

## ***Interactive comment on “Unraveling the hydrological budget of isolated and seasonally contrasted sub-tropical lakes” by Chloé Poulin et al.***

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We thank the reviewer for her comments on our manuscript. However, we strongly believe that contrary to her opinion, our objectives are clearly stated in the abstract and in the introduction, i.e. to derive quantitative constraints and uncertainties on the hydrological budget of tropical lakes and watersheds from a limited isotope data set, when classical hydrological investigation by comprehensive flux monitoring cannot be deployed for compelling logistical reasons as is the case in remote desert or sub-tropical regions (with considerable security risks) in central Africa.

We are also most surprised that the rationale for using isotopes in such a context is

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questioned, as it is widely considered a classical approach documented by numerous classical as well as recent studies.

In addition to providing insights into the hydrological functioning of a largely unknown but important hydrological setting, a further novelty is the rigorous assessment of uncertainties on the isotopic budgets which is still largely overlooked in the literature - especially in hydrological systems subject to large seasonal variations - and this remains crucial for water management issues in particular in semi-arid regions like the Sahel. For instance, just as we submitted our paper, Cui et al. (2018, *Hydrological Processes* 32 (3): 379–87) documented the wide variety of impacts of the seasonal variation on various lakes isotopic budgets, based on a review of previous studies where these lakes could be extensively monitored. Our approach is entirely complementary, by inferring the annual range of isotopic variations from dry-season measurements alone, completed by satellite altimetry.

We regret that our conclusion was not appreciated, in which we suggest that studying lakes of relatively small-scale, such as Iro and Fitri, in huge and complex basins as that of lake Chad, is both feasible and useful as a complement to studying the main lake itself.

Finally, we thank the reviewer for her general remarks which will help to improve the clarity of our paper, although noting that they remain of relatively second order with respect to her general poor opinion on our work.

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