

## ***Interactive comment on* “Experimental study of fingered flow through initially dry sand” by F. Rezanezhad et al.**

### **Anonymous Referee #1**

Received and published: 17 October 2006

Review of manuscript, “Experimental study of fingered flow through initially dry sand.”

#### General Comments:

This is an interesting experimental study of fingered flow using light transmission and soil slabs. The experimental work seems top notch. Many of the observations have already been published (as recognized by the authors), but it is always useful to get confirmation of previous experimental results. There were a few new observations that are most interesting. These are

1) Light transmission always yields a broader transmission profile than the actual water content. The authors do an excellent job of deconvolving the observed light transmis-

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

sion profile from the spreading effects of the porous medium on the light to obtain a more accurate picture of the actual water saturation variations. 2) The dip in water saturation behind the tip has not been seen before (the saturation actually undershoots!). This is new. It may be the result of having many fingers and a constant head boundary or it may also occur when there is one finger in a column with a constant flux. This is an interesting avenue. 3) The dye tracer nicely shows that there is a mobile center, and an immobile edge to the flow pathways. This is a very nice finding, and also new.

Again, a well done piece of experimental work, with new ideas in theoretical and experimental work that may emanate from it.

Specific comments:

The slabs used are quite thin (0.3 cm) compared to most slabs used (1 cm). Do the authors have any comments on how this would affect the results?

---

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 3, 2595, 2006.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper