Hydrol. Earth Syst. Sci. Discuss.,
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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Field-based groundwater recharge and leakage estimations in a semi-arid Eastern Mediterranean karst catchment, Wadi Natuf, West Bank" *by* Clemens Messerschmid et al.

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Dear reviewer,

thank you very much for your comments. Please find enclosed - our answers - and an additional file on misreadings best regards, also on behalf of my colleagues,

Clemens Messerschmid

Please also note the supplement to this comment:
https://www.hydrol-earth-syst-sci-discuss.net/hess-2018-329/hess-2018-329-AC4-supplement.pdf

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., https://doi.org/10.5194/hess-2018-329, 2018.

Some erroneous data readings in the SM-probes

Initial remarks & context:

For our model we measured soil moisture at 8 locations and with two to three sens
location, covering different depths between surface (top soil) and bottom soil. All t
measured a total period of 1,818 days of soil moisture readings, spread over all stat
of which had wetted soil, i.e. with effective moisture larger than SM_{min}). The total m
spans over seven years or 2,557 days with modelled SM (for all stations together ec
modelled SM).

After running our parsimonious model we compared observed soil moisture (SM_{obs})
soil moisture (SM_{mod}) for each location (on example, RK-W is shown in Fig. 4). Howe
misreadings occurred, in which observed soil moisture levels (normalized to mm wa
lying above accumulated rainfall, which is physically impossible. Since at the locatio
runoff, soil or groundwater could be transferred from other areas to the measurem
high allegedly "observed" SM readings are faulty and constitute machine failure (m
either the sensors or the loggers.

The important question asked by the reviewers therefore was:

How grave is the error caused by misreadings, how deep its impac

Some technical problems were faced at some of the SM stations. During brief perio
read out wrong soil moisture data (higher than preceding accumulated rainfall). Thi