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Source apportionment of atmospheric aliphatic and polycyclic aromatic hydrocarbons using compound-specific radiocarbon analysis

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Recent development in compound-specific radiocarbon analysis (CSRA) now allows application of this analytical dimension toward source apportionment of natural and anthropogenic compounds in the atmosphere. CSRA studies of semi-volatile n-alkanes and polycyclic aromatic hydrocarbons (PAHs) in air collected at various locations throughout Europe combine to reveal both inter-compound, inter-regional and inter-seasonal variations in sources. For instance, modern biogenic sources contribute a significant portion (frequently up to 50%) of the atmospheric load of priority pollutant PAHs and long-chained n-alkanes, suggesting that such sources should be scrutinized for effective reduction.