

**Intercomparison of in-flight VOC concentrations using proton transfer mass spectrometry (PTR-MS) during the MILAGRO Campaign (March 2006): Battelle G-1 vs. NCAR C-130 coordinated flights.**

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During the MILAGRO campaign in March 2006, aircraft were deployed from Veracruz Mexico to measure gas and aerosol phase pollutants over the Mexico City basin. On March 18, 2006, the opportunity arose for the C130 (operated by the National Center for Atmospheric Research) and the G-1 (operated by Pacific Northwest National Laboratory) aircrafts to simultaneously fly side by side through the same airmass. This co-flight presented a real world opportunity to validate measurements from a variety of different instruments with different operators and calibration schemes. These types of comparisons are critical to ascertain discrepancies or biases in the measurements made by different instruments. Both aircraft were equipped with Proton Transfer Mass Spectrometers to measure a variety of alkenes, aromatic compounds, aldehydes, ketones, and alcohols. Preliminary data analysis shows that the two instruments reported concentrations that were nearly identical for some compounds (such as benzene). For nearly all compounds, the trends of concentrations vs. time show similar patterns. However, for other compounds, we observed differences ranging from 50-100% depending on the compound and time period. The uncertainty of the mixing ratios reported by instruments is on the order of 25-35% for most compounds. Further analysis of calibrations, background correction procedures, and instrument sensitivities is ongoing to determine the cause of these biases and to make appropriate corrections.