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DETERMINING OF GEOGRAPHICAL AND TOPOGRAPHICAL CHARACTERISTICS AND OF URBAN ROUGHNESS ELEMENTS IN TEHRAN FOR AIR QUALITY MODELING

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ABSTRACT

One of the most important problems in mega cities like Tehran is air pollution. Air quality management systems are well developed in industrial and in many developing countries such as Iran. Air quality models are coupled with numerical weather prediction (NWP) models in order to forecast urban air quality temporally and spatially temporal and local forecasting of urban air pollutants. In fact NWP models outputs are air quality models inputs. Some basic and important steps are required to implement such models. In this article, we try to do these basic steps for a case study of urban air quality in greater Tehran area. First step is introducing meteorological and urban air pollution monitoring stations network. Then Tehran's geographical characteristics are discussed. In next the step we determine topographical aspects of the region. Tehran is surrounded by mountains; therefore this is located in a valley and air ventilation is the most important factor for diluting polluted air. In the next step, some various locations such as industrial, commercial, residential and vegetation ones are determined in greater Tehran area. Finally, urban roughness lengths are estimated using urbanization information in the area.

Keywords: Air Quality Management, Air Quality Modeling, Numerical Weather Prediction, Roughness Length.