



An improved system for atmospheric analysis of volatile organic compounds including monoterpenes

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A dual channel gas chromatograph system with flame ionisation detectors has been used extensively for the analysis of volatile organic compounds (VOCs) in the atmosphere. The instrument was first used during the North Atlantic Marine Boundary Layer Experiment (NAMBLEX) at Mace Head, Ireland in 2002 and has since been involved in many field campaigns including the ACCENT OVOC intercomparison at the SAPHIR atmospheric simulation chamber in Juelich, Germany in 2006. The system has continued to be adapted and improved to include measurements of selected monoterpenes (a potentially important class of biogenic VOCs which are emitted from vegetation) without any significant loss of resolution of the other VOCs measured. Here we present the first ambient air monoterpene measurements from this instrument which were made during the Oxidant and Particle Photochemical Processes above a South-East Asian tropical rainforest (OP3) campaign in Danum Valley, Borneo in 2008. The monoterpenes measured were alpha-pinene, camphene, 3-carene, gamma-terpinene and limonene. We compare the relative concentrations and diurnal profiles of the different monoterpene species and other biogenic VOCs including isoprene, in order to gain insight into factors which affect their emission rates and their potential impact on photochemical processes within the boundary layer.