

GENERAL INFORMATION

author(s)	Van Miegroet M, Dua V, Roskams P
year	1987
English title	Chemical characteristics of rainfall water in open-field conditions and below a forest canopy
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ecosystem service	supporting – nutrient cycle
keywords	deposition, stem flow, throughfall
taxa	<i>Pinus, Fraxinus, Quercus, Fagus, Alnus</i>
project	
supervisor	
institution	Ghent University, Faculty of Agricultural and Applied Biological Sciences, Laboratory of Forestry
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data	

MATERIALS & METHODS

study area	
time period	November 1984 – October 1986
goal	<ul style="list-style-type: none"> - chemical characterization of the precipitation in and outside of forests - study the impact of forest canopies on the chemical composition of wet deposition, throughfall, and stemflow
set-up	<p>24 months, sampling each 15 days sample point = 8 collectors in a cross (1 m between collectors) 3 sample networks:</p> <ul style="list-style-type: none"> - systematic (S): direct precipitation + throughfall, 2-weekly, year 1&2 - parallel (P): direct precipitation + throughfall, sampled after each rainfall spell, year 1 - stemflow (SA): stemflow, year 2 <p>5 sample locations</p> <ul style="list-style-type: none"> - urban: Ghent, Zelzate (S) - forest area: Gontrode (open field, oak, beech, ash, alder – S/P/SA), Wachtebeke (open field, pine – S/P/SA), Buggenhout (open field, oak, beech – S/SA)
data collection	<p>per collector: pH 6 samples per sample point (2 samples with highest/lowest pH discarded) – mixed sample: SO₄, NO₃, Cl, Na, K, Ca, Mg, P</p>
remarks	<p>see also VanMiegroet&Dua_1984_SilvaGand, VanMiegroet&Dua_1985_rep (NOT FOUND) pre-study (see also level_II.doc)</p>

RESULTS

The input of pollutants is rather high. Yet, no visual impact on the forest systems was observed. Mainly S was present in high concentrations; the presence of N was less important. Local emissions seem to be of minor importance. The canopies differ in interception capacity because of the crown characteristics of the different tree species and the density and structure of the forests. Pine and beech had the highest

interception, followed by oak; ash and alder had a limited interception capacity. Leaching from tree leaves may also affect the composition of throughfall water, mainly for K (but also for Ca and P). Crown exchange seemed to be important for ash, less for oak and beech, little for alder.