

Interactive comment on “Origin and assessment of deep groundwater inflow in the Ca’ Lita landslide using hydrochemistry and in situ monitoring” by F. Cervi et al.

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I answer the questions found on the "Manuscript Evaluation Criteria" on-line form.

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

Does the paper present novel concepts, ideas, tools, or data? Partly. The data set is very interesting and quite complete.

Are substantial conclusions reached? Yes, but the Authors could try to draw general purpose conclusions, not limited to the application to the specific study case and not

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limited to a generic statement as the last sentence: "A good understanding of the hydrological limits... groundwater sources is suspected."

Are the scientific methods and assumptions valid and clearly outlined? Yes

Are the results sufficient to support the interpretations and conclusions? Yes. The data set is quite complete and of good quality. The data processing is somehow limited and the model quite simple, but the conclusions are sufficiently supported. For instance, it could be nice to attempt to compute cross-correlation between piezometric head and the rainfall cumulated over different periods, in order to quantitatively differentiate the response of the measurement points, whose data are plotted in figure 2 (see Giudici, M., Manera, M., and E. Romano, The use of hydrological and geoelectrical data to fix the boundary conditions of a ground water flow model: a case study, *Hydrology and Earth System Sciences*, 7, 297-303, DOI:10.5194/hess-7-297-2003, 2003). In section 7, it could be useful to show that the uncertainty on the measured quantities yields a relatively small uncertainty on the outcomes. This is not the case for a classical hydrological balance based on purely hydrological data.

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

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

Does the title clearly reflect the contents of the paper? Yes

Does the abstract provide a concise and complete summary? Yes

Is the overall presentation well structured and clear? Yes

Is the language fluent and precise? Yes. Only few sentences can be modified, as suggested below.

Are mathematical formulae, symbols, abbreviations, and units correctly defined and

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used? Yes

Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? Generally no, however see specific comments below. I wonder whether figures (above all 1 and 2) can be clearly visible in the final printed version.

Are the number and quality of references appropriate? Yes. Several of the referenced papers are in Italian, but this is unavoidable to give proper credit to previous works on the case study.

Is the amount and quality of supplementary material appropriate? N/A

SPECIFIC COMMENTS

Page 7700, line 4. At the first reading, the sentence "as the only source of groundwater recharge" is a little bit misleading, as it seems to be a very general statement, i.e., referred to any groundwater body, but the statement neglects interaction between surface and groundwater.

Page 7702, line 4. Substitute "Klingfield" with "Kligfield".

Page 7702, lines 21 & 22. Substituted "it... moves" with "groundwater... flows".

Page 7703, line 6. I thin that "longest and deepest" is better than "longer and deeper".

Page 7703, line 9. At the first reading it is difficult to understand what "their" is referred to.

Page 7703, line 21. Erase "Like these".

Page 7705, line 2. I would prefer "mountainside" rather than "slope".

Page 7705, line 27. I would prefer "installed" rather than "fitted".

Page 7706, line 2. Substitute "in" with "on".

Page 7706, line 20. PHREEQ is the only model discussed in this paper. Why "an-

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other"?

Page 7710, line 7. Please explain "effective".

Page 7710, line 8. I cannot see the presence of the peaks from the data in table 2. Perhaps reference should be made to figure 3a.

Page 7715, line 1. Substitute "brief" with "fast".

Page 7715, line 20. Erase "highly".

Page 7715, line 27. Move "with depth" after "of GWEC".

Page 7716, lines 3-13 "O" is missing after "delta 18" at several places.

Page 7716, line 10. Susbsitue "(" with ",",

Page 7718, line 8. Substitue "O" (capital letter o) with "0" (zero).

Page 7720, lines 17-22. Move references after Bonzanigo et al. (2001).

Page 7724, lines 13 & 14. I do not find the citation to this book in the text.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 7699, 2012.

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