

Wind Flow

ANALYSIS OBJECTIVE

ENVI-met provides a multitude of tools to simulate and analyze wind flow in your simulation area.

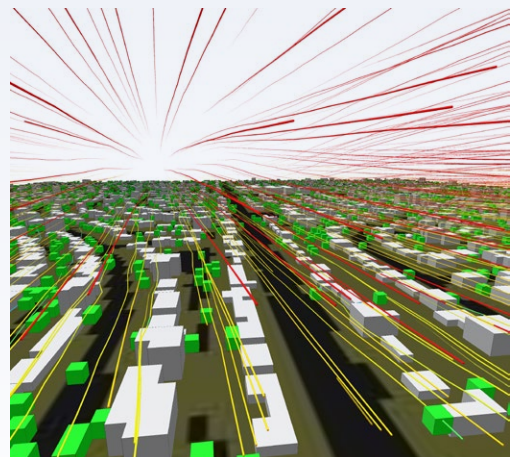
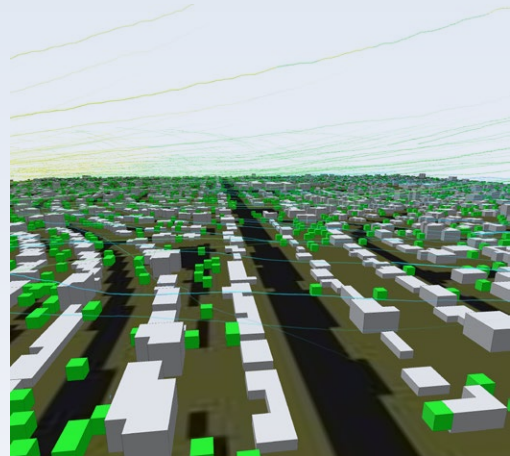
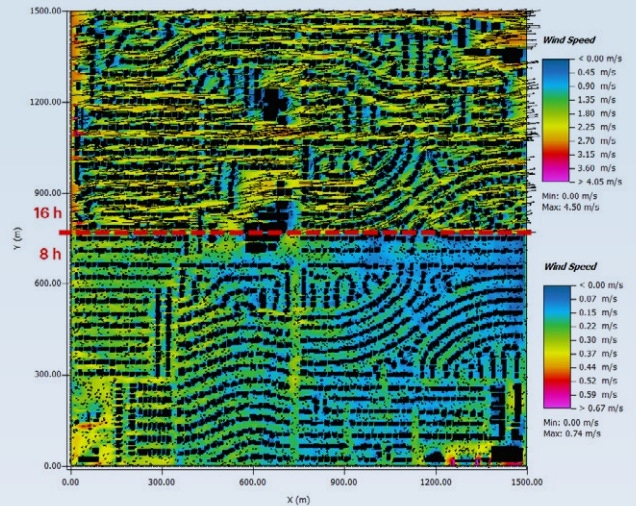
In an exemplary study, an urban area of 1500 m x 1500 m x 75 m has been simulated with varying wind parameters as input factors. At 8 AM, the wind predominantly comes from a Northern direction with low wind speeds, while at 4 PM the wind predominantly comes from the West with higher wind speeds. The urban area is built in mostly parallel streets primarily extending in an East-West direction.



ANALYSIS

With the wind coming from the North and relatively low wind speeds, there is little to no wind flow observable in the model area. Wind coming from the West, on the other hand, leads to a high wind flow particularly in the East-West oriented streets and almost all other areas. Especially on hot days, higher wind values within the area might lead to better Thermal Comfort for people living in the city. The orientation of the buildings and streets increases the effect and leads to little to no ventilation throughout the city on a day where the wind comes from a Northern or Southern direction. Furthermore, higher ventilation influences the local air pollution; pollutants are more dispersed over the city in high wind conditions, while local concentrations increase massively with little to no ventilation. Fresh air corridors, leading to a better ventilation, are an essential tool in climate effective city planning and their absence can lead to more heat stress within the urban area. This study shows ENVI-met's capability to analyze and visualize wind flow in a model area and shows the value the software can have for different institutions.

SIMULATION RESULTS



DOWNLOAD FILES