

## **Identification of “Hot-Spot” Imission Events Reflected in Rain Precipitation Chemistry Basing on Ion Chromatography Analysis and Self-Organizing Maps Classification – Aleksander Astel**

### **Summary**

The present study deals with the application of self-organizing maps (SOM) to identification of “hot-spot” imission events reflected in bulk precipitation chemical profiles basing on ion chromatography analysis. An experiment was conducted in the period between January 1999 and December 2003 at the Dupniański Stream catchment (the Silesian Beskid) area to collect both analytical measurements ( $\text{Cl}^-$ ,  $\text{NO}_3^-$ ,  $\text{SO}_4^{2-}$ ,  $\text{NH}_4^+$ ,  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ , Fe, Mn and Zn), pH and meteorological parameters (prevailing wind direction). A classification of rainwater samples according to identification of strong imission events was performed basing on Kohonen’s algorithm. SOM approach allows to identify strong, temporal impact of remote pollution sources located in the vicinity of the Polish – Czech Republic border and indicates cyclical impact of remote pollution sources located in highly industrially developed Katowice and Bełchatów regions.