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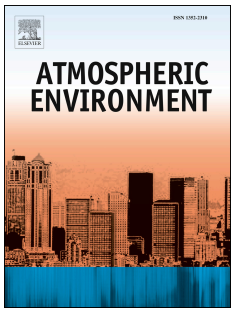

Assessment of air quality benefits from the National Pollution Control Policy of thermal power plants in China: a numerical simulation

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Assessment of air quality benefits from the National Pollution Control Policy of thermal power plants in China: a numerical simulation

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Abstract. In 2010, an emission inventory of air pollutants in China was created using the *Chinese Bulletin of the Environment*, the INTEX-B program, the *First National Pollution Source Census*, the *National Generator Set Manual*, and domestic and international research studies. Two emission scenarios, the standard failed emission scenario (S1) and the standard successful emission scenario (S2), were constructed based upon the *Instructions for the Preparation of Emission Standards for Air Pollutants from Thermal Power Plants* (second draft). The Fifth-Generation NCAR/Penn State Mesoscale Model (MM5) and the U.S. EPA Models-3 Community Multiscale Air Quality (CMAQ) model were applied to China to study the air quality benefits from *Emission Standards for Air Pollutants from Thermal Power Plants GB13223-2011*. The performance of MM5 and CMAQ was evaluated with meteorological data from Global Surface Data from the National Climatic Data Center (NCDC) and the daily Air Pollution Index (API) reported by Chinese local governments. The results showed that the implementation of the new standards could reduce the concentration of air pollutants and acid deposition in China by varying degrees. The new standards could reduce NO_2 pollution in China. By 2020, for the scenario S2, the area with an NO_2 concentration higher than the second-level emission standard, and the average NO_2 concentration in 31 selected provinces would be reduced by 55.2% and 24.3%, respectively. The new standards could further reduce the concentration of declining SO_2 in China. By 2020, for S2, the area with an SO_2 concentration higher than the second-level emission standard and the average SO_2 concentration in the 31 selected provinces would be reduced

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