

**Preface to the Special Issue on
Climate-Chemistry Interactions: Atmospheric Ozone,
Aerosols, and Clouds over East Asia**

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Atmospheric radiatively-important chemical constituents (e.g., O₃ and aerosols) are important to maintain the radiation balance of the Earth-atmosphere climate system, and changes in their concentration due to both natural causes and anthropogenic activities will induce climate changes. The distribution of these constituents is sensitive to the state of the climate (e.g., temperature, moisture, wind, and clouds). Therefore, rises in atmospheric temperature and water vapor, and changes in circulation and clouds in global warming can directly affect atmospheric chemistry with subsequent implications for these constituents. Although many coupling mechanisms are identified, the net effect of all these impacts on climate change is not well understood. In particular, changes in water vapor and clouds associated with the hydrologic cycle contain significant uncertainties.

In 1997, a collaborative project with participating scientists from Taiwan, China, Norway, and the United States was initiated to study the “East Asian Climate and Environment (EACE)”. In addition to regular workshop, special journal issues were arranged to document research findings; for example, a collection of research papers concerning aircraft activities was published in the Journal of Terrestrial, Atmospheric and Oceanic Sciences in March 2001. The most recent workshop was the Sixth EACE meeting entitled “Climate-Chemistry Interaction: Importance of Atmospheric Circulation and Water Vapor”, held 19 - 21 September 2005 in Shanghai. The purpose of this special section is to document findings on topics and issues closely relevant to the climate and environment over East Asia, such as: transport of dust particles, radiative effect of clouds, and changes of atmospheric ozone, cirrus-contrails, and water vapor.

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