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Biomass burning aerosol emissions from wildfires: particle number and mass emission factors and size distributions

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Aerosol particle emissions from wildfires have a large impact on air quality and climate. In this study we use published experimental data and different fitting procedures to derive particle number and mass emission factors (EF_{PN}, EF_{PM}) related to fuel category and mass of dry fuel burned as well as characteristic scaling ratios between particle and carbon monoxide emissions (PN/CO, PM/CO).

Moreover, we explore and characterize the variability of the smoke particle size distribution, which is typically dominated by a lognormal accumulation mode with count median diameters in the range of 100-150 nm (depending on age, fuel and combustion efficiency), and its effect on the relation between particle number and mass emission factors.