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Residence time and fate of atmospheric fine particulate organic matter in Japanese cool-temperate forest: Insights from molecular level radiocarbon analysis

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Molecular level residence time and their seasonal distribution of fine particulate organic matter in forest atmosphere are investigated using bomb-radiocarbon. Radiocarbon is powerful tool to investigate origin and the carbon cycling of fine particulate organic carbon in forest ecosystem. In this study, we measured stable carbon compositions and radiocarbon contents of bulk-organic carbon of POM, black carbon, n-fatty acids, n-alkanes, n-alcohols, and tetraether compounds in fine aerosols(PM1.1 and PM2.5), plant material, and soil. We collected fine aerosol samples at a few week intervals from August 2003 to November 2004 during the growing season at Takayama Experimental site (36˚80'N, 137˚26'E, 1420m a.s.l.) in a cool-temperate deciduous forest in Japan. The details of this study will also be reported in the conference.