Hydrology and Earth System Sciences Discussions

Interactive comment on "The influence of soil moisture on threshold runoff generation processes in an alpine headwater catchment" *by* D. Penna et al.

Anonymous Referee #2

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The paper presents the results of a two year field monitoring campaign, investigating runoff generation processes in an alpine headwater catchment. The paper is interesting and well written. Beside the points raised by the previous Referee, I have some doubts about what illustrated in section 4.4 and figure 6. If I understood, the maximum potential riparian contribution (MPRC) is computed as follows: $MPRC=(R/F)*(AR/AB)$ (1) where R is the total rainfall, F is total storm runoff, AR is the extent of the riparian area, AB is the extent of the entire basin. If equation (1) is correct, MPRC is the inverse of the runoff coefficient scaled by the ratio AR/AB. Thus, Fig. 6 describes the reduction of the inverse of the runoff coefficient versus the antecedent soil moisture: Fig. 6 repre-

sents the same data values of Fig. 3, although scaled in a different way. Provided that AR has been identified only by terrain analysis and no specific observations have been done to explore the degree of saturation of AR or the extent of the contributing area of the entire catchment, it is only possible to argue that small values of runoff coefficient are close to the ratio AR/AB and that it MIGHT be possible that the total storm runoff is originated by the riparian zone. If this is the case, I suggest to remove section 4.4 and to reduce the discussion about the role of the riparian zone to only those points which can be clearly supported with the field data.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 8091, 2010.