

Spatial distribution of soil water repellency in a small headwater catchment

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Soil water repellency has been widely acknowledged as an important soil property that can affect the water flow in soils since it causes the generations of overland flow or preferential infiltration. However spatial distributions of water repellency in forested catchments have not been investigated adequately. Then we examined the spatial distribution of soil water repellency in a small headwater catchment covered with a Japanese cypress (*Chamaecyparis obtusa*) and a Japanese cedar using ethanol percentage (EP:%,v/v) as an index of repellency. In dry summer, fresh-soil EP values, which indicate actual water repellency, exceeded 20 at more than 80% of sampling locations except at bottomland and a part of lower sideslope. Strong potential water repellency, which is indicated by Air-dry EP values (EP(d)) exceeded 20, observed at more than 80% of sampling locations including in the sideslope where actual water repellency was not observed. These results suggest that repellency-induced overland flow and preferential flow widely occur in this catchment.