# 1.133 Seasonal Characteristics of Particulate Polycyclic Aromatic Hydrocarbons in Ulaanbaater city, Mongolia.

Early Career Scientist

Presenting Author:
**Batdelger Byambaa**, Graduate School of Natural Science and Technology, Kanazawa University, Kanazawa, Ishikawa, Japan and Department of Environment and Forest engineering, School of Engineering and Applied Sciences, National University of Mongolia, Ulaanbaatar, Mongolia, batdelger@stu.kanazawa-u.ac.jp

Co-Authors:
**Yang Lu**, Graduate School of Natural Science and Technology, Kanazawa University, Kanazawa, Japan
**Sonomdagva Chonokhuu**, Department of Environment and Forest engineering, School of Engineering and Applied Sciences, National University of Mongolia, Ulaanbaatar, Mongolia
**Edward G. Nagato**, Institute of Nature and Environmental Technology, Kanazawa University, kanazawa, Ishikawa, Japan
**Atsushi Matsuki**, Institute of Nature and Environmental Technology, Kanazawa University, kanazawa, Ishikawa, Japan
**Ning Tang**, Institute of Nature and Environmental Technology, Kanazawa University, kanazawa, Ishikawa, Japan
**Kazuichi Hayakawa** , Institute of Nature and Environmental Technology, Kanazawa University, Kanazawa, Ishikawa, Japan

Abstract:

Ulaanbaatar is the capital city of Mongolia which is located at an altitude of about 1350 m and in a valley surrounded by the mountains. This city is known as the coldest capital city in the World due to its geographic features such as high altitude and landlocked location and prevailing wintertime Siberian high.
This work presents the concentrations of major polycyclic aromatic hydrocarbons (PAHs) found in suspended particulate matter in Ulaanbaatar City. These PAH concentration levels were determined by high-performance liquid chromatography (HPLC) with fluorescence detection. Fifteen polycyclic aromatic hydrocarbons (PAHs) were measured in particulate samples collected from different sites, such as the urban center, industrial, ger (traditional house), residential areas in January, March, and September 2017. Additionally, samples were collected at the townhouse area in September. The concentrations of total PAH at these sites were the highest in ger area, followed in descending order by residential, industrial, urban center, and townhouse areas. Moreover, the concentrations of total PAHs were high in winter and low in summer (January > March > September). PAH diagnostic ratio used for identifying and assessing pollution emission source showed that the impact of different degree of traffic emission

resulted in the spatial distribution of particular PAHs. The emission of diesel based vehicles significantly influenced the PAH concentrations. However, a dramatic seasonal change in atmospheric concentrations of PAHs in Ulaanbaatar suggests that the coal burning systems such as coal-heating boilers is considered to be the major contributors of PAH.