



Large Eddy Simulation of the effect of trees on street canyon pollution dispersion

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The effect of trees in a street canyon on pollution dispersion is investigated using the large eddy simulation model CLMM (Charles University Large-eddy Microscale Model). The simulated case inspired by the real Legerova street in Prague, where planting of trees is being considered by the local authority.

There are several types of tree positioning considered. The trees are planted along the side walks or in the axis of the street with different distances between them. Also, different tree dimensions are considered.

It is well known that trees can increase the concentrations in the canyon by blocking the exchange of air with the region above the street. The goal is to compare the influence of the type of the tree placement on the ventilation.

The simulation is performed in on a uniform orthogonal grid. The effects of trees is simulated using the added aerodynamic drag in the cells containing it. The buildings are modelled using the immersed boundary method.