



Development and application of a fast method to evaluate emission control effect for different scenarios

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The pollutant concentration is determined by emission, meteorological condition and chemical processes. In this study, the meteorological term and chemical term in pollutant concentration continuous equation are combined as the atmospheric comprehensive index (C-index), which describes the impact of atmospheric physical and chemical processes. It is found that the C-index is in approximately direct proportion to pollutant concentration. Thus the parameters in this proportional relationship can be calculated based on the sensitivity experiments with different emission inventories by numeric model (such as CMAQ or CAMx). With the calculated C-index, the pollutant concentration at any emission scenarios can be calculated quickly. The results show that the difference between the concentration calculated by this method and numeric model is less than 10%, which indicates the method is effective and cost free to evaluate different emission control scenarios in practice.