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Emission inventory and trends of NO_x for China, 2000–2020

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Main goal

To assess the impacts of NO_x emissions on the troposphere and to develop practical strategies for NO_x mitigation, a multiyear NO_x emission inventory was established and then some suggestions on sustainable development and NO_x emission control are proposed.

Methods

1. The NO_x emissions inventory was estimated by bottom-up methods for period 2000–2010.

2. The NO_x emission trends over the period 2011-2020 are predicted using scenario analysis by IPAT equations.

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Main results

1. The results showed that NO_x emissions increased by 2.1 times from 11.81 million tons (Mt) in 2000 to 24.33 Mt in 2010.

2. NO_x emissions had exceeded SO_2 emissions in 2009 through comparison with their emission trends.

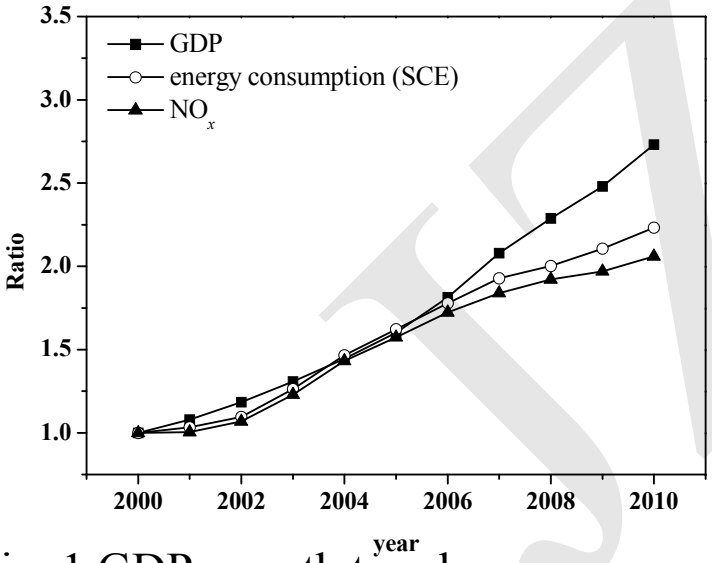


Fig. 1 GDP growth trends, energy consumption and NO_x emissions of China.

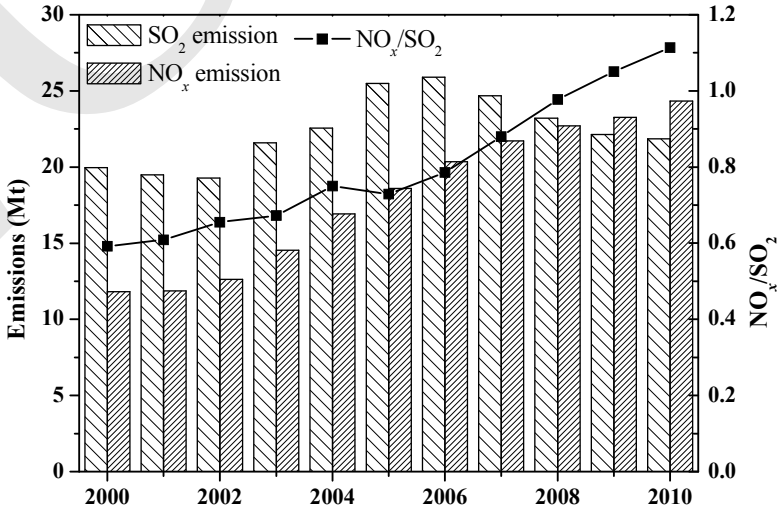
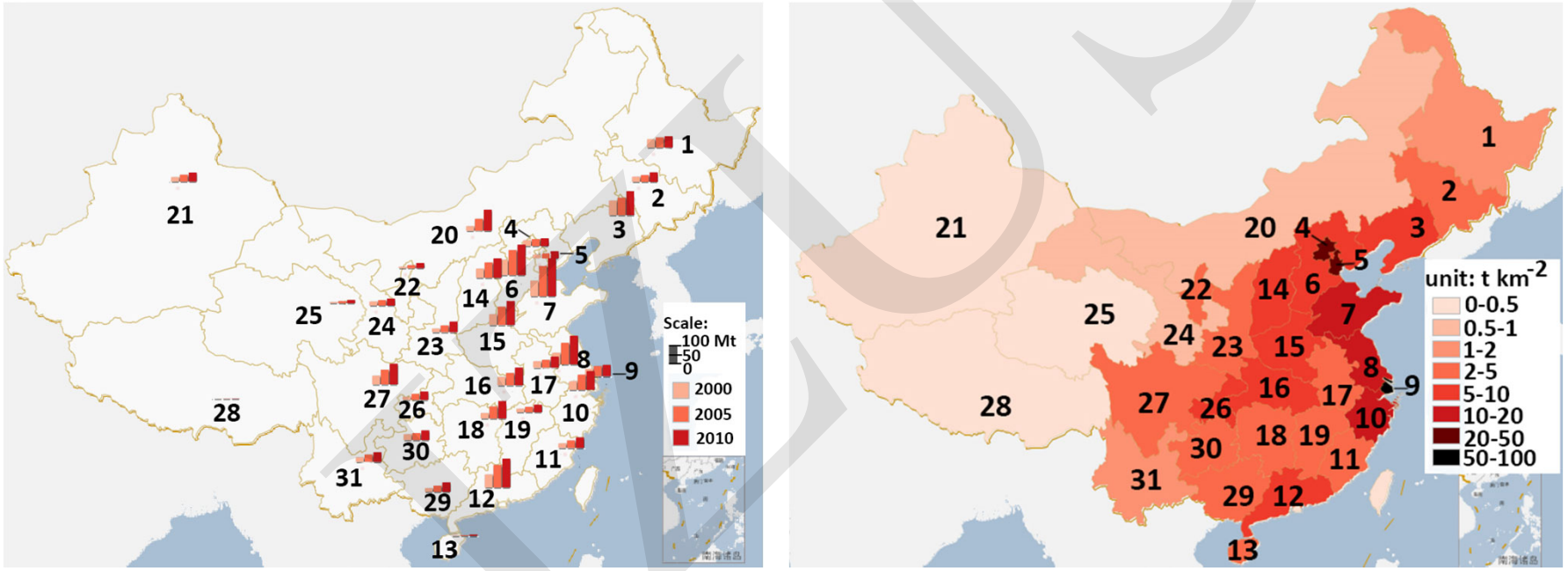


