

Measurements of VOCs during MIRAGE-MEX and INTEX-B

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The Trace Organic Gas Analyzer (TOGA) is an airborne fast-gas chromatograph/mass spectrometer (GC/MS) instrument capable of measuring a suite of organic compounds, including: oxygenates, non-methane hydrocarbons, and halocarbons. The instrument provided critically important data for the large-scale chemical characterization objectives of this mission as well as necessary information for targeted individual flight experiments on the NCAR C-130. The TOGA instrument measured species with priority ratings of very important (aldehydes and ketones, NMHCs, and halocarbons) and important (alcohols) with a time response of 2.5 minutes, yielding 24 measurements per hour. The system is based on a custom-built fast gas chromatograph coupled to a Hewlett-Packard 5973 Mass Spectrometer providing unambiguous identification and quantification for a wide range of compounds including NMHCs, OVOCs, and halocarbons through chromatographic separation and mass selection. The limit of detection (LOD) is between 0.1 and 10 pptv depending on the compound.