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Interactive comment on “Neotectonics, flooding patterns and landscape evolution in southern Amazonia” by U. Lombardo

Anonymous Referee #2

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The paper presents a review of empirical observations of the role of neotectonic activity in the landscape evolution of the Llanos de Moxos in the Bolivian Amazon. The focus on the Llanos de Moxos is justified in that it hosts nearly 10% of the wetlands in South America, but more could be done to explain to the reader the global or scientific importance of the region. The context for the study is well developed, but more could have also been done to summarize what we believe we understand regarding the general role of neotectonics in the evolution of lowland environments. Nonetheless, the paper is an important one as it does an excellent job of summarizing the state of knowledge regarding the development of the Llanos de Moxos during the Holocene. It will be a resource for geomorphologists and ecologists interested in the evolution of lowland habitats across the Amazon, and I think it is worthy of publication in Earth Surface Dynamics. It is important to note, however, that the original empirical data

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provided by the author (i.e., two sediment cores, remote sensing data) are simply not enough to ground the interpretation of neotectonic activity, and so much of the results and discussion reads as speculation. This may not be a problem as long as the author can explicitly highlight where data are needed to test specific hypothesis; this paper will only offer questions for study, not answers for understanding. Perhaps a more serious issue is the quality of figures, which depends too heavily on the reader being able to deduce what the author is trying to convey, which is especially difficult given the poor quality of many of the aerial photographs and remote sensing images. These need to be improved before publication, with high resolution images and with more information within figures and figure captions to make absolutely explicit what each figure is communicating. Lastly, I am surprised by the lack of key references in the paper. Dunne et al. (GSA Bulletin, v. 110, p. 450-467) also describe the role of neotectonics in lowland river evolution, and the data and observations they provide are incredibly detailed. Baker (Canadian Society of Petroleum Geologists, Memoir 5, 1977) highlights the potential role of recent climate change in affecting the evolution of lowland environments across the Amazon during the Holocene, which in some ways supports the author's summary. These omissions need to be remedied in the final version. The paper will be an important one once these issues have been addressed, and it should have immediate impact once published.

Interactive comment on Earth Surf. Dynam. Discuss., 2, 635, 2014.

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