



## **Throughfall spatial distribution under single birch and pine tree canopies**

Katarina Zabret and Mojca Šraj

University of Ljubljana, Faculty of Civil and Geodetic Engineering, Ljubljana, Slovenia

Throughfall largely varies in space and time, which significantly effects other natural processes (e.g. soil erosion, atmospheric depositions) and influences the sampling strategies and interpretation of the throughfall data. Throughfall spatial distribution was measured in 11 points under birch (*Betula pendula*) and pine (*Pinus nigra*) tree canopies during the year 2016 in city of Ljubljana, Slovenia. 30 rainfall events with complete data and with more than 5 mm of rainfall were analysed. The total throughfall under birch tree accounted for 73% and under pine tree for 56%. The coefficient of variation of point throughfall was 31% and 42% for birch and pine tree, respectively. The influence of distance from the tree stem and canopy coverage on spatial distribution of throughfall was analysed using the regression trees and heatmaps. The influence of rainfall event properties was analysed with hierarchical clustering of event heatmaps using Orange software. In case of birch tree both distance from the stem and canopy coverage influenced throughfall spatial distribution, which also showed different patterns of throughfall during leafed and leafless periods. Additionally, the amount of rainfall and its microstructure influenced the spatial distribution of throughfall under the birch tree. However, among considered tree characteristics only canopy coverage was recognized as parameter influencing spatial distribution of throughfall under pine. Furthermore, its spatial patterns were specified by meteorological variables, namely the amount of rainfall and its intensity.