Interactive comment on "RECOG RL01: Correcting GRACE total water storage estimates for global lakes/reservoirs and earthquakes" *by* Simon Deggim et al.

Anonymous Referee #2

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Leakage problem is one of the key limitations of GRACE-like observations. Leakage between land and oceans has been examined in many previous studies, and this manuscript aims to correct other types of leakage associated with lakes and earthquakes. The data from this study would be useful for GRACE and hydrology communities. But before publication of this manuscript, I would like to raise some major issues.

Major points 1. Authors need to use much stronger validation of this leakage corrected GRACE data. They briefly compared crustal deformation between observation from GNSS and prediction from the leakage corrected data. Readers would like to see

actual time series between the two. If there are GNSS observations nearby other lakes than the Great Lakes, please show the results too. I also strongly recommend to examine horizontal displacements. Validation of the new data with independent observation should be very important.

2. Parametric fitting to earthquake signal would not be correct. Co-seismic signal should be okay because we know when step-like anomalies were. But post-seismic signal can be combined with other long-term variations particularly associated with TWS changes. Modeling of post-seismic deformation would be the best way for this like GIA correction. If the modeling is beyond the scope of this study, at least authors need to show that Cvpost are close to zeros for regions away from epicenters of earthquakes.

3. Isn't there steric effect in large lakes?

Minor Points

1. Sections 4.2 and 4.4 are about potential applications of the new data, and those sections are out of points for this manuscript. 2. Please show global maps for Figure7.