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Heterogeneity of net precipitation due to species and position effect in a cloud forest in Dhofar

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We investigated which role edge effects versus tree species plays for capturing cloud water and re-distributing it below the tree canopy. Because of the high input of water through cloud capture in this cloud forest, we hypothesized that factors enhancing cloud capture would substantially change the water budget and lead to heterogeneous patterns of net precipitation (water received on the ground). Further, we assumed that similar to other areas, distance from the vegetation edge would be the most important factor influencing net precipitation. Cloud capture by vegetation added a significant proportion of water (up to 37% additional water through cloud capture compared to rainfall) received at the ground. Contrary to our initial assumption, differences in net precipitation were mostly due to vegetation type than to location (distance to the edge). Significant differences in net precipitation were frequently (50% of the sampling periods) observed between plots of different species (Pithicellobium dulce and Leucaenia leucacephala), with one species always achieving higher yields. With respect to precipitation water re-distribution, main differences between the two tree species were found to originate in stemflow.