



CO₂ Source Identification from a Laser Based, Mobile Isotope Ratio Infrared Spectrometer

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The potential to perform precise, continuous, measurements of isotope ratios while driving through a city may extend source attribution of CO₂ in a city to smaller scales. We performed preliminary testing of a mid-infrared laser-based Isotope Ratio Infrared Spectrometers (IRIS) that was operated in a moving car. The analyzer is capable of simultaneously determining delta¹⁸O and delta¹³C isotope ratios of carbon dioxide. The goal was to demonstrate that isotope ratios can be measured, and that using Keeling plots, the source of the CO₂ can be identified. We present data acquired in the city of Catania (Italy) while driving toward Mount Etna. CO₂ concentration varied between 380 ppm and 550 ppm and delta¹³C as low as -14 permil