

Date: February 8

Time: 11:00 AM

Location: Maryland Hall 110

Speaker: Dr. Pablo Huq

University of Delaware

Title: *"Dispersion of pollution in and above cities"*

Abstract

There is a frustrating lack of generalizations of the characteristics of turbulence and dispersion in cities and urban areas. The flow-field of the urban boundary layer is a rough boundary layer whose roughness elements (i.e. buildings) are approximately the same order as the overall height of the boundary layer, δ . Accurate predictions of flow and turbulent dispersion of hazardous pollutants in the boundary layer of urban areas (i.e. urban canopy) is made difficult by the scarcity of data on which to base analysis. Results are reported of water tunnel experiments on model urban canopies to address this shortcoming. We present the results of effective roughness and displacement heights based on PIV velocity measurements. We also report the results of the concentration field downstream of a ground level continuous point source. Details of the evolution of length scales and other statistics of the turbulent velocity and scalar fields are discussed and compared to available field data.