Hydrol. Earth Syst. Sci. Discuss., 7, C951–C952, 2010
www.hydrol-earth-syst-sci-discuss.net/7/C951/2010/

Hydrology and Earth System Sciences Discussions

Interactive comment on "A geophysical analysis of hydro-geomorphic controls within a headwater wetland in a granitic landscape, through ERI and IP" *by* E. S. Riddell et al.

Anonymous Referee #1

Received and published: 27 May 2010

General comments: This is a well written and good paper that presents the application of ERI and IP methods at a headwater catchment / wetland scale. The authors are using different geoelectrical methods and approaches in order to interpret the complex subsurface conditions below a wetland in South Africa. They try to link geophysical results with hydrometric field data. Therefore the topic is very relevant, suitable for HESS and definitely of high interest for the international hydrological community. The paper is well organized, structured and generally well written. The tables and figures are all helpful and an adequate list of references is given. To summarize, I am recommending minor revision of the submitted paper according to the specific suggestions given below.

Specific comments: 1) p. 1980, 28: Information about the procedures of data quality control and data correction for the geoelectrical data is missing here. A small section would improve this part. 2) p. 1981, 8: Information about groundtruthing of the geoelectrical measurements like, borehole data, soil types, grains size etc is missing. A small section would improve this part. 3) p. 1982, 3ff: Why are different geoelectrical setups used (Schlumberger for transect 1 and Wenner for the others)? Please explain.

Technical corrections: 4) p. 1976, 4: Change "Ulhenbrook et al., 2005" to "Uhlenbrook et al. 2005". 5) p. 1979, 4: Change "2-D-ERI" to "2-D ERI". 6) p. 1979, 6: Change "3D-ERI" to "3-D ERI". 7) p.2001-2004: Use a common scaling for the ERI pseudosections in figure 4 to 7 in order to compare the results. 8) p. 2004: enlarge the vertical scale of figure 7 to improve readability. 9) p. 2005: What is the meaning of the 2000mm and 4000mm in legend of figure 8. Is it the depth of the piezometer? Please specify. 10) p. 2006: Use "s" instead of "sec" as an abbreviation for second regarding SI units in figure 9. 11) p. 2008: Use "s" instead of "sec" as an abbreviation for second regarding SI units in figure 11. 12) p. 2010: Use "s" instead of "sec" as an abbreviation for second regarding SI units in figure 13.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 1973, 2010.