# Combining tree ring metal concentraton and isotope ratio($^{13}$C, $^{207/206}$Pb) to reconstuct environmental pollution history in urban area

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We analysed the tree-ring metal concentration and isotope ratios of five street tree(plane tree, willow, hinoki cypress, pinetree and ginkgo gree) to infer the diffuse air pollution history of urban area. Tree-ring series show that metal concentraton in 1970-1980 year(event period) were 2-10 times higher in comparison with recent five years. Pb concentration of tree-ring were significantly correlate with pine tree(0.879), plane tree(0.825) and willow(0.671). Also, Pb isotope ratios of tree-rings during event period has a lighter value than those in recent period. The Pb concentration and isotope ratios indicate that the dominant source of lead was succeeded by the factory lead events. Our carbon isotope data approach anthropogenic effects on the tree-ring $\delta^{13}$C responses in air $CO_2$. Diffuse air pollution by car exhaust gas(oil:-26.9‰, disel:-27.9‰) casued an in $^{13}$C lack in willow(-24.5→-29.2‰), pine tree(-23.6→-27.2‰) and ginkgo(-23.7→-27.2‰) tree from 1970 to 2010 year. It is indicate that metal concentraton and stable isotope can trace environmental change and contribute powerful tool to reconstruct the air pollution history in the complex context of peri-urban regions.