

Interactive comment on “Land-use changes reinforce the impacts of climate change on annual runoff dynamics in a southeast China coastal watershed” by A. Ervinia et al.

Anonymous Referee #2

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This study tries to quantify and partition the effects of climate variability and land use on runoff and ET over a half-century in two watersheds in southeast China. The premise of the study, the conceptual water balance approach, and links to related multi-disciplinary research in the region are promising. However, the paper suffers from a lack of details and consistency, which hinders the understanding of some of the methods and conclusions. For further revisions, I would also recommend the authors run the manuscript by an editor specializing in English.

Specific comments: pg. 6309 - lines 16-17: The sentence describing the catchment area is out of place and should be moved to the section describing the study area (2.1)

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pg. 6310 - lines 1-10 (Equation 1). This section seems oddly-placed, and it is not initially clear which specific hydro-climatic variables are being regressed. This becomes clearer later in the paper, but I would suggest adding more details here, or move this section to after the section in which the the hydro-climatic model and variables are discussed (Section 2.4). I would also remember to reference Eq. (1) in parts of the methods where it is applied, I don't see Eq. (1) cited anywhere else in the paper but here.

pg 6312 - lines 19: It is not clear to someone unfamiliar with the region what dry, wet and normal years are for these particular river basins. This is important because it is repeated several times in the discussion. Please add more details and references.

pg. 6314 - lines 1-6: "Low a and b values indicated that evapotranspiration was low, thus runoff response to precipitation...." The authors have introduced and symbolized several different types of hydro-climatic variables in the equations and methods section, especially different estimates of evapotranspiration (AET, PET, etc.). I would strongly recommend being consistent in their use when discussing specific water balance variables and states, and not alternating between symbols and full-length names.

Section 3.2: Many of the quantitative results discussed in the section are given in terms of percent change when discussing Figure 5, yet the units of Figure 5 are in millimeters (mm). This should be consistent.

Fig.1: The figure is missing key for land use/land cover categories. I assume these are the colors in figure 2 (green - natural, yellow - agriculture, red - built-up), but it should be added to the legend or stated explicitly in the figure captions.

Fig. 3: I would recommend to rename Figure 3a-b to Figures 3a-d (four figures) to add clarification to text in the discussion section. 3a and 3b (the time series plots) should be made larger. The lines appear to be symbolized differently (dry, wet, and normal years maybe?). This symbolization should be added to the legend or caption. Also, units and labels need to be added to the time series y-axis plots.

Fig 4: It would be nice to see the years colored in the L-R plot like they are shown in the scatterplots in Figure 3(ab), and would really add some strength to some of the authors' statements.

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