**Soil-air exchange and source of persistent organic pollutants (POPs) in Kaidu-Peacock River system in Xinjiang, Northwest of China**

Wei Chen1,2,3, Shihua Qi1,2, Fei Peng2, Chengkai Qu1,4, Xinli Xing1,2

1 State Key Laboratory of Biogeology and Environmental Geology, China University of Geosciences (CUG), Wuhan, 430074, China, Craig040051@gmail.com

2 School of Environmental Studies, China University of Geosciences (CUG), Wuhan, 430074, China

3 Lancaster Environment Centre, Lancaster University, Lancaster, LA1 4YQ, UK

4 Dipartimento di Scienze della Terra, dell'Ambiente e delle Risorse, Università degli Studi di Napoli “Federico II”, Naples, 80134,Italy

To estimate the soil-air exchange and source of persistent organic pollutants (POPs) in a remote and acid inland region of China, a year-round monitoring (sampling every 3 months from August 2011 to August 2012,) for atmospheric POPs (including organochlorine pesticides (OCPs) and polycyclic aromatic hydrocarbons (PAHs)) based on (a) polyurethane foam (PUF) passive air samplers and (b) soil samples was conducted in Kaidu-Peacock River system in Xinjiang. The samples were analysed using gas chromatograph equipped with a mass selective detector (GC-MSD).

It was found that DDTs, HCHs, chlordanes, and endosulfans were the major detectable OCPs in both PUF and soil samples, confirmed the results from previous study of OCPs in the Peacock River (Chen et al, 2011). HCHs were dominant components in the atmosphere and DDTs were in the soil. Chlordanes and endosulfans were also detectable in both air and soil. The Composition analyses indicated that the source of OCPs in atmosphere could be complex which both contributed by both local source and long-term atmospheric transport. The role of soil for source and sink could be shifted at different sites and seasons according the ratios of fugacity calculation.

POPs in this region were contributed to by both local emissions and long-term atmospheric transport and may pose risks to human health and the ecosystem. Thus, it is necessary to set up a long-term monitoring network for atmospheric POPs and air-soil exchange in Northwest of China to evaluate the possbile risks.

Reference

Chen, W., Jing, M., Bu, J., Ellis Burnet, J., Qi, S., Song, Q., Ke, Y., Miao, J., Liu, M., Yang, C., 2011. Organochlorine pesticides in the surface water and sediments from the Peacock River Drainage Basin in Xinjiang, China: a study of an arid zone in Central Asia. Environmental Monitoring and Assessment 177, 1-21.