

Interactive comment on “Modelling the hydrologic response of a mesoscale Andean watershed to changes in land use patterns for environmental planning” by A. Stehr et al.

Anonymous Referee #1

Received and published: 2 July 2010

The manuscript can be accepted for publication after a moderate revision. The following parts need additional explanation:

1. How forest plantation was parametrized in SWAT? Which parameters differ from those for the native forest? This should be explained, and maybe a Table with parameters could be added.
2. It seems like Figs. 7-9 show monthly discharges, and NOT daily, how it is stated in the figure captions. It is also not clear, whether the criteria of fit in tables 5-7 were calculated for the daily or monthly values? This should be clarified.

C1334

3. Discussion of the scenario results should be extended by including an explanation of scenarios 2 and 4. Why the direction of change is not the same for all subbasins: scenario 2 for Rehue, and scenario 4 for Malleco? As the current land use is described with numbers for the total drainage area, but not for the subbasins, and land use map in b&w does not allow to easily recognize the current status for subbasins, it is difficult to interpret the obtained results.

Besides,

4. It would be good to add a comparison of average seasonal dynamics of calculated and observed discharges in two periods: 1977-82 and 1992-98 for 3 gauges (based on data in Figs. 8 and 9).
5. It would be good to improve the quality of land use maps (Figs. 3 and 10), because different land use types are hardly distinguishable now.
6. Language has to be additionally checked by authors and a native speaker. There are many places that need correction:

* Abstract: - current observed scenario → current period?

* 1 Introduction: - scarcity → water scarcity - populations → population - future supply → future water supply - extensively → extensive - from modelling tools → from application of modelling tools - might to be → might be - Hamberlandt! → Haberlandt

* 2 Study area: - gaugin → gauging

* 3.2 Land uses: - diminished a 50% → diminished by 50%

* 3.3 Hydrological records - gaugin → gauging

* 4 Generation of probable land use scenarios - The heuristic rules based assumptions on... → The heuristic rules are based on assumptions of... - The regression model based observed... → The regression model was based on observed...

C1335

* 5 SWAT - sensible parameters → sensitive parameters

* 6.2 - sensible parameters → sensitive parameters - subestimates → underestimates.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 3073, 2010.