2.148 Optimization of the regional air secondary species monitoring network and source appointment of PM2.5 in Pearl River Delta of China.

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Abstract:

Abstract: The Pearl River Delta (PRD) region in South China is one of the most economically developed regions in China while also noted for its severe air pollution, especially in the urban environments. Since the characteristics of the air pollutants in the PRD region are distinct, and the regional transportation has a prominent influence on the region, single site monitoring can't meet the needs of the study and control of the secondary pollution of the regional atmosphere. This study established and optimized the regional air secondary species monitoring network of the PRD, and the technical route is as follows: Based on the pollution distribution characteristics, obtain the distribution of pollution zone and the special pollution area - combining the geographical location and climate characteristics of various places, determine the geographical area - combining with the previous research results of the formation potential of $PM_{2.5}$ and O_3
, subdivision zoning - Combined with the situation of urban and rural construction, we further subdivide the functional zoning - determine the monitoring area division, transmission channel, background and so on- determination of sites' position in combination with station building conditions. The result of PMF model of 62 monitoring sites and the function and significance of the environmental air quality monitoring site revised 10 sites as the sites of the secondary species monitoring network.

Based this network, the manual sampling and analysis of the atmospheric $PM_{2.5}$ were carried out, by which we obtained the following main conclusions: (1) the average mass of $PM_{2.5}$ in the PRD region was 34.8μg/m^3, and the organic matter (OM) was the most abundant component. (2) the PMF model shows that the $PM_{2.5}$ of the PRD is mainly from 10 sources of pollution, of which motor vehicle was the important source.

Key words：*secondary species monitoring，The Pearl River Delta source appointment*