

Interactive comment on “Future humidity trends over the western United States in the CMIP5 global climate models and variable infiltration capacity hydrological modeling system” by D. W. Pierce et al.

Anonymous Referee #1

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Review of: Future Humidity Trends Over the Western United States in the CMIP5 Global Climate Models and Variable Infiltration Capacity Hydrological Modeling System

by Pierce, Westerling and Oyler.

General comments This paper verifies the ability of the VIC model to reproduce humidity variables in retrospective data and also the errors in reproducing humidity trends

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from GCMs. I found the paper very interesting, with great scientific significance and quality and it is a very valuable contribution to climate change impact studies using this hydrological model. I would like to see if a linear equation using the observed T_{dew} data can be proposed in order to substitute equation 1, and to check if that improves the results. This is optional can be left for another paper; however it would be great to show if an improvement is possible. It should be noted also that wind-speed is also another minimum input to VIC, (although the use of the Priestley-Taylor does not require this parameter for the calculation of PET and therefore does not affect the calculated VIC humidity values if that's the case, but in the real world wind-speed affects humidity as it affects PET). I have no access to the VIC code, but isn't the PET computed using Penman (that's why it needs wind-speed as input?). When using GCM precipitation and temperature downscaled data, wind-speed is sometimes included into VIC using climatological values from Maurer (2002), as typically statistical downscaling procedures have not been tested with this parameter.

Particular comments Page 4, lines 9-10 change “...global climate model.” to something like “...global climate model as well as wind-speed from historical databases.”

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 13651, 2012.