Environmental degradation and health risks in Pearl River Delta, China

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With the rapid process of industrialization and urbanization, cities have multiplied and expanded rapidly over the past 2 decades. Cities are sources of creativity, technology, and engines for economic growth. However, they are also sources of health hazards from the changed society, degraded environment and regional climate change.

The Pearl River Delta, including 9 cities (Guangzhou, Shenzhen, Foshan, Zhuhai, Dongguan, Zhongshan, Huizhou, Jiangmen, Zhaoqing), covers an area of 24437 km^2 and a large population of 42.8 millions. The unprecedented environmental degradation in the region, accompanied by complex interaction between urbanization and global environmental change, which places human health at risk on a large spatial and temporal scale. A range of urban health hazards and associated health risks in the Pearl River Delta result from a variety of factors including heat islands, air pollution, water crisis, soil pollution, infectious diseases, and urban consumerism; in addition, some hazardous health conditions are associated with inequality in living and working conditions. For sustainable development on environment and human health in the Pearl River Delta, it is urgent to understand the possibilities of health problems resulting from environmental changes related with urbanization. The author suggest 3 main areas for policy action and research direction: (1) the need to get full-scale information related to environmental monitoring data and health data, (2) the need to discuss the relationship among economic development, natural resources, environmental pollution and human health, (3) the need to provide new methodological approaches and techniques to implement interventions for sustainable development in the Pearl River Delta.

$^{40}Ar/^{39}Ar$ geochronology of phengite from blueschist facies rock of the Myanmar and its implication

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High-pressure (HP) low-temperature (LT) metamorphic rocks (blueschist and eclogite) in orogenic belts provide valuable information related to subduction processes of oceanic lithosphere. The blueschist together with garnet amphibolite, marble, quartzite are the associated rocks of the Myanmar jadeitite occurred in ultramafic rocks of the east ophiolite belt along the eastern margin of the Indian plate. The blueschist is composed mainly of glaucophane, phengite, albite, quartz, epidote with minor of actinolite and sphene. Among them glaucophane occurs as large grains whereas actinolite is fine hair-like in the matrix. The amphiboles in blueschist show variable compositions. Phengites in blueschists are characterized by a high Si content of 3.35–3.37 pfu, Mg content of ca. 0.27 pfu, Fe content of ca. 0.17pfu. The 40Ar/39Ar dating performed on phengite from the blueschist obtained an age of 147.0 ± 1.5 Ma, representing the metamorphic event during the subduction of oceanic crust. This age is older than 40Ar/39Ar ages of 123.9 ± 3.4 Ma of jadeite and 134.8 ± 1.4 Ma of sodic amphibole from the Myanmar jadeitite, and also older than the 100-80 Ma ages of high-pressure metamorphism of the blueschist derived from the subduction of the Neo-Tethys in the Western Himalayan orogen. To our knowledge, the 147 Ma age is probably the earliest time for the initial subduction of the Neo-Tethys beneath the Eurasian continent.

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