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Rainfall interception in Abies fabri forest with different-aged stands in Southwest China

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Interception is one of the most important hydrological processes. Most investigations merely focus on canopy interception, but forest floor interception should also be considered. The stand age also influences interception. To explore the interception characteristics of Abies fabri with different stand ages, canopy, stem, and forest floor interceptions were evaluated during the rainy season of 2009 (from May to October 2009). The total interception ratios were found to be 28.8%, 25.5%, and 31.3% for young, middle-aged, and mature forest stands, respectively. Forest floor interception accounted for 19.1%, 18.1%, and 10.0% of the total interception, respectively. We concluded that the differences among the interceptions of the forest stands were correlated with the leaf area index. A higher stand height also reduced the rate of forest floor evaporation. The water-storage capacities of the young, middle-aged, and mature forest stands were 8.22, 7.61, and 10.78 mm, respectively. These results implied that the canopy and forest floor interceptions were related to the forest water balance, and that accurate estimates of the interception of different-aged forest stands were crucial in evaluating the role of a forest in the hydrological cycle.