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Hydrology and Earth System Sciences Discussions

Interactive comment on "Polymer tensiometers with ceramic cones: performance in drying soils and comparison with water-filled tensiometers and time domain reflectometry" *by* M. J. van der Ploeg et al.

Anonymous Referee #2

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Review of the paper Polymer tensiometers with ceramic cones: performance in drying soils and comparison with water-filled tensiometers and time domain reflectometry.

First of all, I am really sorry for the delay. I think that the paper should be rewritten by the authors to be accepted. The following items should be revised:

1. The Bibliographic revision is not up to date.
2. The Graphics should also be reviewed.

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3. The observations related to the water-filled tensiometers are incomplete and incorrect. We recommend that the author read again the papers from Ridley and Burland, (1993, 1999), Guan and Fredund (1997), Tarantino and MongioviÌĂ (2001, 2003), Hoffmann et al. (2006), Mahler et al. (2005); Diene and Mahler (2007), and Mahler and Diene (2007).

4. In Page 4351 the authors wrote that it is possible to measure suction between -0.09 and -0.5 MPa with filter paper. However the range is from 0 to 29 MPa (entire range when you have a good contact, see Fredlund and Rahjardjo, 1993).

5. Cavitation was minimized with the development of high suction tensiometers. These tensiometers are composed basically of a porous ceramic plate with high air entry value, deared water and a small reservoir of water (see Mahler and Diene, 2007).

6. The results of matric potential measuring in Figure 3 (a) are strange. The tensiometer did not react for a long time, completely different that in case (b). We know that the soils are different but it is not normal that the tensiometer did not react to the moisture content variation.

7. In page 4358 the authors wrote that the water-filled tensiometer cavitates at -0,025 MPa. Usually, simple water-filled tensiometers measure suction until 70 or 80 kPa.

8. In page 4358 the authors wrote about the polymer solution volume variation in the chamber. It seems unclear how can he measure suction when this volume reduces significantly, because cavitation will occur.

9. In Table 3 the authors could inform the rewetting responses times in days for case 4B, because in the text it is informed almost four days.

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10. In page 4360 the authors could cite Schaap et al. (1998) to fix the moisture contents as zero.

11. Liu and Dane (1995) line 19, page 4360, is not related in the References

12. Davidson, R. L (1980) and Molyneux, P. (1983) are in the References but not in the paper.

13. The graphic in Figure 4 is not clear.

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