

Interactive comment on “Multi-objective calibration of a surface water-groundwater flow model in an irrigated agricultural region: Yaqui Valley, Sonora, Mexico” by G. Schoups et al.

Anonymous Referee #1

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The authors combine a number of up-to-date methods and software packages to successfully solve an important scientific problem of developing and calibrating a comprehensive regional model of a complex hydrological system. The obtained model is shown to be accurate enough and allow the choice of optimal groundwater management strategies.

Specific comments:

1. P. 16, L4. "... Kv for were estimated..." seems to need revision.
2. P. 18. Formula (12) for root mean square error differs from the one commonly used, e.g., in statistics. The sum of nk summands is actually divided by nk squared, meaning that, in the general case, the estimated RMSE decreases with increasing nk, while

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the quality of approximation may not improve at all. Is there any reason to write (12) like that or is this just a misprint? It should be mentioned though that the use of the conventional expression with the entire sum divided by nk will not affect the results in this case since RMSE estimates with different nk are not compared with one another in the Pareto procedure.

3. P. 27, L23. "serous" -> "serious"

4. P. 27, L23. A period after "and" within a sentence.

1) Does the paper address relevant scientific questions within the scope of HESS? - YES

2) Does the paper present novel concepts, ideas, tools, or data? - IMPROVEMENT AND APPLICATION OF EXISTING APPROACHES

3) Are substantial conclusions reached? - YES

4) Are the scientific methods and assumptions valid and clearly outlined? - YES

5) Are the results sufficient to support the interpretations and conclusions? - YES

6) Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)? - YES

7) Do the authors give proper credit to related work and clearly indicate their own new/original contribution? - YES

8) Does the title clearly reflect the contents of the paper? - YES

9) Does the abstract provide a concise and complete summary? - YES

10) Is the overall presentation well structured and clear? - YES

11) Is the language fluent and precise? - YES

12) Are mathematical formulae, symbols, abbreviations, and units correctly defined and

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used? YES, THOUGH THERE IS A QUESTION REGARDING ONE FORMULA

13) Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? - NO

14) Are the number and quality of references appropriate? - YES

15) Is the amount and quality of supplementary material appropriate? - YES

Interactive comment on Hydrology and Earth System Sciences Discussions, 2, 2061, 2005.

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2, S835–S837, 2005

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