Grey Prediction of Atmospheric Pollutants in Shanghai Based on GM(1,1) Model Group

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Abstract : Based on the use of the three-point smoothing method for selectively processing original data columns, this paper establishes a group of grey GM(1,1) models to predict the concentration ranges of four major air pollutants in Shanghai from 2023 to 2024. The results indicate that PM_{10}, SO_2, and NO_2 maintain the national Grade I standards, while the concentration of $PM_{2.5}$ has decreased but still remains within the national Grade II standards. Combining the forecast results, recommendations are provided for the Shanghai municipal government's efforts in air pollution prevention and control.
Keywords : atmospheric pollutant prediction, Grey GM(1, 1), model group, three-point smoothing method

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