



## **An Air Quality Model and Its Evaluation in Erzurum, Turkey**

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**Abstract:** Gaussian-based air quality models or box models have been used commonly in air quality studies for different pollutant sources. In this study, ATDL (Atmospheric Turbulence Diffusion Laboratory) model was used to investigate the impact of area sources on the ambient air quality during the 2001-2002 winter season in Erzurum, Turkey. The emissions of SO<sub>2</sub> from the area sources during the heating season along with meteorological data have been used for estimating the ground level concentrations of SO<sub>2</sub> using the model. The daily averaged model predicted concentrations have been compared with the corresponding observed concentrations at six monitoring stations throughout the study. To evaluate ATDL model performance, statistical parameters such index agreement (IA), correlation coefficients (r), normalized mean square error (NMSE), fractional bias (FB) were utilized. The overall model performance for six monitoring stations was good, with an accuracy of about 61%.

**Keywords:** Air quality modelling, ATDL, Statistical analysis, Performance evaluation

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