



## **The challenges and possible solutions of air quality management in China**

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More than twenty years double digit unprecedented economic growth in China has generated unprecedented environmental deterioration. In the recent special issue on China's environmental challenges: the way forward published by the *Frontiers in Ecology and the environment* has presented some of the most far-reaching environment issues in China today (1). In this special issue, Shao et al. provided a comprehensive review on the "City clusters in China : air and surface water pollution which provides background information on the "megacity" impacts on regional scales in China (2).

In this paper, the author attempts to summarize the recent history of the international collaborative efforts on regional air quality studies in the three major city clusters (megacities) of Bo Hai Bay Region (Beijing, Tianjin, Qingdao etc.), Yangzhe River Delta (Shanghai, Linan, Nanjing etc.) and Pearl River Delta ( Guangzhou, Zhongshan, Hong Kong etc.) in China. Summaries of 1. Emissions; 2. Photochemistry; 3. Aerosol and trace gas measurements; 4. Meteorological measurements; 5. Dynamics and radiative effects; 6. Regional climate; 7. Air quality modeling; 8. Satellite remote sensing of air quality in megacities of each region will be briefly outlined. Possible implications on impacts on air quality, visibility, health, climate and possible weather change in these regions.

Most of the presentation will be focused on the challenges and possible solutions of air quality studies and management strategies in China. The uniqueness and the differences of the environmental issues in China will be discussed. The author will take this opportunity to stress the importance of the regional air quality studies in China to incorporate the whole urban and rural systems. Without "Integrated Water Resource Management" approach, one simply cannot provide the necessary solution for the Regional Air Quality Management in China.

(1) JY Fang and C. S. Kiang, "China's Environment and Challenges", Special Issue on China's Environmental Challenges: the way forward, *Front Ecol Env.* 4, 339 (2006).

(2) Min Shao, Xaqioyan Tang, Yuanhang Zhang and Wenjun Li, "City Clusters in China: air and surface water pollution", *Front Ecol Env.* 4, 353 - 361 (2006).