Hydrol. Earth Syst. Sci. Discuss., 9, C4643–C4644, 2012
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Hydrology and Earth System Sciences Discussions

Interactive comment on "Conceptual and numerical modeling of the Guaraní Aquifer System" *by* L. Rodríguez et al.

Anonymous Referee #3

Received and published: 9 October 2012

I have read the manuscript and the interactive comments on "Conceptual and numerical modeling of Guaraní Aquifer System" and I also agree that the paper is of interest to the HESS readership. The SAG is one of the largest aquifer systems of the world and probably the less known. The scarcity of data (like conductivity measurements and continuous series of head values) is a critical issue, but this can be justified by the fact that most of SAG area is covered by regions of Brazil, Argentina and Paraguay which are almost unexplored. In this sense the manuscript gives a status of research about the SAG and summarizes regional results and data which could be of interest to the international hydrological community (most of the papers about SAG are published in Spanish or Portuguese). The proposed conceptual models and numerical simulations give light about basic but unknown aspects of the dynamic of the aquifer system and

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open new questions for future research.

Most of my comments and questions about the manuscript were pointed out by M. Sophocleous and answered or clarified by L. Rodriguez on 12th September. I only list few specific comments which are not included in previous discussions.

1) In addition to data errors and model uncertainties, there are also errors associated with the numerical method. It is suggested to include a short comment about the numerical errors of the finite element method of TRANSIN code. 2) Note that the code used in the study is both referred as TRANSIN and TRANSIN II (see Section 6.4). 3) The variable DIF defined in Section 6.2 is not used in the manuscript. 4) In the conclusions section it would be useful to include a short list of open questions to be answered in future works.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 9885, 2012.