

Interactive comment on “Anthropogenic wetlands due to over-irrigation of desert areas; A challenging hydrogeological investigation with extensive geophysical input from TEM and MRS measurements” by Ahmad A. Behroozmand et al.

Anonymous Referee #2

Received and published: 18 February 2017

General comments

Dear Authors, This article address the use of hydrogeophysics for characterizing an anthropogenic wetland, and hydrogeological modeling to study scenarii of remediation. The text is well written, accessible thanks to a short introduction to each method and references for more details.

fig 9 and 10 are well demonstrative: the model built on hydrogeophysics data fits very well the observed pond evolution.

I particularly appreciate the clarity of the results (especially fig 10, 15) and the discus-
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sion on the limits of the modeling results in paragraph 4.3. The clogging in the vicinity of the injection wells..

It would have been valuable, in my opinion, to add in the discussion the impact of the quality / accuracy of the hydrogeophysical model on the hydrogeological modeling. Here, TEM data and MRS are of very good quality, and the model is not very heterogeneous: the low lateral variation result in the use of almost a layered aquifer model. In a more complex case, the density of measurement should have been increased ?

My review is based on the revised_manuscript version after the response of authors to the 1st reviewer, and I notice no spell errors or reference missing.

I recommand this article for publication as it is.

few remarks in the text:

fig 6 and paragraph 3.2.2 Is the conductive 4th layer really a robust result of the inversion of TEM data ? proved by boreholes? (I know authors are expert in the use of TEM)

If not, this deep layer is used in the modelling as a bottom condition, far below the pumpings..., I d'ont think it affect the results.

The same question arises in p8 line 00.. I suppose fig 11 c provides answer to my inquiry. Perhaps a short discussion on it and a reference to fig 11 earlier in the text would clarify this point (in paragraph 3.2.2 for instance).

fig 6. MRS colorscale for decay time.. is not really demonstrative..

p7 - 3.3 line 65 - you wrote: "based on their relaxation time values, the soils [pore diameter or grain size...] can be classified as fine, medium and large materials." rephrase (or remove this sentence, as it is clearly explained just after) ... MRS decay time characterizes pores... not grain... even if grain size and pore size are linked in sand / sandstone rocks

