



Wood combustion impact on particulate matter levels in Europe

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Atmospheric levoglucosan has been determined as a proxy for „biomass smoke“ in samples from urban and rural stations on a transect from the Atlantic coast to mid-Europe. Elevated levels of wood smoke with contributions of more than 50% to PM levels (PM_{2.5}/PM₁₀) persist throughout the cold season at rural as well as urban low level sites in Europe. Dual site data from rural/urban stations indicate that rural areas contribute more to wood smoke levels than urbanized areas in Mid-Europe. Thus, biomass smoke is a very important constituent of the organic material in the mid and west European background with winter levels of around 20% at elevated mountain sites and around 50% and more at continental low level sites, not including secondary organic aerosol from biomass combustion sources. Since not the urbanized regions but rather semiurban and rural areas are main emitters of the biomass smoke the impact of rural and suburban settlements on large scale wintry PM levels have been overlooked in Europe until now.