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Long-term measurement of n-alkanes in $PM_{2.5}$ at Anmyeon Island, a background site in Korea.

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$PM_{2.5}$ samples were measured every 6th day during two years (from June 2015 to May 2017) at Anmyeon Island, a background site in Korea to determine background level of n-alkanes in Korea. n-Alkanes were analyzed by using GC-MS and individual compounds from C20 to C34 were quantified by applying internal standardization method. The n-alkanes are mainly emitted from both anthropogenic and biologic sources. Thus, in this study, the impact of anthropogenic emission on $PM_{2.5}$ at a background site was evaluated through the distribution of individual n-alkane compounds in $PM_{2.5}$. Average concentration of total n-alkanes in $PM_{2.5}$ was 13.2$\pm$9.65 ng m^{-3} and ranged from 1.05 to 47.7 ng m^{-3} during two years and the average carbon preference index (CPI) value was 2.24 $\pm$ 1.05. The CPI values showed close to "1" during heating period (November $\sim$ March), while, the CPI values in non-heating period (April $\sim$ October) was higher than "1". It means anthropogenic emission was enhanced during heating period at a background site in Korea. The contribution of fossil fuel emission was estimated as 41% of total amounts of n-alkanes using the principle component analysis. Backward trajectory analysis was performed to figure out the influence of long-range transport of anthropogenic n-alkanes at Anmyeon Island in Korea.