



Emission Factors of Greenhouse Gases and Particulates from Australian Savanna Fires

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In June 2014 a measurement campaign took place at the Australian Tropical Atmospheric Research Station (ATARS), in the Northern Territory, Australia, during the early dry season. The campaign was focused on understanding biomass burning emissions from savanna fires. In order to achieve this, a suite of aerosol, reactive and trace gases instruments were deployed.

Seven smoke events were extracted from the 4 weeks of continuous measurements using carbon monoxide as a proxy for biomass burning. Those events were then analysed and emission factors were calculated for CO₂, CO, CH₄, N₂O, NO_x and aerosols (Aitken and Accumulation mode, and chemical speciation), along with the modified combustion efficiency (MCE).

Upon review of the emission factors, smoke events could then be classified in 3 groups: high MCE events (0.98) were characterised by emission factors typical of savanna grass fires while low MCE events (0.88) were characteristic of shrub fires. Intermediate MCE events (0.93) were found not to reflect any distinct vegetation type. This presentation will outline the campaign and present emission factors of trace and reactive gases as well as the first emission factors for aerosols reported for Australian savanna fires.