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# Effects of large daily variation of vapor pressure deficit on evapotranspiration and energy budget of wetland in a subalpine mountain valley

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Our early study showed that the daily relatively humidity in subalpine mountain valley varied very large, which may affect evapotranspiration (ET) and energy budget of valley. However, the effect of large humidity variation on ET and energy budget in subalpine valley is still not clear because of lacking of detail observation data. For this reason, we carried out a field experiment over a wetland in Jiuzhaigou Valley (a subalpine area in China). ET and energy budget was observed for 2 years period using Energy Balance Bowen Ratio (EBBR) method. Results show that in clear days, the relatively humidity of air could decrease from more than 90% in the early morning to less than 10% around noon time, which can result in vapor pressure deficit (VPD) changing from less than 0.1 to more than 2.0. We also find that the latent heat flux is about 80% of net radiation and the sensible heat flux is very low in the valley. The regression coefficient of the ratio of latent heat flux to net radiation and VPD is 0.21 and is 0.79 between ET and VPD. Therefore, it is concluded that the relative humidity is one of the most important factors affecting ET and energy budget in subalpine valleys.