

2.099 Emission Factors of Trace Gases and Particulates from Australian Savanna Fires.

Early Career Scientist

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Abstract:

In June 2014 a measurement campaign took place at the Australian Tropical Atmospheric Research Station (ATARS) in the Northern Territory, Australia, aimed at characterising the emissions from early dry season savanna fires. The campaign was especially focused on understanding aerosol composition and size distribution. Equipment deployed to measure aerosol properties included a multi-angle absorption photometer, a nephelometer, a cloud condensation nuclei counter, a condensation particle counter, two scanning mobility particle sizer, two aerosol mass spectrometers (one a time of flight instrument), a multi-axis differential optical absorption spectrometer, a volatility-humidity tandem differential mobility analyser and two high volume aerosol samplers (one PM10 and one MOUDI). In addition there were measurements of mercury in both gas and aerosol phase. Complementary measurements of trace gases were provided by a proton transfer reaction mass spectrometer, a volatile organic compounds sequencer, a Fourier transform spectrometer, an ozone analyser and a nitrogen oxides monitor. This poster will present results from the Fourier transform spectrometer, the nitrogen oxides monitor, the scanning mobility particulate sizer, the Tekran mercury analyser and the aerosol mass spectrometer. In particular individual fire events have been identified and emission factors calculated for CO₂, CO, CH₄, N₂O, NO_x, elemental mercury and chemically speciated aerosols, and aerosol size modes (Aitken and Accumulation).