

Interactive comment on “ACE-FTS observations of pyrogenic trace species in boreal biomass burning plumes during BORTAS” by K. A. Tereszchuk et al.

R. Yokelson

bob.yokelson@umontana.edu

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Table 1 of the paper quotes CH₄/CO “emission ratios” (ER) from fires >4. This is more than 20 times larger than the normal range for this value (0.02 - 0.2). Further, the decrease in CH₄/CO with time is hundreds of times faster than is possible if controlled by the known rate constant of OH + CH₄. There are at least two possible reasons for this anomalous data. 1) A typo: if the CH₄/CO ER (0-24 h value) was supposed to have a 10⁻² exponent, that would “fix” the ER, but not the “implied lifetime.” 2) A mixing effect entraining air between levels (i.e. boundary layer or stratosphere mixing with free troposphere) and controlling the values of the ratios. In this case the chemistry is not the controlling factor, which appears to be the author’s hypothesis. The mechanism for generating the values in Table 1 may have generated other data (in particular excess

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values for O₃) that are flawed or need further explanation.

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