

NOMENCLATURE*Symbols*

<i>AOT40</i>	accumulative exposure over a threshold concentration
<i>BAI</i>	Bark Area Index
<i>cpa</i>	crown projection area
<i>c</i>	pollutant concentration
<i>C_D</i>	drag coefficient
<i>c_p</i>	specific heat of air at constant pressure (cal g ⁻¹ °C ⁻¹)
<i>c_v</i>	scaling parameter of the standard deviation of the lateral wind fluctuations on <i>u</i> *
<i>d</i>	displacement height (m)
<i>d1-d5</i>	dry deposition factors for open samplers
<i>D</i>	diffusion coefficient (m ² s ⁻¹)
<i>DOSEEXP</i>	percentage of the total pollutant dose supplied with wind directions exposed to the forest edge
<i>E</i>	particle collection efficiency
<i>ETAL</i>	edge area
<i>F</i>	pollutant flux (mol ha ⁻¹ a ⁻¹)
<i>FBM</i>	fractional bias of mean
<i>FBV</i>	fractional bias of variance
<i>g</i>	acceleration due to gravity (m s ⁻²)
<i>H</i>	sensible heat flux (W m ⁻²)
<i>h</i>	vegetation height (m)
<i>K_{m,h,c}</i>	turbulent diffusion coefficient (eddy diffusivity): m=momentum; h=heat; c=gas or exchange (m ² s ⁻¹)
<i>K_H</i>	Henry coefficient (mol l ⁻¹ atm ⁻¹)
<i>K_i</i>	reaction rate
<i>l</i>	mixing length or mean eddy size at a given height (m)
<i>L</i>	Monin Obukhov length (m)
<i>LAI</i>	Leaf Area Index (m ² m ⁻²)
<i>LWC</i>	Liquid Water Content

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<i>M</i>	molecular weight
<i>MMD</i>	Mass Median Diameter (μm)
<i>NMSE</i>	normalised mean square error
<i>NTF</i>	net throughfall
<i>Pr</i>	Prandtl number (≈ 0.72)
<i>Q</i>	global radiation (W m^{-2})
<i>Q_a</i>	relative errors
<i>rh</i>	relative humidity (%)
<i>R</i>	correlation coefficient
<i>R_a</i>	aerodynamic resistance (s m^{-1})
<i>R_b</i>	laminar layer resistance (s m^{-1})
<i>R_c</i>	surface resistance (s m^{-1})
<i>R_{cuticle}</i>	cuticular resistance (s m^{-1})
<i>R_{ext}</i>	external resistance (s m^{-1})
<i>R_i</i>	internal leaf resistance (s m^{-1})
<i>R_{inc}</i>	in-canopy resistance (s m^{-1})
<i>R_m</i>	mesophyll resistance (s m^{-1})
<i>R_{soil}</i>	soil resistance (s m^{-1})
<i>R_{stom}</i>	stomatal resistance (s m^{-1})
<i>R_{wat}</i>	surface water resistance (s m^{-1})
<i>R_n</i>	net radiation (W m^{-2})
<i>SA</i>	sapwood area (m^2)
<i>SD</i>	standard deviation
<i>S_a</i>	absolute errors
<i>Sc</i>	Schmidt number
<i>t</i>	time (h)
<i>T</i>	temperature ($^{\circ}\text{C}$)
<i>TNA</i>	total needle area (m^2)
<i>TA</i>	total area
<i>T_s</i>	surface temperature ($^{\circ}\text{C}$)
<i>u</i>	wind speed (m s^{-1})
<i>u_h</i>	wind speed at canopy height (m s^{-1})
<i>u*</i>	friction velocity (m s^{-1})
<i>V_d</i>	deposition velocity (m s^{-1})
<i>V_{ds}</i>	surface deposition velocity (m s^{-1})
<i>V_{dt}</i>	turbulent deposition velocity (m s^{-1})
<i>V_s</i>	sedimentation velocity (m s^{-1})
<i>WEINTE</i>	whole edge integrated net throughfall enhancement factor
<i>w</i>	mean vertical wind speed (m s^{-1})
<i>w'</i>	instantaneous fluctuations about the mean wind speed (m s^{-1})
<i>x</i>	distance to forest edge

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z	height (m)
z_i	boudary-layer height (m)
z_0	roughness length (m)
z_{0c}	roughness length appropriate for a pollutant (m)
z_{0t}	grid average z_0 value (m)

Greek symbols

α_n	stability correction factor
β	number of preceding dry hours
κ	von Karman constant (=0.41)
θ	wind direction ($^\circ$)
ρ	density of an entity (kg m^{-3})
ρ'	fluctuations about the mean
ρ_a	air density (kg m^{-3})
σ_θ	standard deviation of wind direction (rad)
σ_v	standard deviation of lateral wind (rad)
τ	momentum flux (N m^{-1})
ψ_c	stability correction function: concentration
ψ_h	stability correction function: heat
ψ_m	stability correction function: momentum

Abbreviations

DAS	Dutch Acidification System model
DFM	Deposition Filter Method
DPA	Dutch Programme on Acidification
DEADM	Dutch Emperical Deposition Model
ECMWF	European Centre for Medium-range Weather Forecast
EDACS	European Deposition of Acidifying Compounds estimated on a Small scale
EMEFS	Eulerian Model Evaluation Field Studies
GIS	Geographical Information System
GPCP	Global Precipitation Chemistry Project
LML	National Air Quality Monitoring Network
LTRAP	Long Range Transport
ODS	Observational Data Set
RAINS	Regional Acidification Information and Simulation model
RADM	Regional Acid Deposition Model

Names of institutes

CBS	Central Bureau for Statistics, Voorburg
ECN	Netherlands Energy Research Foundation, Petten
EMEP	European Monitoring and Evaluation Program
EPA	Environmental Protection Agency (USA)
KEMA	The Electric Power Research Institute, Arnhem
KNMI	Royal Dutch Meteorological Institute, de Bilt
KUN	Catholic University Nijmegen
RIVM	National Institute of Public Health and Environmental Protection, Bilthoven
RUU	University of Utrecht, Utrecht
TNO	Netherlands Organization for Applied Scientific Research, Delft
WAU	Wageningen Agricultural University