SCAVENGING OF PAH-COMPOUNDS BY SNOW

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Polycyclic aromatic hydrocarbons (PAH-compounds) were measured in snow samples collected in Frankfurt (M) and the surrounding hills. As analytical tool, high-performance liquid chromatography (HPLC) and fluorescence detection was used. By filtration of the samples the soluble and insoluble fraction of the different PAH-compounds were measured.

The concentrations in the City compared to the surrounding rural areas were roughly twice as high. However, the percentage profiles of the different compounds were unchanged, not influenced by the different absolute values of the samples. Fluoranthene (FLU) was dominant in comparison to the other compounds.

In January and February snow-falls as well as rain-falls took place. The concentrations in snow compared to rain in average were 1,5 times higher. Snow-flakes in respect to PAH-compounds are better scavengers than rain-drops.

The ratios of the soluble and insoluble fraction in snow and rain are different. The soluble fractions in respect to absolute concentrations in both phases were equal. However, the insoluble PAH-fractions in snow samples were two times higher than in equivalent rain samples. The soluble fraction in snow and rain is assumed to originate of gaseous PAH-compounds whereas the insoluble fraction mostly is attributed to PAH-compounds bound in particles. Thus it is proven that snow-flakes due to a larger surface are better scavengers of particles than rain-drops.