Hydrol. Earth Syst. Sci. Discuss., 9, C3403–C3406, 2012
www.hydrol-earth-syst-sci-discuss.net/9/C3403/2012/

Hydrology and Earth System Sciences Discussions

Interactive comment on "Quantifying freshwater resource in coastal barriers: the joint use of transient electromagnetic and magnetic resonance soundings" *by* J.-M. Vouillamoz et al.

J.-F. Girard (Referee)

jf.girard@brgm.fr

Received and published: 30 July 2012

General opinion

Very comprehensive article despite using many concepts from geophysics and hydrogeology. Accesible to both communities (hydro and geophy) theoretical background illustrated by numerous references (pertinent) cited.

The approach using joint geophysical methods + hydrogological model is not new, but the level of integration is very good. A major point in the surveys presented is the time lapse measurements at various time step (few weeks and several months) highlighting

"inexpected" result of major consequences : the run-off of rain water at the water table and not at the sufrace.

I noticed only very minor corrections of text, see hereafter.

I recommand to publish this article with (very) minor correction.

1.Does the paper address relevant scientific questions within the scope of HESS?

YES

2.Does the paper present novel concepts, ideas, tools, or data?

YES

3.Are substantial conclusions reached?

YES

4.Are the scientific methods and assumptions valid and clearly outlined?

YES

5.Are the results sufficient to support the interpretations and conclusions?

YES

6.Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)?

YES

7.Do the authors give proper credit to related work and clearly indicate their own new/original contribution?

YES

8.Does the title clearly reflect the contents of the paper?

YES

9.Does the abstract provide a concise and complete summary?

YES

10.Is the overall presentation well structured and clear?

YES

11.Is the language fluent and precise?

YES BUT COULD BE IMPROVED (but I am not competent enough to suggest real improvement)

12.Are mathematical formulae, symbols, abbreviations, and units correctly defined and used?

YES

13.Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated?

NO

14.Are the number and quality of references appropriate?

YES

15.Is the amount and quality of supplementary material appropriate?

YES (even if the number of data acquired during this survey is many marger than the data presented, but the main objective is methodology and I agree that adding too many data might weaken the methodology demonstration)

———————

Everywhere: consider using CAPITAL letters for N,S,W E or not, but do not change.

p5263, L26

the relationships between geophysical parameter and hydrogeological properties are usually site specific and valid only [for] "inside" their calibration range

p5264, L4

complimentary -> complementary

p5268, L11

(TDEM), has been extensively used in coastal areas to map sea water intrusion because of its high sensitivity to electrically conductive target "such" as saline water saturated layers

p5270, L23

sea water [ingresses] "invades" into the river up to about 12 km inland

p5272, L15

a 5 resistivity layers "model"

p5274, L12

Total porosity [less] "minus" bound water

———————

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 5261, 2012.