Capturing soil-water and groundwater interactions with an iterative feedback coupling scheme: New HYDRUS package for MODFLOW

by Jicai Zeng et al.

Authors deal with the scale-mismatching problem when coupling the soil-water and groundwater models. A range of numerical cases were employed to address three concerns arose using the iterative feedback coupling method. This work successfully present its advantages in reducing computational cost, coupling errors, and maintaining the numerical stabilities of the sub-models at disparate scales. The method presented here will be promising in the application of large scale problems. This paper is of significant contribution to scientific progress regarding the coupling of soil-water and groundwater systems. I am interested in this paper and recommend some minor revisions before its acceptance for publication.

Comments:

Line 135: (Zha et al. 2013b) → Zha et al. (2013b)

Line 233: (Twarakavi et al., 2008) → Twarakavi et al. (2008)

Figure 8: I think this figure is to present the readers that the coupled model can well reproduce the soil moisture dynamics at different soil depth as the 'truth' from HYDRUS1D.

I would suggest to add the statistics values(e.g. RMSE) on the figure 8, which will make the point more straightforward. Some text should also be added about this figure in section 4.1.

In addition, I am curious about the converge criterion for both methods(coupled method and HYDRUS1D). I guess the converge criterion was set the same for both the coupled method and HYDRUS1D. Or you just set the maximum iteration number? (as shown in Line 234 "*A maximal number of feedback iteration is set at 20.*")