

Importance of Asia in the IGAC Project

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The natural composition of the atmosphere depends on a number of complex chemical and photochemical processes, which are controlled not only by the penetration of solar radiation through the atmospheric layers, but also by surface exchanges of trace constituents, and specifically by emission and deposition processes. The fact that the chemical composition of the Earth's atmosphere is radically different from the composition observed in the neighbouring planets is a direct consequence of the interactions occurring between the atmosphere and the biosphere. It highlights the role played by biological processes such as photosynthesis and respiration, as well as microbial activity in soils and in wetlands.

During the last 2 centuries, the chemical composition of air, water, and soils has been altered as a result of the dramatic increase in the human use of natural resources associated with population growth and economic development. The goals of the International Global Atmospheric Chemistry (IGAC) Project of IGBP are precisely to understand the fundamental processes that determine the chemical compo-

sition of the atmosphere and its long-term evolution resulting from natural and anthropogenic processes.

In Asia, emissions of anthropogenic chemical constituents have been growing at an unprecedented rate, and most probably will continue to do so in the next decades. Large changes associated with photochemical processes, including growing abundances of tropospheric ozone, are predicted in the region, and are expected to produce harmful effects on the biosphere, as well as health problems for humans. The release of large quantities of sulfur, and the related formation of aerosols is also affecting air quality and human health.

It is important to congratulate our Asian colleagues for their excellent work in addressing complicated, but challenging questions related to the chemistry of the global atmosphere. This special issue of "Global Environment" presents a number of very interesting studies that will contribute significantly to our understanding of important mechanisms in the Earth system.

