Effect of climate change (RCP 8.5) on the seasonal variation of PAHs concentration in multi-media environment of East Asia

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An East Asia model has been developed to assess the influence of climate change (CC) on concentrations of organic contaminants in multimedia environment of South Korea, China, and Japan. In this work, the results of 5 PAHs of different ring numbers (naphthalene, phenanthrene, fluoranthene, benzo[a]pyrene, benzo[ghi]perylene) were presented for the period of 1956 to 2100 with the RCP 8.5 scenario. The model was assessed to generally have prediction uncertainties of a factor of 10 as compared to multimedia monitoring data in the region. The influence of CC differs with PAHs, i.e., the atmospheric concentrations of lighter PAHs (naphthalene, phenanthrene, and fluoranthene) decrease due to increasing degradation rate (temperature effect) while those of benzo[a]pyrene and benzo[ghi]perylene increase as a consequence of declining deposition rate (rain effect). In summer of China, increased precipitation plays a major role in removing PAHs from air. Wind speed and direction are additionally important in Japan. The PAHs removal rate in air is less affected in South Korea than in China and Japan under the RCP 8.5 scenario. Quantitative results and their analysis will further be presented in more details.

Biography
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