

E-6

MAYNORD

COMMENTS/REVIEW

Reply on 8/29

Review of Evaluation Report, 24 August 02, Maynard

1. Title- Change title to "Micromodel Capabilities and Limitations" This is more descriptive of this effort. I can not think of any applications we have added. From my perspective, we have eliminated some.
- 2A. Remove Ettema and Smith.
- 2B. At the beginning we need to define similarity as the comparison of model and prototype and similarity criteria as the rules, laws, or parameters that help us achieve good similarity.
3. Page 1-4- sentence "Due to .." Suggest saying Numerical models have not provided the river engineer with predictions of the general three-dimensional bed response of the river.
4. Page 1-7- "Once MVS successively used ..." Successively seems to be a strange word here. If this word was intended to be successfully, this is a conclusion that is the purpose of this evaluation and must be removed.
5. Page 1-8- remove 1st pp of 1.3
6. Page 2-2- 2nd full pp. Remove last two sentences. These do not add anything.
7. Page 2-4- last sentence of page- change physical models to physical sediment models.
8. Page 2-5- last sentence- what is meant by remaining properties?
9. Page 2-6- last pp of 2.3- This is a repeat of last pp on Page 2-4. I don't agree with statement that equilibrium approach in MM is like regime theory.
10. Page 2-7- section 2.3.3 seems to overly complicate the division of rational versus empirical and does not add anything.
11. Sec 2.4 should be a concluding pp of 2.3-
12. Sec 2.5 2nd pp page 2-9- "Conditions in ...". I think we are specifically talking about bathymetry in this pp because bathymetry comparisons are the issue. Let's be specific and say bathymetry.
13. Sec 2.5-2nd pp, Next to last sentence on page, somehow we need to convey to the reader that when we omit factors from our model, such as the variations in discharge hydrograph from year to year by using a generic hydrograph, the data appears more variable than if discharge variations are part of the model procedure. Omit sentence "This variability ...". Change to "Even with the most rigorous sediment model, variability in the prototype bathymetry data causes problems with comparing model and prototype. The problem becomes more acute when parameters that cause variability in the bathymetry are not included in the modeling process. For example, the micromodel does not simulate hydrograph variability that is a major cause of variability in the prototype bathymetry data."
14. Sec 2.5- last sentence of 2nd pp- This is a conclusion that needs to be located later and supported with data.
15. Sec 2.5.2- 1st pp- sentence "Since 1995..." remove word successfully.
16. Sec 2.5.2- The Davinroy isovel stuff is not basic methodology. This is more appropriately a proponents case study.
17. 2.5.3- 3rd pp- insert simulates the "banks" of the river, not the bed.
18. 2.5.3.1- 3rd pp- sentence "Modeling clay .." This makes it sound like a routine thing. It appears to me this is only used if the model can not be calibrated with a vertical bank.
19. 2.5.3.1- Add sentence stating that the tailgate is a fixed free overfall.
20. 2.5.3.2- After "Existing prototype river" Explain how structures are initially set when vertical scale and datum are unknown.

21. 2.5.3.2- Last sentence- where have you varied sediment size based on the bed material in the stream?
22. 2.5.3.3- "Through the use of, the hydraulic processes of a river..." Replace "the hydraulic processes..." with "a range of flows can be introduced into the model."
- 23A. 2.5.3.3- "The moving water and sediment ..." I have heard Andy say there are no bedforms in the model. Do we mean bed morphology or bathymetry?
- 23B. 2.5.3.3- I thought equilibrium was survey A about equal to Survey B.
24. 2.5.3.4- 4th pp- I thought this was morphological similarity-
25. 2.5.3.4- 7th pp- last sentence- remove flow and velocity- that is in next pp.
26. Sec 2.6- item 1)- 25 inches should be 2.5 inches.
27. Sec 2.6- item 10)- "One of the most important" This is a conclusion and can be put in proponents section if desired.
28. Sec 2.7- move stuff from Franco to Comparison report or to proponents section.
29. Sec 2.7.2- Change first sentence to "Gaines, Gordon, and Maynard (2002) describe comparisons of the verification phase only of thirty previous model study results using morphology similarity. These comparisons do not address the predictive capability of the models."
30. Sec 2.7.2- end of 1st pp- where do we provide case study?
31. Sec 3.1- 4th pp- "Limits for model ..." The word "allowable" implies that prototype variability somehow gives us a choice. Prototype variability makes it difficult to define the level of agreement of model and prototype. If we can not come to some agreement on this issue, we need to omit this pp and put in proponents section. As I stated before there is a big difference between modeling approaches where variation in discharge hydrograph is an input to a model and those where all hydrographs are considered the same. Variability appears much larger in models that do not consider hydrograph variation.
32. Sec 3.1- last pp, last sentence- where is this relationship?
33. Sec 3.2- I feel much of 3.2 should be omitted. I don't object to all of it but I'm not sure what it adds. Individual comments on 3.2 are as follows:
 - a. I think we should reference pertinent conclusions from the ettema report.
 - B. The equations on 3-9 are not used by any of us as far as I can see.
 - C. The discussion of distortion effects does not address the likelihood that distortion effects are most significant in bends. Statements about equivalency of coal bed slope and vertical scale/shift in the MM do not agree with Pokrefke comments.
 - D. I did not follow the pp on "Two parameters..."
 - E. The pp on slope distortion, last sentence. This may be true regarding sediment mobility but other distortion effects, such as channel shape, are different.
 - F. I did not understand the last two sentences of the last pp of 3.2.2.
34. Sec 3.2.4- This section presents the 4 categories of study types we are evaluating and the title should reflect that.
35. Sec 3.2.4- 3rd sentence needs to be omitted or put in proponents section.
36. The 4 categories I developed reflect first what I perceive to be the study types used in previous MM. The consequence of the model being wrong helps differentiate them but was not the basis on which I developed them.
37. Omit info on risk analysis. We have not explored this enough as a group. If we keep this in,

then the references to "The definition of similarity criteria also depends on prototype variability." (Page 3-22) throughout the report must be placed in the proponents section.

38. Omit last pp of 3.2.

39. Omit scale ratio analysis.

40. 3.4.2.2- Roughness- How do you conclude that reduced particle density provides some reduction in the requirement to have similarity of roughness?

41. Sec 4.1 2nd pp- "The opposing views ..." Change to The opposing views arise primarily from comparison of model and prototype and the extreme deviations in similarity criteria that exist in the MM.

42. Sec 4.1- omit 3rd pp- This does not add anything.

43. Sec 4.3- Since this is labeled Proponents Viewpoints and will have to be clearly understood that it only represents their viewpoint, it will be the repository of all things that we can not agree on that the proponents want to say. My list of reasons to limit application of the MM will have at the top of the list- model/prototype comparison. If the proponents want to say that my reasons are similtude criteria, so be it.

44. Sec 5.1 and 5.2- These don't seem like findings. If worth presenting, this should have been presented earlier.

45. Sec 5.3 Where is ettemas statement about thalweg being fixed?

46. Sec 5.4- I am skipping this until we talk about the proposed table.

47. Sec 6.1 and 6.2- Put protocol and data requirements in an appendix.

48. Sec 6.3- recommendations:

a. Develop loose bed model with width of 1-3 ft that eliminates extreme distortions in MM

b. Require correspondence of Q and stage.

C. Omit ripple factor statements.

D. PAGE 6-10-What is native model units?

E. Next to last pp- Remove additional confidence can be gained.