

Local Fossil Fuel Contributions to Atmospheric CO₂ in New York City

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This project will expand our record of local anthropogenic fossil fuel contributions to atmospheric CO₂ in New York City. Precise records of global atmospheric CO₂ concentrations are one of the most widely recognized and important data sets documenting anthropogenic influences on the atmosphere leading to climate change. It is generally acknowledged that there is an increasing need for the quantification of CO₂ at smaller spatial scales; particularly those associated with large metropolitan areas where large urban populations have a significant impact on local conditions and hence the ecosystem services the population relies on. While many recent monitoring networks have been established (*e.g.* the LACOP project - <http://www.ldeo.columbia.edu/outr/LACOP/>), few records of human contributions to local atmospheric CO₂ concentrations extend beyond a timescale of days to months. New York City has long had a high population density and is considered to be one of the world's most important mega cities, yet we have little historical information regarding local atmospheric CO₂ in NYC. The ¹⁴C content of cellulose extracted from tree rings collected in the NYC area will be used as an accurate time dependent tracer of fossil fuel emissions to the atmosphere.