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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Efficient GIS-based model-driven method for flood risk management and its application in central China" *by* Y. Liu et al.

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Dear Editor:

We would like to thank the Editor-In-Chief and the Editor for their high enthusiasms and comprehensive analyses of our paper. We also appreciate the reviewers for their valuable comments and constructive suggestions, which would help us to improve the quality of the paper. We have taken special care to address each comment made by the three referees. For your convenience, we now provide our point-by-point response to all the concerns as detailed below.

The manuscript has been major revised by adding a lot of clarifications and information. We mark all the changes in red in the revised manuscript. Corrections list:

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Interactive Discussion

Discussion Paper

(1) Focusing on the novelties of our work. The main contribution includes the following three aspects:

a) We present a new methodological framework for decision support system (Section 3 in the revised manuscripts). We have added the clarification of the Systems Life Cycle to describe the implementation method;

b) We illustrate a loose-coupling technical prototype for integrating heterogeneous elements, such as multi-source data, multidisciplinary models, GIS tools and existing systems (see Section 4 in the revised manuscripts);

c) We describe how the optimization models and algorithms combined in this framework by a case study (see Section 5 in the revised manuscripts).

(2) We've got expert advice on improving our manuscript from an American team;

(3) We describe the Model-driven method research to two aspects (see Section 2.1). The first is as DSS foundations research, which is described in Section 3. The other is as software engineering research, which is described in Section 4;

(4) About method validation, we compare the MDSS model with others on a set of criteria (see Section 6 in the revised manuscripts);

(5) Be superior from other simpler DSS, the most important qualities of MDSS are flexibility and adaptability. We have analyzed a real example with quantitative results to compare MDSS with other DSS in Section 6.2;

These comparative studies demonstrate that MDSS is efficient, adaptable and flexible.

If there is any question about this paper, please don't hesitate to let us know. Sincerely yours,

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