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Interactive comment on "Ground-based intercomparison of two isoprene measurement techniques" *by* E. Leibrock et al.

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The paper deals with the quite interesting topic of isoprene measurements with a chemical ionisation mass spectrometer (CIMS). The applied method for the isoprene detection by chemical ionisation involving charge transfer and association reactions by adding benzene as reactant ions was the first time tested in the field. To my knowledge this method was only applied for the detection of DMS by other research groups before. The intercomparison measurement campaign is a useful tool to ensure the new method and indicate the problems in the field. It is a consequence of the introduction paper of the authors from the year 2000. Therefore the paper is an important contribution to introduce this new isoprene measurements technique. The paper is well written and has clear structure. The applied CIMS method and the GC-technique are briefly summarised and the problems of interferences of the CIMS technique are elucidated.

I only donŠt agree with the regression analysis over all date to infer a general offset of 67 ppt for the CIMS-data compared to GC-data. I think there should be a differentiation between measurements influenced by urban air masses and air masses from remote sites (mountain forests). With the calculation of the normalised difference (ND) between the measurements of the two instruments and the dependence on the meteorological parameters was examined. It was shown that there is a dependence on the wind direction. Interferences are indicated for anthropogenic influenced air masses from the south. These show low concentrations of isoprene (20-200 ppt) and the isoprene signal is correlated with NOx concentrations. The conclusion that there are inferences in anthropogenic influenced air masses (wind direction south) from other components on the measured masses could be right. But no explanation is given for the case when the wind was from the remote sites and the offset seems to be higher than 100 ppt (time series in figure 2, 18th and 29th September?). This case could have been discussed a little bit more. Another point I disagree was the conclusion of the applicability of the instrument for eddy covariance measurements. It not enough to show a time series of the measurements with a time resolution of 2.2 seconds and conclude this also when the sensitivity seems to be good (2 cps/ppt). Nothing is said about the characteristic of measurement signal of the used mass spectrometer.

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