

Interactive comment on “Monitoring small reservoirs storage from satellite remote sensing in inaccessible areas” by Nicolas Avisse et al.

T. Francke

francke@uni-potsdam.de

Received and published: 31 July 2017

The manuscript by Avisse et al. describes an elaborated approach for retrieving the storage volumes of smaller reservoirs from remote sensing. As it relies exclusively on well-available optical and DEM data, it seems a valuable contribution for the monitoring of these storages in data-scarce regions. Since the authors also emphasise the general usefulness and transferability in this regard, I'd like to encourage them to share the required source code of the algorithm, which would match the spirit of publishing in an Open-Access-journal.

Further minor suggestions: - Fig. 10 suggests that the methods tends to underestimate large volumes. Especially for Karama and Tanour there seems to be an upper limit,

C1

which the predictions of the method do not exceed. This is apparently not related to the complete filling of the reservoirs, as the ground observations confirm some dynamics within these phases. Is there any explanation to that?

- Table 2: The values of $\text{eps}_m(V)$ for Kafrein and King Talal differ surprisingly from the impression one gets in Fig 10: In the plot, Kafrein seems to be modelled much better than King Talal. Is there any explanation for this surprising impression?

- Specifying a relative error for H ($\text{eps}_m(H)$, Table 2, Fig.11) does not make sense to me: If H is water surface elevation, eps_m will then depend on absolute altitude. Instead, water level ($H - H_{\min}$) or absolute deviation ($H_{\text{RS}} - H_{\text{HIST}} - \text{mean}(H_{\text{RS}} - H_{\text{HIST}})$) should be used.

- The choice of the regression used for reconstructing the H-A-relationship is not explained: According to Tab. 1, "Polynomial Regression" of different order and "Local Polynomial Regression" are used. Are they selected by best fit? The respective description (p. 10, ll. 15) is quite vague, especially concerning the 3-fold repetition of the process and the exclusion of outliers.

- When discerning water surfaces, water bodies with macrophyte growth remain a serious challenge. It would be interesting to discuss if the presented approach for eliminating the SLC-data gaps could also help to tackle this issues.

- The figures containing map mostly refer to a certain datum/projection. Still, this would need the specification of some units [km]; a scalebar would facilitate interpretation. - Commonly, table captions are displayed above a table, not below it.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2017-373>, 2017.

C2