Hydrology and Earth System Sciences Discussions

Interactive comment on "Using multi-source satellite data for lake level modelling in ungauged basins: a case study for Lake Turkana, East Africa" *by* N. M. Velpuri et al.

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Velpuri et al. used a value of 203,080 km2 for the catchment area of Lake Turkana in their hydrological modelling experiments. However, it is acknowledged that the present-day total area of the Turkana basin is ∼146,000 km2, including a lake surface area of ∼6500–7000 km2 (e.g., Hastenrath and Kutzbach, 1983; Johnson and Malala, 2009). Furthermore, Fig. 2 of Velpuri et al. shows drainage networks (including unclear river trajectories) and basin areas, which do not belong to the Turkana catchment today.

The artificial increase of the Turkana catchment area by +45% (63,000 km2) as made

by Velpuri et al. could potentially have biased their model simulations. Accordingly, the authors should redo their modelling experiments, by using the true dimensions of the Turkana basin.

References:

Hastenrath, S., Kutzbach, J.E., 1983. Paleoclimatic estimates from water and energy budgets of East African Lakes. Quat. Res. 19, 141–153.

Johnson, T.C., Malala, J.O., 2009. Lake Turkana and Its Link to the Nile, in: Dumont, H.J. (Ed.), The Nile. Monographiae Biologicae. Springer, The Netherlands, pp. 287–304.

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