2D Advection-diffusion Model for Simulation and Visualization The Distribution of Air Pollution

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Abstract: Air pollution distribution is a major problem facing the world today. There are factors that aid in the build-up of air pollutants in the atmosphere. This study looks at the role meteorological factors, atmospheric conditions, and convection transport play in the distribution of pollutants. A mathematical model is formulated taking into consideration these factors in order to understand the distribution of air pollution. The 2D advection-diffusion model is applied to simulate the distribution of air pollution. The model was solved numerically by using explicit finite difference method. The results were simulated and visualized by creating a program using Lazarus programming software. The results show that the distribution of pollutants is affected by the meteorological factors, atmospheric conditions, and convection transport.

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