

Time Series Analysis of Air Pollution in Suceava County (Nord- East of Romania)

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Abstract : Different time series analysis of yearly air pollution at Suceava County, Nord-East of Romania, has been performed in this study. The trends in the atmospheric concentrations of the main gaseous and particulate pollutants in urban, industrial and rural environments across Suceava County were estimated for the period of 2008-2014. The non-parametric Mann-Kendall test was used to determine the trends in the annual average concentrations of air pollutants (NO₂, NO, NO_x, SO₂, CO, PM₁₀, O₃, C₆H₆). The slope was estimated using the non-parametric Sen's method. Trend significance was assumed at the 5% significance level ($p < 0.05$) in the current study. During the 7 year period, trends in atmospheric concentrations may not have been monotonic, in some instances concentrations of species increased and subsequently decreased. The trend in Suceava County is to keep a low concentration of pollutants in ambient air respecting the limit values. All the results that we obtained show that Romania has taken a lot of regulatory measures to decrease the concentrations of air pollutants in the last decade, in Suceava County the air quality monitoring highlight for the most part of the analyzed pollutants decreasing trends. For the analyzed period we observed considerable improvements in background air in Suceava County.

Keywords : pollutant, trend, air quality monitoring, Mann-Kendall

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