Geophysical Research Abstracts,
Vol. 11, EGU2009-3859-1, 2009
EGU General Assembly 2009

Real Time Measurement of PAN using SIFT-MS

D. R. Hastie (1,2), M. J. McEwan (2,3), R. G. A. R. Maclagan (2), J. Gray (3), and V. S. Langford (3)

(1) York University, Toronto, Canada (Hastie@YorkU.ca), (2) University of Canterbury, Christchurch New Zealand (murray.mcewan@canterbury.ac.nz), (3) Syft Technologies Ltd, Christchurch, New Zealand (vaughan.langford@syft.com)

In the atmosphere, peroxyacetylnitrate (PAN) is produced from the reaction of peroxyacetyl radicals with NO2 and arises from the oxidation chemistry of hydrocarbons leading to tropospheric ozone. Its importance as a nitrogen reservoir, an eye and respiratory irritant and a plant phytotoxin means that its ambient measurement remains an integral part of both the long term and intensive measurement campaigns necessary for understanding this chemistry.

We have been investigating the use of SIFT-MS to measure PAN in real time along with a number of atmospherically relevant organic compounds. The low pressures and near ion thermal energies of the SIFT-MS allows the efficient protonation of PAN and the simple real time measurement of its concentration. While PAN, and its analogues, are routinely measured using dedicated GC based systems, the use of SIFT-MS would give fast response real time measurements without the need for a dedicated instrument.

The methodology and preliminary summertime ambient measurements will be presented.