May 06, 2014 Update Notes

The updates in “Supplementary Tables S1-S14 May 2014 Update.xlsx” include changes to Table S4 (temperate forest) and Table S6 (chaparral) to incorporate recent measurements published in Yokelson et al. (2013) and Akagi et al. (2013). All other tables in this spreadsheet are the same as the original version published in May of 2011 in Atmospheric Chemistry and Physics.

In Table S4, the various types of temperate forest fire emissions measurements are shown in separate columns. The best overall averaging scheme depends on the application and we have implemented a generic solution here. Emission factors (EF) for temperate wildfires are taken as a weighted average of pine-forest understory, organic soil, and coniferous canopy EF (for those species in which no temperate wildfire data was available).The final temperate forest EFs are calculated as the average of pine forest understory, temperate wildfire, and temperate debris EF. This average weights each fire type equally for applications where the fire sub-type is unknown. Updates for this fuel type can be expected after analysis of 2013 field campaigns is completed (SEAC4RS and BBOP).

For temperate forest and chaparral fuel types, final EFs shown in supplementary tables S4 and S6 supersede published EF from Tables 1 and 2 of the original Akagi et al. (2011) compilation published in May 2011 in Atmospheric Chemistry and Physics and also posted on the NCAR site.

Extratropical EFs published in the original published version of Table 1 have also been updated in a separate file. This is because extratropical EFs are computed as a weighted average of boreal and temperate forest emission factors. The new EFs are found in "Extratropical Update May 2014.xlsx".

Note that we have reorganized the compounds in order of increasing mass for all updated tables, which should make locating values for specific species easier. We hope to expand that organizational format to more fire-type categories when recently completed experiments probing these fire-types are published.

References:

Akagi, S. K., Yokelson, R. J., Burling, I. R., Meinardi, S., Simpson, I., Blake, D. R., McMeeking, G. R., Sullivan, A., Lee, T., Kreidenweis, S., Urbanski, S., Reardon, J., Griffith, D. W. T., Johnson, T. J., and Weise, D. R.: Measurements of reactive trace gases and variable O3 formation rates in some South Carolina biomass burning plumes, Atmos. Chem. Phys., 13, 1141-1165, doi:10.5194/acp-13-1141-2013, 2013.

Yokelson, R. J., Burling, I. R., Gilman, J. B., Warneke, C., Stockwell, C. E., de Gouw, J., Akagi, S. K., Urbanski, S. P., Veres, P., Roberts, J. M., Kuster, W. C., Reardon, J., Griffith, D. W. T., Johnson, T. J., Hosseini, S., Miller, J. W., Cocker, D. R., Jung, H., and Weise, D. R.: Coupling field and laboratory measurements to estimate the emission factors of identified and unidentified trace gases for prescribed fires, Atmos. Chem. Phys., 13, 89-116, doi:10.5194/acp-13-89-2013, 2013.