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New measuring technique to determine forest floor interception

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In hydrological models evaporation from interception is often disregarded or taken as a fixed percentage, because interception would not be a significant process in rainfall-runoff modelling. However it appears from previous research, that interception can amount to 20-40% of the precipitation. Therefore, knowledge about the process of interception is important.

Traditional research on interception mainly focuses on canopy interception and almost completely denies forest floor interception, although this is an important mechanism that precedes infiltration. Forest floor interception is partly interception by dry soil, partly interception by short vegetation (mosses, grasses and creeping vegetation) and partly interception by the litter. This research concentrates on the latter: the litter interception, as a first step to measure its quantities at point scale and subsequently to upscale it to the scale of a hydrotope. A special measuring device has been developed, which consists of a permeable upper basin filled with forest floor and a watertight lower basin that are weighed continuously. The device is tested on two different locations; one is tested in the Huewelerbach catchment (Luxembourg) with litter and one in Westerbork (the Netherlands) with grass and moss.

The preliminary measuring results show that the device is working properly. After a rainfall event the upper basin shows a weight increase and depending on the amount of rainfall also the lower basin shows an increase. When rainfall ceases, it can clearly be seen, that the weight of the upper basin decreases partly due to percolation, partly due to evaporation within one day.

For November 2004, evaporation is calculated to be about 35% of the precipitation in

the Huewelerbach catchment and about 80% in Westerbork. However, in Westerbork not only evaporation is measured, but also transpiration from forest floor growth is included, because the upper basin is filled with grass and moss.

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