**Ammonia (NH3)**



**Principal Investigator:**

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**Principle of the Measurement**

Chemical Ionization Mass Spectrometry (CIMS) using protonated acetone dimer ((C3H6O)H+(C3H6O)) ion chemistry

**Species Measured**

Ammonia

**Time Response**

1 Second

**Detection Limit**

Precision on 1s data: 35 - 80 pptv (1 sigma) depending on field project

**Accuracy**

±(25% + 70 - 125 pptv) depending on field project

**Manufacturer**

custom built

Field Projects

ANARChE 2002 (non-NOAA project)

ICARTT 2004

TexAQS 2006

2008 ARCPAC (used to measure nitric acid, sulfur dioxide, and halogens with SF6- ion chemistry)

CalNex 2010

**Key Publications**

Nowak, J. B., J. A. Neuman, R. Bahreini, A. M. Middlebrook, J. S. Holloway, S. A. McKeen, D. D. Parrish, T. B. Ryerson, and M. Trainer, Ammonia sources in the California South Coast Air Basin and their impact on ammonium nitrate formation, Geophys. Res. Lett., 39, L07804, doi:10.1029/2012GL051197, 2012.

Neuman, J. A., T. B. Ryerson, L. G. Huey, R. Jakoubek, J. B. Nowak, C. Simons, and F. C. Fehsenfeld, Calibration and evaluation of nitric acid and ammonia permeation tubes by UV optical absorption, Environ. Sci. Technol., 37, 1975-2981, doi:10.1021/ES06422L, 2003.

Nowak, J. B., et al, Analysis of urban gas phase ammonia measurements from the 2002 Atlanta Aerosol Nucleation and Real-Time Characterization Experiment (ANARChE), J. Geophys. Res., 111, D17308, doi:10.1029/2006JD007113, 2006.

Nowak, J. B., J. A. Neuman, K. Kozai, L. G. Huey, D. J. Tanner, J. S. Holloway, T. B. Ryerson, G. J. Frost, S. A. McKeen, and F. C. Fehsenfeld, A chemical ionization mass spectrometry technique for airborne measurements of ammonia, J. Geophys. Res., 112, D10S02, doi:10.1029/2006JD007589, 2007.

Nowak, J. B., J. A. Neuman, R. Bahreini, C. A. Brock, A. M. Middlebrook, A. G. Wollny, J. S. Holloway, J. Peischl, T. B. Ryerson, and F. C. Fehsenfeld, Airborne observations of ammonia and ammonium nitrate formation over Houston, Texas, J. Geophys. Res., 115, D22304, doi:10.1029/2010JD014195, 2010.