



A study on target observation for air quality forecast in Beijing city

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The target observation of numerical prediction for air quality is discussed. Sensitivity tests are carried out based on the uncertainty of the meteorological data, in order to identify target observation sensitive variables and sensitive areas that affect PM_{2.5} prediction in the initial field of meteorological model. In this paper, we conducted return tests of the severe haze pollution in Beijing from December 21 to December 21, 2106. The results show that by comparing the meteorological elements of wind, temperature and specific humidity in the initial field of the meteorological model, it can be seen that improving the wind has the most significant improvement on the accuracy of PM_{2.5} prediction; Spatially, improving the meteorological conditions of Heilongjiang region in the initial field greatly improves the prediction effect of PM_{2.5}, especially the improvement effect in southwest Beijing can reach more than 40%. Therefore, applying the idea of target observation to reduce the uncertainty of meteorological data and thus improve the prediction of air quality is a new way to study the uncertainty of the numerical prediction of air quality.