

Interactive comment on “A channel transmission losses model for different dryland rivers” by A. C. Costa et al.

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Received and published: 26 October 2011

Dear Dr. M. el Bastawesy,

Thank you very much for your comments. The scarcity of input data for hydrological modelling in drylands and the recent developments in remote sensing in order to overcome this problem will be reviewed and described in the Introduction section of the manuscript. Detailed information about the remote sensing-based data is presented in Costa et al 2011, Hydrol. Proc. (in review).

We omitted the role of rainfall because our focus was the river-aquifer system. We are working with the coupling between our model and a landscape hydrological model,

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in order to take into account the local precipitation between the used stream gauges (please see Discussion and conclusions section). However, we should have written in our manuscript that we assumed that the inflow from the drainage area among the stream gauges can be neglected for medium and large floods in the Jaguaribe river reach, one of the studied reaches, because the drainage area between the gauges is about 20 times less than the area which the upper gauges control and this drainage area has about 130 surface reservoirs in its drainage network.

Because of mountain regions, where the maximum annual precipitation is between 1.9 m and 2 m (Werner and Gerstengarbe, 2003), the average annual precipitation is relatively high in the Jaguaribe river basin as you mentioned. In fact, the average annual precipitation is about 800 mm between the studied stream gauges. Moreover, this precipitation is spatially irregular and has high intensity and short duration. Therefore, we will change the total rainfall provided in our manuscript to a more precisely value.

We appreciated your comments and the aforementioned changes will be included into the revised version of our manuscript.

Kind Regards, A.C. Costa

References Werner, P. C. and Gerstengarbe, F-W.: The climate of Piauí and Ceará, in: Global Change and Regional Impacts, edited by: Gaiser, T., Krol, M., Frischkorn, H., and De Araújo, J. C., Springer Verlag, Berlin, 81–86, 2003.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 8903, 2011.