

Interactive comment on “A global lake and reservoir volume analysis using a surface water dataset and satellite altimetry” by Tim Busker et al.

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The paper presents an analysis of time series of variations of lake and reservoir volumes for 135 lakes from all over the world. The volumes are estimated using remote sensing alone. The JCR Global Surface Water (GSW) dataset with 30 m resolution and the DAHITI satellite altimetry dataset were combined to estimate lake and reservoir volume fluctuations over all continents.

It is an interesting paper that promotes the use of remote sensing data. It is also well written and well organised. The authors claim that their study can be useful in the assessment of changes in water availability due to climate change. However, I cannot see how the latter can be achieved based on the material presented. The authors are

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asked to expand on that thought.

In addition, I am not sure how this publication might contribute to the enhancement of knowledge on the physical processes involved. In other words, a link is missing between the paper's main contribution – a new lake and reservoir volume dataset - and the possible applications.

The authors mention that some lakes showed poor regression between h and A , with one of the reasons being lake size. What are the limits of detection of $h(A)$ relationship from the satellite data (what is the minimum lake area detectable)?

From the satellite altimetry data description we learn that the accuracy of water level time series varies with the lake size, from 4-5 cm for large lakes up to over a meter (several decimetres) for small lakes and rivers. Can this variable error variance be included in the calculation of volume variations?

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