

## ***Interactive comment on “Roles of spatially varying vegetation on surface fluxes within a small mountainous catchment” by G. N. Flerchinger et al.***

### **Anonymous Referee #1**

Received and published: 19 March 2010

The paper investigates the influence of vegetation on the spatial variability of surface fluxes across an experimental area within the Reynolds Creek Watershed. In the introduction the authors state that the aim is to bridge the gap between the site-specific study by Reba et al. (unfortunately in preparation) and larger-scale hydrologic and ecosystem issues in snow-dominated headwater catchments. However, after a wide-ranging and very promising statement of the study aims, the paper goes back to an extremely site-specific analysis of the energy fluxes over three different vegetation covers within the experimental area.

With all the due respect to the authors' efforts to collect a huge amount of carefully

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measured data, I remain profoundly unconvinced on the advantages of such an approach, given the manifest difficulties of providing final general conclusions. The study by Flerchinger et al. is, in this sense, emblematic. In the final summary peculiar conclusions are drawn on the specificities of the examined case study, but no indication can be found on how to employ the results in similar contexts.

The level of technicality attained in the paper also emerges from the scarce attention devoted to other important aspects of the processes characterization, as for example the wind-correction for precipitation. As an hydrologist, I believe that the problem of precipitation undercatch still represents an open (often unresolved) question in topographically complex (mountainous) areas of the world, whereas it appears to be a minor concerns for the authors. Would they please provide the reference of the paper(s) in which they have succeeded to overcome the problem? The scientific/technical community would derive a great advantage from this.

In conclusion, I suggest the authors may decide to reconsider the direction of their study, for instance by emphasizing the quality of their results with reference to the instruments which have been employed [e.g., Scott, 2010]. In this case, however, I believe that a Technical Note format would be more appropriate for the paper. Or, as an alternative, they may decide to add some work and try to generalise the scope and results of the paper, for example by comparing their findings with similar findings in other sites [e.g., Castellvi & Snyder, 2010].

Both options imply a Major Revision of the manuscript.

#### Bibliography

Castellvi F. & Snyder R.L., A comparison between latent heat fluxes over grass using a weighing lysimeter and surface renewal analysis, *Journal of Hydrology*, 381, 213-220, 2010

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