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Simulation of Wind Speed and Wind Direction over Urban Structures

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In this study, the effect of urban structures (e.g. buildings, trees, bridges, etc.) on surface wind speed and wind direction was investigated using a Navier-Stokes equation solver to simulate wind over complex topography. The simulations were performed over the Lampang-Ngao highway and surrounding areas in Amphoe Muang Lampang in Thailand. This area is characterized by vehicular traffic emissions that affect communities living beside the highway. Since wind speed and wind direction affect the concentration of these emissions, this study is a first step to determine the location where to plant more trees to improve the air quality in urban areas.

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