We would like to thank Anonymous Referee #1 for his review and comments. We provide below our detailed response to each comment.

Comment 1: I noticed that the authors' usage of calibration and validation. "The model calibration shows good fit for 90% of the infiltration period (4–31 January 2015) with a relative root mean square error of 4.8% (Fig. 6a)." There are only five points in Fig. 6a, and five points in Fig. 6c?

Response 1: The numerical model in this study was calibrated to whole-pond data in order to capture the infiltration dynamics of the whole-pond infiltration event (P9.L19). Most models are calibrated against head data, but here we were fortunate to be able to calibrate the model to flux data (five points) which usually are unavailable at all. Other methods for estimating infiltration rates are point-specific (usually indirect) and therefore were not suitable for this purpose. The numerical model was calibrated (and validated) using whole-pond infiltration rates (fluxes) that were calculated by linear-regression of the 5-minutes-resolution ponding-depth data (P8.L9 and Fig. 5a). Two conditions must be met in order to calculate infiltration rates by this method: (1) ponding depth is declining solely due to infiltration (i.e., no other inlet\outlet source or surface flow) and (2) span of the descending ponding-depth data is sufficiently long (usually at least few hours) in order to obtain regression with low-error slope (which is a good estimate of the integrated pond-infiltration-rate). Condition (1) was the limiting factor during the operative MAR events and therefore we obtained only five observation points for each calibration and validation. Yet, we emphasize that each observation point was calculated from a large number (tens to hundreds) of ponding-depth data measurements. It should also be acknowledged, that unlike most field-scale flow models, the top and bottom boundary conditions of this model were continuously measured head values (thousands of measurements), hence the model is highly constrained to data (P12.L19 and P13.L19).

Comment 2: I am confused with "Only the saturated hydraulic conductivity of the top SCL was modified during calibration of the numerical model.? " Why "θr θs α (m-1) n " were not modified during calibration of the numerical model?

Response 2: We calibrated the model using the whole-pond infiltration rate data as explained above (Response 1) and in the manuscript (P9.L19). During the calibration process we did modify the hydraulic function parameters of the sandy-clay-loam (SCL) layer (4–6 m), nevertheless, changing these parameters did not yield better calibration in terms of infiltration rates. Note that the top SCL layer was practically saturated during the 2015 MAR event (see the water-content profiles at 4 m depth in Fig. 5c, d) and it also has the lowest value of saturated hydraulic conductivity (K_s) along the sediment profile (Table 1). These combined factors explain why K_s of the top SCL layer was a key parameter for calibration. The above explanation will be added to the revised manuscript (at P9.L22 in the current manuscript).

Comment 3: P11.L25: "In the laboratory, infiltration column experiments with DSW and sand taken from the pond surface (top 0.4 m) showed a reduction by a factor of 1.5 compared to the initial infiltration rate due to compaction-clogging (data not shown)." I think this sentence is not closely related to the above passage.

Response 3: We agree with the reviewer that the context of this sentence as appears in the manuscript is not perfect. The reasoning of this sentence (P11.L25) was to provide lab-scale results that support our field-scale assumption that surface clogging during infiltration with DSW is negligible. We think that reporting these results contributes to the discussion section on clogging, however we will rewrite the paragraph to make sure its context is clear.