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Editors

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Chapter 41

A Hybrid Forecasting Model Based on Equilibrium Optimizer and Artificial Neural Network for Assessment of PM10 Concentration



Shalini Shekhawat, Akash Saxena, A. K. Dwivedi, and Rajesh Kumar

1 Introduction

Air pollution is a challenging and continuously growing problem in urban areas of developing and developed countries. Air pollution affects the environment in direct and indirect way, and the results of polluted air can be acute or chronic [1–5]. Densely populated and industrialized areas in metropolitan cities are on high risk. For the sake of future generations, control of air pollution is very essential. Also, some immediate actions must have also taken to face the worst period of air pollution in a year (i.e. smoggy days in winter). These days are very critical for children, senior citizens and people suffering from any respiratory problem.

Air forecasting provides us the information about pollutant concentration, metrology and future prospective of different pollutants and help the decision maker to make new policies and accurate warning system [6, 7]. Air forecasting is a very vast and relevant subject; hence, a variety of methods have been applied to forecast different type of pollutants. These methods can be categorized in three types: first one is statistical models, which are commonly used due to their simple structure and easy to understand. Box model [8] and regression models [9] are some basic model under this category. As these models are based on linear relations, the accuracy

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