

Interactive comment on “Comment on “Streamflow input to Lake Athabasca, Canada” by Rasouli et al. (2013)” by D. L. Peters

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Author Response to Referee Comments

Referee Comment: In this commentary, Peters identifies, and provides corrections for several deficiencies in the HESS paper "Streamflow Input to Lake Athabasca, Canada" (Rasouli et al., 2013 - hereafter referred to as "RHD"). In doing so, Peters provides a valuable service since RHD has been the source of considerable confusion on water management issues in the region. The discussion by Peters is thorough and well supported by appropriate data. As such, I have no comments on the substance of the commentary.

Author Response: I thank the reviewer for the positive review and highlighting the im-
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portant contribution of the comment paper to a better understanding of water management issues in the region.

Referee Comment: My only concern with the commentary is the possibility that the deconstruction of RHD is so thorough that the most severe criticism may be lost on a casual reader because it is only discussed in the last two paragraphs of a long commentary: that it is scientifically unjustifiable to extrapolate water levels in Lake Athabasca based solely on a historical trend in inflow volumes; a proper analysis must include an account of hydraulic controls at the outlet. This would be true for any lake but it is particularly relevant to Lake Athabasca because its outlet can (and does) become an inlet when lake levels are lower than the stage of the Peace River. This means that the 2100 lake level decline estimate is effectively meaningless because the RHD analysis does not include key physical processes that would control the future lake level of Lake Athabasca. I therefore suggest that the discussion in the last 2 paragraphs should be move up earlier in the commentary and briefly included in the abstract, if the author and editors deem it appropriate.

Author Response: I thank the reviewer for suggesting a minor modification/addition to the text that will improve the comment paper. As suggested by the reviewer, I propose to add to the abstract the sentence "The comment paper also highlights the importance of including in the analysis not only direct inflows to Lake Athabasca, but also the hydraulic influences on lake outflow, especially when meaningful future projections of lake levels are required for water management issues." I also propose to add the sentence "For instance, it will be shown that meaningful projections of future lake levels must include key physical processes that control lake outflow, such as the influence of the Peace River" at Line 11 of Page 3. The addition of these two sentences would introduce key comments earlier in the text so that key information is not lost on the casual reader.

Referee Comment: Minor corrections: p3141, line 1, add commas after "mention" and "details" p3141, line 17, change the comma before "however" to a semi-colon p3143,

line 3, add “the” before “influence” p3143, line 4, add “and” before “high”

Author Response: As suggested, I propose to apply the above four minor corrections.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 11, 3137, 2014.