Fig. 2 Comparison of SO_2 and NO_x emissions in China.

Main results

3. The unbalanced NO_x emissions in Eastern China and Western China are mainly due to the different gross regional product and industrial structure.



(a) (b)

Fig. 3 NO_x emission trends (a) and distributions (b) of different provinces in China

Main results

4. Manufacturing, electricity production, and transportation together composed about 90% of the national NO_x emissions.

5. NO_x emissions in China are predicted to be 19.69 Mt in 2020 with this scenario analysis, respectively.

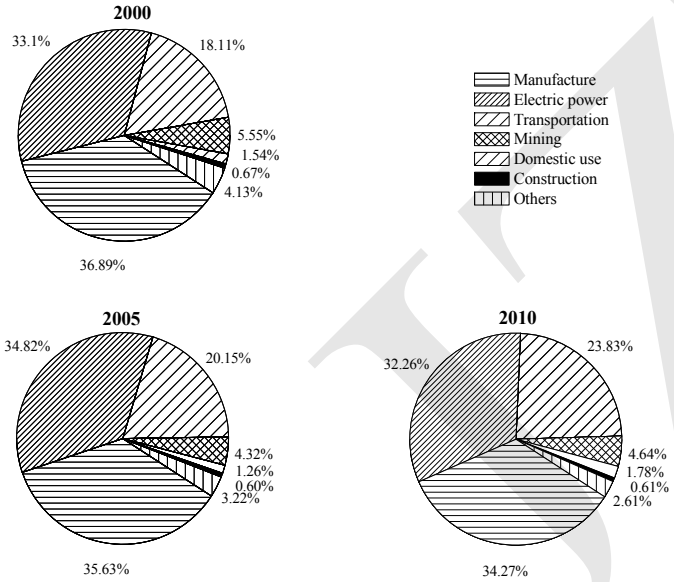


Fig. 4 Economic sector shares on NO_x emissions in 2000, 2005, and 2010

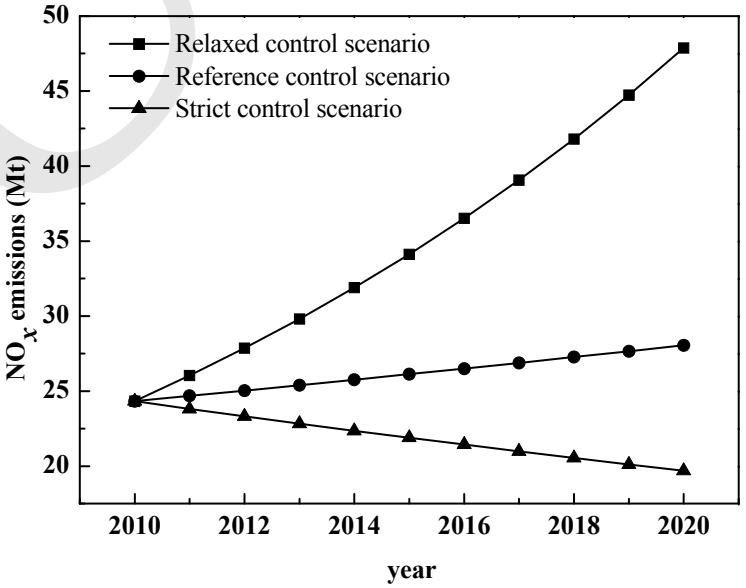


Fig 9. Prediction of NO_x Emissions in China over 2011-2020.