

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

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The primary concern of Reviewer #1 is that the paper lacks focus and conclusions that are applicable beyond the current study. The reviewer suggests two approaches to resolve the problem: one is to put more emphasis on the water balance aspect of the study as a means to emphasize the quality of the measurements; and the second is to generalize the scope of the paper by comparing the results to studies at other sites. As both reviews suggest a more diligent approach to the catchment water balance, we will increase the focus on the water balance in the revised paper, comparing our results to Scott (2010).

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We do not, however, want the water balance aspect to dominate the manuscript. In our revision, we will use the water balance to demonstrate the quality of our measurements, but will emphasize the flux comparisons between the ecosystems and the broader application of our results. The sagebrush and aspen ecosystems studied in this paper are ubiquitous throughout the forests and Intermountain shrub steppe of the Western U.S. (Barbour and Billings, 2000; Clark et al., 2001). Thus, results have a much broader context than the apparently site-specific nature of the study. Comparisons will be made to other studies and ecosystems as well, e.g. Scott et al. (2003), Baldocci et al., (2004), and Paco et al. (2009), among others.

Our omission in describing the wind-correction for precipitation was in part due to the catchment water balance not being our primary focus of the paper. Based on comments from both reviewers, we will reinforce the water balance aspect of the paper. Part of this will include a more detailed description of the precipitation measurement and wind correction. Precipitation measurement using the dual gauge system (Hanson et al., 2004) has been measured at dozens of locations within the windy, snow-dominated Reynolds Creek Experimental Watershed (RCEW) for over 50 years, including significant research on correcting the under catch associated with wind (Hamon and Cox, 1972; Hamon, 1972; Rawls, et al., 1975; Hanson et al., 1979, 1999, 2004; Hanson, 1989), and these data have been presented by Hanson (2001), Flerchinger, et al. (2007) and Marks, et al. (2007). These methods were tested during the WMO solid precipitation measurement intercomparison and were shown to be equivalent or superior to the use of either the Wyoming or Alter shielded precipitation gauges across a wide range of snowfall conditions (Yang, et al., 1999).

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