

## ***Interactive comment on “Runoff generation processes during the wet-up phase in a semi-arid basin in Iran” by H. Zarei et al.***

**H. Zarei et al.**

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General Comments:

This paper reports on a series of rainfall events throughout one wet season in an Iranian catchment. It specifically looks at runoff ratios and changes of pre-event vs. event water fractions and correlates these changes to antecedent soil moisture. Let me start out by saying that the paper is very well-written. It has been a while since I reviewed a paper with that few spelling and grammatical errors. Also the structure is clear.

Response: Thank you!

What the paper lacks, however, is novelty. The investigated processes have been

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described before numerous times in different catchments at various locations and the results are expected (more event-runoff in wetter conditions). Also the methods used are standard methods (runoff separation with isotope tracers). Maybe the authors could add some other results and analyses of their data in order to go beyond a simple case study.

Response: The novelty of this work lies in the unique location. Hardly ever has data from this region of the world been presented to the scientific community. Although the approach and methods are standard procedures in other places of the world, this is the first time they have been applied in this part of the world. As such the particular case study does not provide any novel insights to universal hydrological processes, but rather unique insights and data from a region that has not been seen by the international hydrological community.

Specific Comments: p. 3794, l. 13: How do you define a high flow event?

Response: we used the definition where flow increased at least 100 percent above the preceding flow conditions. We will make this clear in the next version of the text.

p. 3796, l. 22- p. 3797, l. 7: This paragraph is redundant.

Response: We will change this as suggested!

p. 3798, l. 11: But the event water fraction for event 2 is smaller (72%) than the event water fraction for event 4 (92%). Any explanations for that?

Response: Pre-event water fraction for event 2 and 3 are 72% and 92%, respectively. Although the two events occurred during relatively wet conditions, but according to the distribution of precipitation for event 2, more event water is expected.

Figures & Tables: Table 3: The standard deviations of the river isotope measurements of event 2 are so much larger than the standard deviations of the other events. They are even larger than the standard deviations of the rainfall of the event. Why could that be?

Response: The isotopic content of event 2 is less negative than the other two events. The mean  $\delta^{18}\text{O}$  and  $\delta^2\text{H}$  content of the rainfall is  $-1.50\text{‰}$  and  $7.34\text{‰}$  respectively, which is significantly different from the initial  $\delta^{18}\text{O}$  and  $\delta^2\text{H}$  of the stream water (pre-event water) of  $-4.85\text{‰}$  and  $-24.00\text{‰}$  respectively. With regard to the partitioning of rainfall from old water in the stream water, the isotopic content of the stream water changed during the episode.

Figure 4&5: For better comparability, the y-axes of discharge should have the same range.

Response: We will change this as suggested!

Technical Corrections:

p. 3791, l. 6: becomeS p. 3794, l. 13: ‘ : : :a total runoff of: : :’ p. 3795, l. 3: ‘ : : :rainfall WERE: : :’ p. 3795, l. 10: ‘ : : :relief: : :’ p. 3795, l. 17: ‘difference’ instead of ‘variation’ p. 3795, l. 26: better write: ‘ : : :the isotopic value is less negative than: : :’ p. 3796, l. 4: large or small? p. 3796, l. 9: do not write ‘the lightest isotopic content’. Rather write ‘most negative isotope value’ or ‘most depleted in the heavy isotope’ p. 3797, l. 14: ‘ : : :accumulateS: : :’ p. 3797, l. 24: ‘ : : :result: : :’ p. 3798, l. 24: ‘ : : :fractions WERE observed: : :’ p. 3799, l. 8-9: ‘OVERALL, the results suggest that the storm event hydrology IS sensitive TO the amount: :

Response: We will change this as suggested!

This ends our response to the reviewer comments. But we are happy to respond to any further questions or comments to manuscript.

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