syst-sci-discuss.net/10/C8196/2014/

Hydrology and Earth System Sciences
Open Access
Discussions

Interactive comment on "The role of retrospective weather forecasts in developing daily forecasts of nutrient loadings over the Southeast US" *by* J. Oh et al.

Anonymous Referee #2

Received and published: 15 March 2014

General Comments:

The authors proposed a load estimation model, LOADEST, for estimating daily nutrient conditional on daily precipitation forecasts and previously observed streamflow as surrogates of antecedent moisture conditions for 18 watersheds that are minimally affected by anthropogenic interventions over the Southeast US. The predicting skills over the selected watersheds were illustrated. The reasons for poor skill in predicting high flow values were discussed. The authors have made great efforts. However, the innovative forecast methods or applications are deficient in the paper. I would suggest acceptance subject to a major revision. My suggestions that might help authors

Full Screen / Esc
Printer-friendly Version
Interactive Discussion
Discussion Paper

improve the paper are:

Specific Comments:

(1) In “Introduction”, the reasons why the streamflow over the previous three days could be considered as a surrogate for antecedent soil moisture conditions need to be further clarified in the revised manuscript.

(2) The 2th paragraph of Introduction, sentence “Developing daily streamflow forecasts over a large region using semi-distributed models require intensive spatial data (e.g. topography, land cover, soils) and computational resources, hence, we employed the K-Nearest Neighbor (K-NN) semi-parametric approach to develop daily streamflow forecasts contingent on updated climate forecasts.” This sentence needs to be rewritten in a clearer way to highlight the reason that K-NN resampling approach was applied in this study.

(3) In “2.2 Weather forecasts database”: please present the mechanism of the method for forecasting precipitation.

(4) In “3. Stream and total nitrogen forecasting models”, three models were proposed for forecasting precipitation, streamflow and nutrient loading, respectively. Do the model scales match? I suggest more descriptions on how these forecasting model scales match each other be presented.

(5) In “3.2 K-Nearest Neighbor (K-NN) resampling approach”, there should be more description on the specific mechanism of K-NN resampling approach.

(6) In “4.1 Skill in forecasting daily streamflow”, I would suggest that the obtained conditional distribution of flows for 18 watersheds should be presented.

(7) The contents of “5. Summary and conclusions” section should be enhanced according to the actual results. Please emphasize innovations and important conclusions.

(8) There are several typographical and grammatical errors that need to be corrected,

HESSD

10, C8196–C8198, 2014

for example: (a) Page 15628: “But, availability of data on total nitrogen is limited with concentration is typically measured on a non-continuous basis.” (b) Page 15628: “Similarly, considerable progress has been made in developing daily streamflow forecasts using both statistical models that consider both parametric and semi-distributed models.” (c) Page 15630: “The WQN database comprises of water quality data from USGS monitoring networks from both large watersheds (National Stream Quality Accounting Network, NASQAN) and minimally developed watersheds (Hydrologic Benchmark Network, HBN).” (d) Page 15635: “These errors primarily occur due to the inability of the model to predict high values, which resulted in very high residuals.” (e) Page 15639: “It is important to note that all the skill reported in Figs. 3–6 consider the ability to predicting exactly for those days with WQN observations.”

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 15625, 2013.