

Interactive comment on “Rain concentration and sheltering effect of solar panels on cultivated plots” by Yassin Elamri et al.

Anonymous Referee #1

Received and published: 24 August 2017

General comments: The manuscript describes a study on the rain redistribution by solar panels on soil surface and into the soil profile and the application of a new model to simulate the effective rain amounts on the plot from some forcing data. Also the rain redistribution into the soil using Hydrus-2D model is analysed. The results provide interesting advises on the strategies to adopt for a more appropriate management of solar panels above cultivated plots to obtain an adequate crop production. The references are adequate and up-to-date. The manuscript is well structured and clear. However, I have Specific comments below for which clarification is advised. Also Specific corrections are reported. Once these items are addressed, I believe this article could be suitable for publication.

Specific comments: Line 118: What do you mean with “agricultural engines”? “agricul-

C1

tural machinery” and/or “agricultural equipment”?

Line 129 and Fig. 1: For a better evaluation of distribution uniformity under the solar panels it would be better to use a grid of collectors or replicate the series of 21 collectors more times along the PV row. The results here reported should be considered partial. See also the comment below on the use of coefficient C_v .

Line 159: You affirm that the tested rainfall intensities are representative of the local data; it would be interesting to know the return periods of them.

Line 179: Appendix?

Lines 194 – 225: Please specify the units of measurement of each parameter.

Lines 259-268: I think that the coefficient of variation C_v here cited by the authors is the manufacturer’s coefficient of variation or a measure of discharge of a random sample of emitters useful for microirrigation system design. It doesn’t describe the uniformity of water distribution by the irrigation system. In this case it is more appropriate the use of the low-quarter distribution uniformity DU also reported in Burt et al. (1997). But in this case it would be better to have data collected in a grid of collectors. The authors are invited to better explain and justify their choice.

Table 1: As regards the C_v see also the comment above. The values here reported are not supported by a proper data analysis.

Line 349: Figure 5 (Please change. It is not Figure 1) is not clear. Is it related to a calibration phase? If it describes the results of the application of the avoidance strategy, why the measured and simulated values in F3 are so high?

Results: See the comment on C_v . The authors should revise the parts in which the C_v is cited according to their revision/choice.

Lines 694-695: The authors must add also the effects of repeated impacts, especially in bare soils, on the soil aggregates with an increase on soil compaction and soil crust

C2

formation

Specific corrections: Line 134: "in abutment"; maybe it is better "inclined, oblique, ..."
Line 219: Please substitute with "0.01 s m-1/3 after Chow (1959)" Fig. 4: Please substitute "granulometric" with "drop-size" Lines 251-253: Not clear. Please check the sentence. Line 254: "present experimental". Please check the sentence. Table 3: Please add the units of measurement to θ . Lines 321: A or α ? Lines 355-358: Not clear. Check the sentence. Table 4: -50 à -30°. Please check. Line 417: Figure 7 not 2. Line 437: Figure 8 not 3. Line 471: Figure 9 not 4. Line 489: Figure 10 not 5. Line 507: Maybe "variation was observed". Line 533: Figure 11 not 6. Line 602: Figure 13 not 7. Line 789: The reference must be moved according alphabetic order. Line 861: The correct citation is "Chow V.T."

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2017-418>, 2017.