Hydrol. Earth Syst. Sci. Discuss., 4, S509–S510, 2007
www.hydrol-earth-syst-sci-discuss.net/4/S509/2007/

Hydrology and Earth System Sciences Discussions

Interactive comment on "Hydrological responses of a watershed to historical land use evolution and future land use scenarios under climate change conditions" *by* R. Quilbé et al.

Anonymous Referee #1

Received and published: 10 July 2007

General remarks:

- the paper is well written, the aim is clearly described, the structure is good and the text/figures relation is also o.k.

- unfortunetaly, basic information about models and calibration is hidden in companion papers in other journals or not available at all. This makes it very difficult for the reader to assess the results. This especially important because all models dealing the climate change go beyond the range of calibration (as also stated in the paper)

Details:

- the figures have smoothed lines (e.g. fig 5) which are not covered by measured data (e.g. between 1987 and 1990 are not covered by data). This also applies to fig. 4 - it should be clear which parts of the lines are measured! It is also not clear how the change in land use was interpolated between the Landsat-scences. The figure implies smoothing.

- it not clear how the discharge was simulated and how the single components were calibrated. Even the companion paper does not reveal all information. This is especially important as the model is not applied in other regions of the world. I would like to know how the basic hydrology works in this system (at least routing, calc. of evaporation). I want a clear statement which components (runoff, soil water, sediment?) were calibrated (preferable a table with the NS-coefficients). The corresponding sections 2 and 3 of the paper do not provide much useful information. The cited paper (Savary et al. 2007) is not available for review so the reader has to believe it or not.

- the model only works with precipitation and min/max temperatures. What about humidity? How is evaporation calculated in the base run and the scenarios?

- in section 5, many results of statistical tests are given - I do not think that this is a useful procedure given the uncertainties in the model itself and the autocorrelation in the land use data set (and maybe also in the climate data sets).

- in fig. 9 the meaning of the upper and lower half of the figure is not clear

- section 4.2.1.: the procedures should be described briefly

- in section 5.2.2. a reference is made to fig 4 - this seems to be wrong.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 4, 1337, 2007.