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Ground-based intercomparison of two isoprene measurement techniques

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Abstract. An informal intercomparison of two isoprene (C_5H_8) measurement techniques was carried out during Fall of 1998 at a field site located approximately 3 km west of Boulder, Colorado, USA. A new chemical ionization mass spectrometric technique (CIMS) was compared to a well-established gas chromatographic technique (GC). The CIMS technique utilized benzene cation chemistry to ionize isoprene. The isoprene levels measured by the CIMS were often larger than those obtained with the GC. The results indicate that the CIMS technique suffered from an anthropogenic interference associated with air masses from the Denver, CO metropolitan area as well as an additional interference occurring in clean conditions. However, the CIMS technique is also demonstrated to be sensitive and fast. Especially after introduction of a tandem mass spectrometric technique, it is therefore a candidate for isoprene measurements in remote environments near isoprene sources.

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