

This is a brief summary of our answer to the Reviews. It gives an overview over our replies and changes in the revised manuscript

REVIEW # 1

General comments

- a) Wadi Natuf, prior to our work, was entirely ungauged.
- b) We concur.
- c) It is detailed why our paper is a strong departure from the state of the art (novel approach), with reference to the papers suggested by the reviewer. Clarifications were made in the abstract, introduction and conclusions.
- d) The Introduction was shortened, condensed and the amount of information reduced in the revised manuscript.
- e) Clarification on the state of remaining “ungauged” inside the West Bank (W. Natuf).
- f) The method for the quantification of the Recharge Coefficients was explained (s.a. Specific Comments).

Specific comments

- 1) (Abstract) Clarifications were given on the novelty, and the formulation was highlighted that previously, only “*relatively*” little attention had been paid to spatial distribution of recharge. It was explained that our direct approach focuses on surface features (epikarst, but not deep karst); its applicability was clarified. The suggested additional literature was examined and used where applicable. Changes to the manuscript were made accordingly. (Additional detailed discussion in a separate file was offered, if requested.)
- 2) (P. 1/26) A comparable quantification (in mm/a) was added to the manuscript
- 3) (P. 1/28) Another clarification on the novelty of our approach was added.
- 4) (P.2/5) Language changes were added.
- 5) (P.2/6) Clarifications and explanation on the nature and state of the aquifers in the Levant were given to the reviewer (no changes in manuscript).
- 6) (P. 2/36) Changes to the language were made in the manuscript.
- 7) (P. 3/7) Justification of our terminology and clarification of our reasons (as in used literature). Some but not complete changes to the manuscript (repetitions unavoidable.)
- 8) (P. 3/9) Some justification of our repetition, but also changes to the manuscript.
- 9) (P. 3/6) Reasons, why the suggested addition (“fractured density”) is not applicable in PUB.
- 10) (P. 3/20) Obsolete, because Introduction was shortened and the sentence (on Seibert’s rainfall-runoff model) was removed from the manuscript.
- 11) (P. 3/42) The suggestion was considered and the sentence changed in the (revised and shortened) Introduction.
- 12) (P. 4/9) Suggestion was taken and manuscript changed accordingly (on the WAB aquifer complex and the aquitards).
- 13) (P. 4/19) Changes to the sentence on Israeli wells were made in the manuscript (clarifications given to avoid the misunderstanding).

- 14) (P. 4) Some of the requested changes were made in the revised manuscript (reference and quantification added), but not in full (concerning an early mention of our results already in Ch. 1).
- 15) (P. 4/51) Explanation that and why we cannot refer to Hrachowitz (or other literature) in this sentence on our approach – since it is novel and was not mentioned before by other authors. Therefore only partial change of the manuscript.
- 16) (P. 5/6) Year corrected in manuscript.
- 17) (P. 5/15) Explanation of our criteria – see also changes in our new version of the Introduction.
- 18) (P. 5/34) Clarification, justification and proof (that our chalk is indeed impermeable).
- 19) (P. 5/36) Slight adjustment of our manuscript (concerning Fig. 2b).
- 20) (P. 6/5) The comment by the reviewer was not fully understood. Answers to the different possibilities of what he meant...
- 21) (P. 6/21) Confirmation to the reviewer and reference to more details (on perennial springs) in the first article of our series.
- 22) (P. 8/44) Partial change to the manuscript regarding the concern voiced by the reviewer (avoiding repetition).
- 23) (P. 9/10) Manuscript changed (“mineralogical composition”).
- 24) (P. 9/12) Manuscript changed (list of karstic features studied in the field).
- 25) (P. 10/Tab. 2) Bottom line of Table 2 removed and text in line 18 amended.
- 26) (P. 10/15) Manuscript was changed to avoid the understandable confusion about factors and groups in the BCF, and reference to the first article added.
- 27) (P. 10/21) Manuscript changed and explained more simply (w/o unnecessary details).
- 28) (P. 10/19) Major change of the manuscript (see also comments by Reviewer # 2). The text was changed and Table 3 strongly modified to make our approach better understandable. (Our approach and results themselves remained unchanged of course). – New Table 3.
- 29) (P. 10/24) Reference was added to Table 3.
- 30) (Ch. 4 Results) Not entirely clear, what the reviewer wanted. But Fig. 5 was changed as suggested (now showing results of all 3 runs, i.e. for all three groups).
- 31) (P. 12/6) Recommended change to the manuscript was made (“aquifer”).
- 32) (P. 13/9) Reduced amount of quoted literature in Ch. 5 Discussion (matter of style) – see also comment 34) below.
- 33) (P. 13/21) Exchanged the term (“moderate”), as requested.
- 34) (P. 13/24) Clarified that the above passage (comment 32) referred to the existing literature (as bottom line of our discussion).
- 35) (P. 13/33 ff.) The paragraph was shortened drastically as requested (see also above comments No. 32 & 34).
- 36) (P. 14/5) The above major changes in the paragraph also concern “equifinality”, and as mentioned above (comment 30), Fig. 5 was modified (3 maps).
- 37) (P. 14/26) The statement was changed (shortened) as requested.
- 38) (Section 5.1) An entire section “5.2 Limitations and caveats” was added.
- 39) (Section 5.2) Some of the suggested “Literature on RC values in other areas...” was used and quoted in the revised manuscript (in both, text and references).
- 40) (P. 14/16) As requested, the term (“lithology”) was replaced.

Answers and manuscript revisions concerning:

REVIEW # 2

General comments

1. (*Introduction*) Already commented by Review 1. The chapter was reorganised and shortened. Wadi Natuf, prior to our work, was entirely ungauged.
2. (*Quantification of RC-values*) Also, already commented by Review 1 and major changes made in the text and Table 3 of the manuscript.
3. (*Societal issues*) The issue was picked up and the manuscript changed (Section 1.3).
4. (*Climate change & applicability to Mediterranean region*) Both issues were addressed and added to Ch. 6 Conclusions.

Specific comments

5. (*Length of Ch. 1*) As in General Comment # 1 above.
6. (*Application to other peri-Mediterranean sites in Ch. 5*) Eight lines of text were added to the manuscript in Ch. 6 Conclusions.
7. (*Quantification of RC-values*) As mentioned above and in our reply to Review 1, major changes were made in the manuscript (methodology better explained; text & Table 3 in Ch. 4 changed).
8. (*Role of slopes our BCF*) A detailed discussion and answer given on this point: Slopes were considered and played a role in our analysis but did not merit an extra Group on its own in our BCF and alongside the three other groups. It was noted that a brief mention of slopes and plains already exists in the caption of Fig. 3. Otherwise, a slight change in the manuscript was made (another reference to the ‘matrix’ in Table D1 of our first article).

Technical corrections

9. (*Colours in Fig. 1 and 2*) The colours were adapted and unified.
10. (*Colours in Table 1*) An answer and justification was given, why the colours in Tab. 1 were not unified with those in Fig. 1 + 2. Also, in the Final layout, the matter of colour in Tables will have to be dealt with, anyway (maybe all in shaded grey?)

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