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Evapotranspiration process under typical herb cover after wildfire

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Soil moisture is a key factor limiting vegetation succession in karst ecosystem. Wildfire changes soil physical and chemical properties, which likely affect evapotranspiration of post-wildfire plant recovery. However, merely studies have been performed to elucidate the evapotranspiration processes and the controlling factors. In this experiment, two typical herbaceous plants (Compositae *Artemisia* and Gramineae *Saccharum*) in karst areas were selected for pot experiment. The treatment without plant was used as the control. Combustions were laboratorially carried out with different severity (light, moderate, and high) to simulate different intensities of wildfire disturbance. During the experiments, the mass change in each pot was measured to obtain evapotranspiration under different weather conditions. We also collected meteorological data (total radiation, water vapor pressure, air temperature, relative humidity, atmospheric pressure, soil heat flux, soil temperature, etc.), biomass, and soil properties. Our study showed the impact of wildfire on evapotranspiration. We also compared the differences in evapotranspiration of different herb covers. We detected that weather conditions (e.g., duration of continual drought) also had important influences on the evapotranspiration during post-wildfire restoration. The study provides more insight into characteristics of soil water movement after wildfire in karst areas and evaluating the availability of soil moisture after wildfires.