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Research on Pollutant Characterization and Timing Decomposition in Beijing, 2018-2022

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Abstract : With the accelerated pace of industrialization and urbanization, the economic level has been significantly improved, and at the same time, the air quality situation has also become a focus of attention, which not only affects people's health but also has certain impacts on the economy and ecology. As the capital city of China, the air quality situation in Beijing has attracted much attention. In this paper, based on the day-by-day PM2.5, PM10, CO, NO_2, SO_2 and O_3 conditions in Beijing from 2018 to 2022, the characterization of pollutants is launched, and the seasonal decomposition and prediction of the main pollutants, PM2.5, PM10 and O3, are performed in STL. The results of the study show that (1) the overall air quality of Beijing has significantly improved from 2018 to 2022, and the main pollutants are PM2.5, PM10, and O_3; (2) the seasonal intensities of the main pollutants are higher, and they are influenced by seasonal factors; and (3) it is predicted that the O_3 concentration will have a trend of slowly increasing from 2023 to 2026, and the PM10 and PM2.5 pollution situation slowly improves.

Keywords : air pollutants, Beijing, characteristic analysis, STL
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