Geophysical Research Abstracts
Vol. 15, EGU2013-13769, 2013
EGU General Assembly 2013

Global patterns in throughfall spatial variation

Alexander Zimmermann and Beate Zimmermann
University of Potsdam, Institute of Earth and Environmental Science, Potsdam, Germany
(alexander.zimmermann.ii@uni-potsdam.de, +49 331 977 2047)

Rainfall redistribution in forests usually results in a considerable spatial variation of throughfall. How large this variation in a particular stand is depends on stand characteristics (e.g. canopy structure, leaf traits), meteorological conditions (e.g. rainfall depth and intensity, wind speed and direction), and topographical characteristics (e.g. variation in elevation, slope, aspect). Yet, it is currently unknown which of these factors dominate spatial variation in throughfall at the global scale. In this contribution we present preliminary results of a global meta-analysis on throughfall spatial variation. For our analysis we assess throughfall spatial variation using the coefficient of variation (CV) as a simple measure. To compare CVs among forests we control for both the support (i.e. receiving area) of the sampling devices and the temporal aggregation of throughfall data (i.e. event-based versus accumulated data) because spatial variation of throughfall varies systematically with both parameters. So far, our analysis suggests that throughfall data from tropical forest ecosystems show a much larger spatial variation than data from temperate forest sites. Particularly tropical montane forests seem to represent hotspots of throughfall spatial variation. Interestingly, our current data set does not show systematic differences of throughfall spatial variation between temperate broadleaved and coniferous forests. The pronounced differences between tropical and temperate zone forests tentatively point to the importance of leaf-trait diversity as a first-order control of throughfall spatial variation.