Assessment of contribution for pollution source in deposit dust and air PM_{10} using metal concentration and isotope ratio(^{13}C, $^{207/206}Pb$)

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Metal concentration and isotopic compositon(^{13}C, $^{207/206}Pb$) of deposit dust in house and fine dust in PM_{10} have been analysed in regident area, surrounding by various kinds of industrial factory and logistic yard, to determine contribution of the main air pollution sources(cement, coal, cokes, manganese, zinc, limestone, etc) during June to November. The metal concentration(Zn, Cd, Pb, Mn, Cu) of PM_{10} in study area were significantly different from those of control area. In addition, metal concentrations of deposit dust in study area were higher about 10~13 times in comparson with controll area, especially manganese and zinc ion, suggesting those ions to be the main pollution sources in aerosol particles. The analyzed isotope(^{13}C, $^{207/206}Pb$) values of pollution sources were very different depeding on the characteristic of source, such as cement(-19.6‰, 0.8594‰), zinc(-24.3‰, 0.9175‰), coal(-23.6‰, 0.8369‰), cokes(-27.0‰, 0.8739‰), manganese(-24.9‰, 0.9117‰), soil(-25.2‰, 0.7743‰), respectively. As a result of evaluated contribution of pollution source on deposit dust through Iso-source and SIAR model using stable isotope ratio(^{13}C, $^{207/206}Pb$), we found the largest contribution of manganese(20.5%) and zinc(20.3%), deriving from industiral factory. On the other hand, in present(November), contribution of managese(10.0%) and zinc(8.9%) in fine dust of PM_{10} was significant decreased, due to seasonal conditions(wind direction and speed). Our results could be indicate that metal concentraton and stable isotope can predict environmental change and contribute powerful tool to trace the air pollution history in the complex context of peri-urban regions.