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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Monitoring Groundwater Storage Depletion Using Gravity Recovery and Climate Experiment (GRACE) Data in the Semi-Arid Catchments" *by* Nizar Abou Zaki et al.

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I read the paper by Abou Zaki et al. ('Monitoring Groundwater Storage Depletion Using Gravity Recovery and Climate Experiment (GRACE) Data in the Semi-Arid Catchments') with an interest. The authors try to apply (GRACE) data to determine water mass changes in a catchment located in the semi-arid part of Iran. Through this specific assessment, the authors claim that their approach is suitable for all semi.arid catchments, which I cannot approve their claim based on the current investigation. For this, and many technical issues, I recommend a reject outright decision. Major comments: Title: in the Semi-Arid Catchments –> the study only considers one catchment

in a particular region. How come does the title claim it plural!? The introduction is too short and ignore even the GRACE related studies of the region.

Various studies e.g., Forootan et al 2014 and 2017 provide a complete analysis of water storage and water fluxes in the area. Joodaki et al 2014 assessed GRACE against well observations. Forootan, E., Safari, A., Mostafaie, A. et al. (2017) Large-Scale Total Water Storage and Water Flux Changes over the Arid and Semiarid Parts of the Middle East from GRACE and Reanalysis ProductsSurv Geophys (2017) 38: 591. https://doi.org/10.1007/s10712-016-9403-1 Forootan E, Rietbroek R, Kusche J, Sharifi MA, Awange JL, Schmidt M, Famiglietti J (2014) Separation of large scale water storage patterns over Iran using GRACE, altimetry and hydrological data. Remote Sens Environ 140:580–595. doi:10.1016/j.rse.2013.09.025 Joodaki G, Wahr J, Swenson S (2014) Estimating the human contribution to groundwater depletion in the Middle East, from GRACE data, land surface models, and well observations. Water Resour Res 50:2679–2692. doi:10.1002/2013WR014633 These studies have already assessed the GRACE data against wells. What is the innovation of this study against the already published works?

The values that are reported as the decline of groundwater do not match?

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