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Estimation of moisture content of forest litter using the Antecedent Precipitation Index

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The moisture content of forest litter is an important parameter to quantify or modelling the forest hydrological processes, but it would be a key factor for other disciplines (e.g. zoology, fire prediction). Water content of leaf litter is difficult to detect and monitor. The authors employed the Antecedent Precipitation Index (API) for estimation of water content of the litter in a sessile oak (*Quercus petraea*) and in a beech (*Fagus sylvatica*) stand. One way of the API calculation is based on a weighting process using linearly decreasing weights. Moisture content of the leaf litter decreases more rapidly at the beginning of the desiccation process, and the drying-up slows down to the end of the process. As the forest litter desiccation is non-linear, and depends on the ambient temperature as well, the authors used exponential weights corrected with the temperature to determine the API. The antecedent precipitation index was calculated for the durations of 5, 10, 20 and 30 days. The water content of the leaf litter, the daily precipitation and temperature data were collected for analysis in Hidegvíz Valley (Hungary) research catchment in a three-year measurement period (2006–2008). The main result of the study was the finding that the API applies corrected weights generally showed stronger correlation with the moisture content of the litter against the API uses linear weights.

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