

Assessment of atmospheric deposition in Central Russia: Vladimir and Yaroslavl regions, using moss biomonitors, neutron activation analysis and GIS technologies

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Moss biomonitoring technique was applied to study peculiarities of the spatial distribution of atmospheric deposition of heavy metals on the territory of the Vladimir and Yaroslavl regions. During the summer 2018, samples of the terrestrial mosses *Pleurosium shreberi* were collected at the 126 sites evenly distributed over the territory of investigated regions. The combination of neutron activation analysis and atomic absorption spectrometry allowed to determine more than 30 elements in moss samples. To identify the main sources of air pollution multivariate data analysis technique – factor analysis was applied, while the deposition patterns of pollutants was illustrated using GIS technology. Median values of the elements were compared with the results obtained for other regions in Russia, which participated in moss survey studies. The contamination factors, Geo-accumulation Index and pollution load index were calculated for the following elements As, Sb, Pb, V, Cd, W, Fe, Cr, Ni and Co. Ni. The dominant anthropogenic sources of air pollutants in studied regions can be considered industrial activity and transport.