

[A0047] Impact de l'autoroute surélevée sur la distribution verticale des particules de PM_{2,5} dans les canyons de rue asymétriques

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Abstract : To meet the transportation needs under the current urbanization process, mega-city like Shanghai had built a large number of elevated expressways. PM_{2.5} is a great hazard to human health, and the existence of elevated expressways prevents it from spreading and gathering, which aggravates environmental pollutants. The study aims to explore the impact of the elevated expressway on the vertical distribution of PM_{2.5} in asymmetric street canyons. Firstly, a handheld mobile device was used to collect PM_{2.5} concentration data on the Golden Deer Building near the North-South viaduct in Shanghai, China. Secondly, the vertical distribution of PM_{2.5} and the diurnal variation were considered. This study found that the vertical profiles of PM_{2.5} exhibited bimodal distribution patterns, with the lower peak at 5 m under the elevated expressway, and the upper peak at 10 m above the noise barrier on the elevated expressway. The impact of the elevated expressway on the PM_{2.5} was the highest at 5 m under the elevated expressway, reaching 19%. This study revealed the general trends of the dispersion patterns of PM_{2.5} and the impact of the elevated expressway in asymmetric street canyons and gave advice to residents when selecting floors to live, avoid floors that are 5 m under the elevated expressways and floors 10 m above the noise barrier on the elevated expressway.