

## **R. J. Yokelson - Laboratory experiments (2003)**

2003 Laboratory Instrument Intercomparison with the National Center for Atmospheric Research (NCAR)

Description - We burned 18 fires using important tropical/subtropical fuels, many common in Brazil and some of which had never been probed in detail before (e.g. sugar cane). We also burned 13 fires using temperate forest evergreen fuels. The smoke was verified to be well-mixed and cosampled by the UM open-path FTIR, the NCAR PTR-MS (T. Karl), and canisters for GC-MS analysis (J. Greenberg). We also coupled a GC oven and column to the PTR-MS for speciation of several common gaseous emissions having the same molecular mass. This provided the first extensive intercomparison of OVOC analysis by GC-MS with the above techniques, filling a gap in our 2001 intercomparison. We produced evidence by IR and MS that sesquiterpenes (C<sub>15</sub> compounds) are a major initial gaseous emission, but one that is rapidly lost, possibly via incorporation into the particles. We also showed that the majority of fuel chlorine remains in the ash.