



## **Oxidizing ability of the atmosphere and generation of trichloroacetic acid in the near-surface air over the European Russia**

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During the period from 1997 through 2005, several series of measurements of oxidizing ability of the atmosphere and contents of trichloro-acetic acid (TCA) in plants were conducted on the European territory of Russia. Atmospheric radiation characteristics, concentrations of key chemical compounds, and oxidizing ability of the atmosphere were studied in those regions of European Russia where the most dramatic anthropogenic effect on vegetation could be expected. Anthropogenic emissions of C<sub>2</sub>-chlorocarbons in Central Europe and Russia were supposed to result in formation of toxic TCA that can result in destruction of plants in regions with unfavorable climatic conditions. A lot of samples of pine needles *Pinus Sylvestris* were gathered. Their analysis allowed revealing several sites with considerable TCA contents in plants. Observations of variability of gaseous species contents in near-surface air displayed possibility of TCA generation in the regions of the southern Russia and revealed primary natural and anthropogenic sources of its precursors. Numerical modeling of oxidizing processes and accumulation of TCA has been conducted to explain some characteristic features of the ecosystems of Kalmykia region, Central Russia, and Kola Peninsula strongly affected by anthropogenic emissions of the TCA precursors.

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