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Influence of canopy structures on generating throughfall erosivity: an experimental approach

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To assess the generating process of rainfall erosivity under forest canopy, an indoor experiment was conducted with a transplanted Japanese cypress tree, 9.8 m tall, in a large-scale rainfall simulator. Throughfall amount and raindrops were measured at thirty-two points under the canopy. Four kinds of canopy structures were created by staged branch pruning to estimate the influence of canopy structures. Throughfall erosivity increased with the branch pruning, in part because the velocities of drops falling from the foliage increased depends on the increase of falling height. Furthermore, throughfall amount increased depends on the decrease of canopy storage, and the volume ratio of large drops with diameters > 3 mm increased with the canopy thickness decreasing. From the results, a flow of rainwater in the canopies was suggested reflecting the canopy thickness and the distance from the trunk.