

## ***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 #2**

Received and published: 28 October 2005

The paper presents an application of a regional surface water - groundwater model in the semi-arid irrigated agricultural region. The authors suggest to use the multi-objective optimization, which enables to account for both the parameter uncertainty and the structural model uncertainty. The model application clarifies the components of water balance, which have to be known to water managers in order to improve the management regime.

The subject of the paper will be of interest for the international audience of the journal. The method, modelling approach and assumptions seem to be valid. The results are sufficient to support the interpretations and conclusions. The paper can be accepted for publication after a minor revision.

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

The following minor corrections are needed:

1. The abstract should be slightly extended by including a short (2-3 sentences) description of the modelling approach. 2. Evapotranspiration does not belong to the discharge mechanisms - please correct the sentence in the abstract. 3. Time step of the model (p. 2068) should be clarified: is it 1/10 of a year? 4. Please explain, what means: "unlined" canals? 5. p. 2070: 'Evaporation from the canals was negligible'. Please include the estimation of the evaporation from the canals. 6. Please define the relative evaporation (p. 2073). 7. Numbering of the Figures should correspond to their mentioning in the text. 8. Figure 6 mentioned on p. 2077 should be Figure 4? 9. Please correct the legend in Fig. 11, the first pie chart: compare the current legend with the text on p. 2084. 10. Please discuss in the Conclusions the model transferability to other regions: is it possible or not.

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? Yes: further development of a modelling system, its application in a specific region, the region itself is of interest for the potential readers. 3) Are substantial conclusions reached? Yes. 4) Are the scientific methods and assumptions valid and clearly outlined? Yes, though not always in detail. 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? Not complete enough: a short description of the modelling approach would be helpful. 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 used? Yes. 13) Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? No, all figures and

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

tables are needed. The text should not be reduced. 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.

**HESSD**

2, S854–S856, 2005

---

Interactive  
Comment

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper