Air Monitoring by Ion Chromatography – a literature reference review

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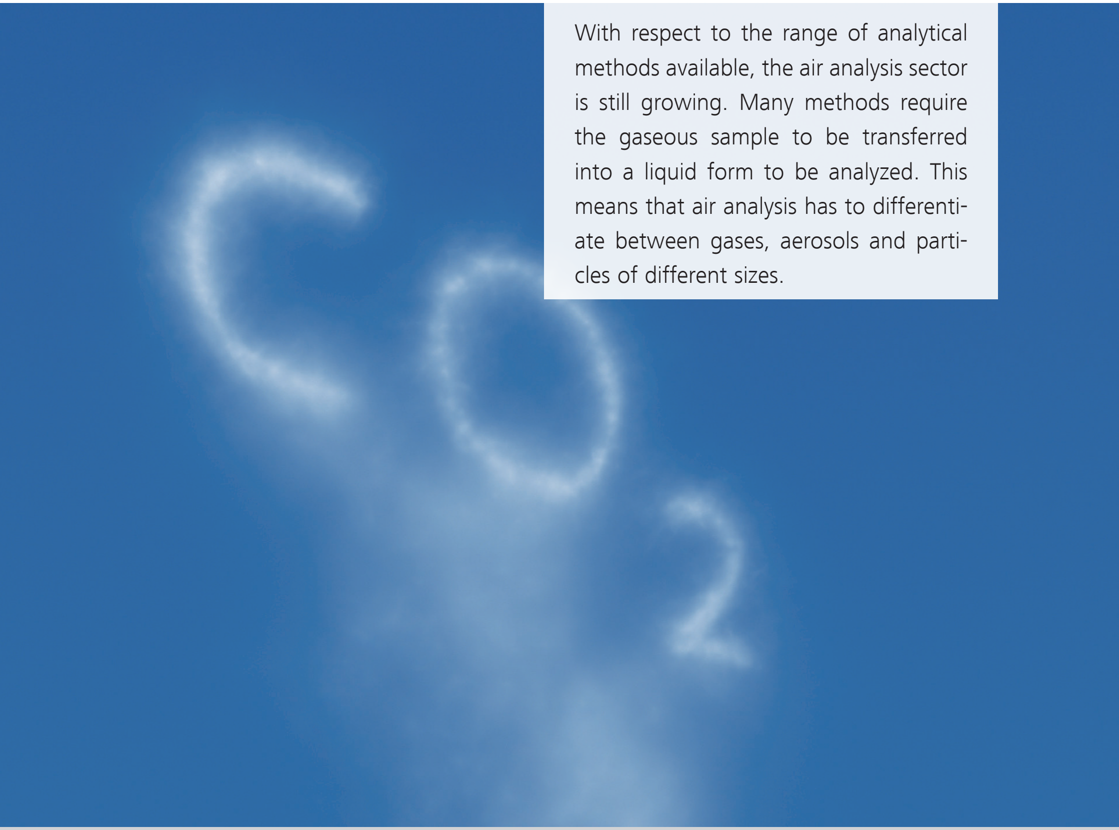
Preface

Air consists of about 78.1% nitrogen, 20.9% oxygen, 0.9% argon, 0.04% carbon dioxide together plus several trace gases. A human being can live for approximately five minutes without a supply of air. Compared with water and food this is a very short time. Five minutes – this time span indicates just how important air is for our daily life and survival. Whereas in previous years particular attention has been given to water in environmental analysis, today the quality of the air is becoming the focus of scientific work and statutory regulations. As far as water analysis is concerned, the US EPA has published an extensive catalog on this topic.

It is not only the effects of air constituents on humans that is of interest, but also their effects on industrial production processes, for example in the pharmaceutical and semiconductor industries.

With respect to the range of analytical methods available, the air analysis sector is still growing. Many methods require the gaseous sample to be transferred into a liquid form to be analyzed. This means that air analysis has to differentiate between gases, aerosols and particles of different sizes.



This application and reference collection shows the use of ion chromatography as the analytical technique for air monitoring. Accordingly it is primarily concerned with ionic species, i.e. anions and cations. Particular attention has been given to sampling and the separation into particulate and gaseous phases. Methods are presented for transferring aerosol samples to the IC system in ways that are both quantitatively and qualitatively correct. Ion chromatography is a powerful technique that allows to obtain precise information about air components. This knowledge in turn allows to explain atmospheric processes and take measures aimed at improving air quality.

This reference collection covers scientific literature from the period around 2000 and 2016. It is separated to

a) Analysis of aerosols and gases by the MARGA system (Monitor for AeRosols and GAses)

b) Aerosol analysis applying the PILS system (particle into liquid sampler)

c) Air analysis applying Metrohm IC instrumentation

Citations 2016

Online single particle analysis of chemical composition and mixing state of crop straw burning particles: from laboratory study to field measurement, (J. Huo et al.), *Frontiers of Environmental Science & Engineering*, **2016**, 10, 2, p. 244 - 252

Instrumentation: MARGA

Chemical composition of $PM_{2.5}$ and meteorological impact among three years in urban Shanghai, China, (H. L. Wang et al.), *Journal of Cleaner Production*, **2016**, 112, Part 2, p. 1302 - 1311

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Insights into the chemical characterization and sources of $PM_{2.5}$ in Beijing at a 1-h time resolution, (J. Gao et al.), *Science of The Total Environment*, **2016**, 542, Part A, p. 162 - 171

Instrumentation: MARGA
Analytes: Nitrate, sulfate, ammonium

Radiative absorption enhancement from coatings on black carbon aerosols, (X. Cui et al.), *Science of the Total Environment*, **2016**, 551-552, p. 51 - 56

Instrumentation: MARGA
Analytes: Nitrate, sulfate, ammonium

Chemical Characteristics of High PM Episodes Occurring in Spring 2014, Seoul, Korea, (H. J. Shin et al.), *Advances in Meteorology*, **2016**, 2424875

Instrumentation: MARGA

Methods for determination of phosphate and total phosphorus in precipitation and particulate matter, (U. Makkonen et al.), Report No. 2015-2; *Finnish Meteorological Institute*, FIN-00101 Helsinki, Finland, **2016**

Instrumentation: MARGA, Metrosep A Supp 10 - 75/4.0, Metrosep C 4 - 100/4.0
Analytes: Phosphate

Oil and gas impacts on air quality in federal lands in the Bakken region: an overview of the Bakken Air Quality Study and first results,
(A. J. Prenni et al.), *Atmospheric Chemistry and Physics*, **2016**, 16, p. 1401 - 1416

Instrumentation: MARGA

Optical properties and chemical apportionment of summertime PM2.5 in the suburb of Nanjing, (F. Cui et al.), *Journal of Atmospheric Chemistry*, **2016**, 73, 2, p. 119 - 135

Instrumentation: MARGA, PILS

Characteristics of carbonaceous aerosols: Impact of biomass burning and secondary formation in summertime in a rural area of the North China Plain, (L. Yao et al.), *Science of The Total Environment,* **2016**, 557-558, p. 520 - 530

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Impacts of the 2014 - 2015 Holuhraun eruption on the UK atmosphere, (M. M. Twigg et al.), *Atmospheric Chemistry and Physics Discussions*, **2016**, 16, p. 11416 - 11431

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

Chemical characteristics of fine particles and their impact on visibility impairment in Shanghai based on a 1-year period observation, (M. Zhou et al.), *Journal of Environmental Sciences,* **2016**, 48, p. 151 - 160

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Sea salt emission, transportation and influence on nitrate simulation : a case study in Europe, (Y. Chen et al.), *Atmospheric Chemistry and Physics Discussions*, **2016**, 309, p. 1 - 26

Instrumentation: MARGA

Characteristics and sensitivity analysis of multiple-time-resolved source patterns of $PM_{2.5}$ with real time data using Multilinear Engine 2,
(X. Peng et al.), *Atmospheric Environment,* **2016**, 139, p. 113 - 121

Instrumentation: MARGA

The variation of characteristics of individual particles during the haze evolution in the urban Shanghai atmosphere, (Q. Hu et al.), *Atmospheric Research*, **2016**, 181, p. 95 - 105

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Association between fine particulate matter chemical constituents and airway inflammation: A panel study among healthy adults in China,
(J. Shi et al.), *Environmental Research,* **2016**, 150, p. 264 - 268

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Application of an online ion-chromatography-based instrument for gradient flux measurements of speciated nitrogen and sulfur, (I. C. Rumsey et al.), *Atmospheric Measurement Techniques*, **2016**, 9, p. 2581 - 2592

Instrumentation: MARGA
Analytes: Nitrate, sulfate, ammonium, HNO_3, SO_2, NH_3

Impact of relative humidity on visibility degradation during a haze event: A case study, (H. Deng et al.), *Science of the Total Environment,* **2016**, 569-570, p. 1149 - 1158

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

Intense secondary aerosol formation due to strong atmospheric photochemical reactions in summer: observations at a rural site in eastern Yangtze River Delta of China, (D. Wang et al.), *Science of the Total Environment*, **2016**, 571, p. 1454 - 1466

Instrumentation: MARGA

Size distribution and mixing state of black carbon particles during a heavy air pollution episode in Shanghai, (X. Gong et al.), *Atmospheric Chemistry and Physic,* **2016**, 16, 8, p. 5399 - 5411

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, HCl, HNO_3, HNO_2, SO_2, NH_3

Cloud water composition during HCCT-2010: Scavenging efficiencies, solute concentrations, and droplet size dependence of inorganic ions and dissolved organic carbon, (D. Pinxteren et al.), *Atmospheric Chemistry and Physics*, **2016**, 16, 5, p. 3185 - 3205

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

The UK particulate matter air pollution episode of March–April 2014: more than Saharan dust, (M. Vieno et al.), *Environmental Research Letters,* **2016***,* 11, 044004

Instrumentation: MARGA
Analytes: Nitrate, sulfate, ammonium

Aerosol source apportionment from 1-year measurements at the CESAR tower in Cabauw, the Netherlands, (P. Schlag et al.), *Atmospheric Chemistry and Physics*, **2016**, 16, p. 8831 - 8847

Instrumentation: MARGA

A field measurement based scaling approach for quantification of major ions, organic carbon, and elemental carbon using a single particle aerosol mass spectrometer, (Y. Zhou et al.), *Atmospheric Environment,* **2016**, 143, p. 300 - 312

Instrumentation: MARGA

Chemical characteristics and causes of airborne particulate pollution in warm seasons in Wuhan, central China, (X. Lyu et al.), *Atmospheric Chemistry and Physic*, **2016**, 16, p. 10671 - 10687

Instrumentation: MARGA
Analytes: HCl, HNO_3, NH_3

Sea salt emission, transport and influence on size-segregated nitrate simulation: a case study in northwestern Europe by WRF-Chem, (Y. Chen et al.), *Atmospheric Chemistry and Physics Discussion*, **2016**, 16, p. 12081 - 12097

Instrumentation: MARGA

Insights into a historic severe haze event in Shanghai: synoptic situation, boundary layer and pollutants, (C. Leng et al.), *Atmospheric Chemistry and Physics*, **2016**, 16, p. 9221 - 9234

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Aerosol Chemistry Resolved by Mass Spectrometry: Linking Field Measurements of Cloud Condensation Nuclei Activity to Organic Aerosol Composition, (A. L. Vogel et al.), *Environmental Science & Technology*, **2016**, 50, 20, p. 10823 - 10832

Instrumentation: MARGA
Analytes: Nitrate, sulfate, ammonium

Aerosols without borders: Investigating long-range aerosol transport in Scotland, *Metrohm Information*, **2016**, 1, p. 12 - 16

Instrumentation: MARGA

The characteristics of PM2.5 and its water soluble ions during Spring Festival in PRD in 2012, (Y. Ma et al.), *Chinese Journal of Environmental Science,* **2016**, 36, 10, p. 2890 - 2895

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Characteristics and sensitivity analysis of multiple-time-resolved source patterns of PM2.5 with real time data using Multilinear Engine 2, (X. Peng et al.), *Atmospheric Environment*, **2016**, 139, p. 113 - 121

Instrumentation: MARGA

Comparison of characteristics of aerosol during rainy weather and cold air-dust weather in Guangzhou in late March 2012, (H. Chen et al.), *Theoretical and Applied Climatology,* **2016**, 124, 1, p. 451 - 459

Instrumentation: MARGA

The importance of vehicle emissions as a source of atmospheric ammonia in the megacity of Shanghai, (Y. Chang et al.), *Atmospheric Chemistry and Physics*, **2016**, 16, p. 3577 - 3594

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

Citations 2015

Enhanced formation of fine particulate nitrate at a rural site on the North China Plain in summer: The important roles of ammonia and ozone, (L. Wen et al.), *Atmospheric Environment,* **2015***,* 101, p. 294 - 302,

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

Personal exposure monitoring of PM2.5 in indoor and outdoor microenvironments, (S. Steinle et al.), *Science of The Total Environment*, **2015**, 508, p. 383 - 394

Instruments: MARGA

Estimation of Aerosol Mass Scattering Efficiencies under High Mass Loading: Case Study for the Megacity of Shanghai, China, (Z. Cheng et al.), *Environmental Science & Technology,* **2015***,* 49, 2, p. 831 - 838,

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, ammonium

A statistical comparison of active and passive ammonia measurements collected at Clean Air Status and Trends Network (CASTNET) sites, (M. Puchalski et al.), *Environmental Science: Processes & Impacts,* **2015***,* 17, 2, p. 358 - 369

Instruments: MARGA

Impacts of biomass-burning on aerosol properties of a severe haze event over Shanghai, (Q. He et al.), *Particuology,* **2015***,* 20, p. 52 - 60,

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Influence of biomass burning plumes on HONO chemistry in eastern China, (W. Nie et al.), *Atmospheric Chemistry and Physics*, **2015**, 508, p. 383 - 394

Instruments: MARGA

Water soluble aerosols and gases at a UK background site – Part 1: Controls of $PM_{2.5}$ and PM_{10} aerosol composition, (M. M. Twigg et al.), *Atmospheric Chemistry and Physics Discussions,* **2015***,* 15, p. 3703 - 3743,

Instruments: MARGA, Metrosep A Supp 10 - 75/4.0, Metrosep C 4 - 100/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Characterizing the thermodynamic and chemical composition factors controlling PM2.5 nitrate: Insights gained from two years of online measurements in Hong Kong, (S. M. Griffith et al.), *Atmospheric Environment,* **2015***,* 122, p. 864 - 875

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

VOC species and emission inventory from vehicles and their SOA formation potentials estimation in Shanghai, China, (C. Huang et al.), *Atmospheric Chemistry and Physics Discussions,* **2015***,* 15, p. 7977 - 8015

Instruments: MARGA

Total sulphate vs. sulphuric acid monomer in nucleation studies, (C. Neitola et al.), *Atmospheric Chemistry and Physics* **2015**, 15, p. 3429 - 3443

Instruments: MARGA

Characteristics of Submicron Particle during High Concentration Episodes in Spring, 2014 at Seoul, Korea, using the Aerosol Mass Spectrometer, (J. S. Park et al.), *Korea Journal of Environmental Analysis,* **2015***,* 18, 1, p. 12 - 25,

Instruments: MARGA

Influence of mineral dust and sea spray supermicron particle concentrations and acidity on inorganic NO3- aerosol during the 2013 Southern Oxidant and Aerosol Study, (H. M. Allen et al.), *Atmospheric Chemistry and Physics Discussions,* **2015***,* 15, p. 13827 - 13865

Instruments: MARGA , Metrosep C 4 - 100/4.0
Analytes: Cations

Comparison of daytime and nighttime new particle growth at the HKUST Supersite in Hong Kong, (H. Man et al.), *Environmental Science & Technology*, **2015**, 49, 12, p. 7170 - 7178

Instruments: MARGA
Analytes: Nitrate, sulfate

Organic nitrate aerosol formation via NO3 + BVOC in the Southeastern US, (B. R. Ayres et al.), *Atmospheric Chemistry and Physics Discussions*, **2015**, 15, p. 16235 - 16272

Instruments: MARGA

HONO and its potential source particulate nitrite at an urban site in North China during the cold season, (L. Wang et al.), *Science of the Total Environment*, **2015**, 538, p. 93 - 101

Instruments: MARGA
Analytes: Nitrite, nitrate, HNO_2

Sources and atmospheric processes impacting oxalate at a suburban coastal site in Hong Kong: Insights inferred from one-year hourly measurements, (Y. Zhou et al.), *Journal of Geophysical Research: Atmospheres*, **2015**, 120, 18, p. 9772 - 9788

Instruments: MARGA
Analytes: Oxalate

Chemical composition, sources and evolution processes of aerosol at an urban site in Yangtze River Delta, China during wintertime, (Y. Zhang et al.), *Atmospheric Environment,* **2015***,* 123, Part B, p. 339 - 349

Instruments: MARGA

Cloud water composition during HCCT-2010: Scavenging efficiencies, solute concentrations, and droplet size dependence of inorganic ions and dissolved organic carbon, (D. van Pinxteren et al.), *Atmospheric Chemistry and Physics Discussions* **2015**, 15, p. 24311 - 24368

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Fine particulate matter constituents, nitric oxide synthase DNA methylation and exhaled nitric oxide, (R. Chen et al.), *Environmental Science & Technology,* **2015***,* 49, 19, p. 11859 - 11865

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Analysis of $PM_{2.5}$ spectrum characteristics in Shijiazhuang based on high resolution MARGA data, (J. Chen et al.), *China Environmental Science,* **2015**, 35, 9, p. 2594 - 2604

Instruments: MARGA
Analytes: Nitrate, sulfate, NO_2, SO_2

Influence of crustal dust and sea spray supermicron particle concentrations and acidity on inorganic NO_3- aerosol during the 2013 Southern Oxidant and Aerosol Study, (H. M. Allen et al.), *Atmospheric Chemistry and Physics Discussions,* **2015**, 15, p. 10669 - 10685

Instruments: MARGA , Metrosep C 4 - 100/4.0
Analytes: Cations

Enhanced sulfate formation by nitrogen dioxide: Implications from in-situ observations at the SORPES Station, (Y. Xie et al.), *Journal of Geophysical Research: Atmospheres*, **2015**, 120, 24, p. 13679 - 12694

Instruments: MARGA
Analytes: Sulfate, SO_2, NO_x

Experimental studies on nucleation and new particle formation,
(K. Neitola), *Thesis, University of Helsinki, Finland,* **2015**

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

Atmospheric ammonia and its impacts on regional air quality over the megacity of Shanghai, China, (S. Wang et al.), *Scientific Reports / Nature,* **2015**, 5, 15842

Instruments: MARGA
Analytes: Ammonium, HNO_2, HNO_3, SO_2

Oil and gas impacts on air quality in federal lands in the Bakken region: an overview of the Bakken Air Quality Study and first results,
(A. J. Prenni et al.), *Atmospheric Chemistry and Physics Discussions,* **2015***,* 123, 15, p. 28749 - 28792

Instruments: MARGA

Characteristics of Visibility Impairment by Semi-Continuous Optical and Chemical Property Monitoring of Aerosols in Seoul, (J. S. Park et al.), *Korea Society for Atmospheric Environment* **2015**, 31, 4, p. 319 - 329

Instruments: MARGA

Aerosol source apportionment from 1 year measurements at the CESAR tower at Cabauw, NL, (P. Schlag et al.), *Atmospheric Chemistry and Physics Discussions,* **2015***,* 15, p. 35117 - 35155

Instruments: MARGA

The importance of vehicle emissions as a source of atmospheric ammonia in the megacity of Shanghai, (Y. H. Chang et al.), *Atmospheric Chemistry and Physics Discussions,* **2015***,* 15, p. 34719 - 34763

Instruments: MARGA, Metrohm 883 Basic IC plus
Analytes: Ammonium, NH_3

Human Excreta as a Stable and Important Source of Atmospheric Ammonia in the Megacity of Shanghai, (Y. Chang et al.), *PlosOne,* **2015**, 0144661

Instruments: MARGA, Metrohm 883 Basic IC plus, Metrosep C 4
Analytes: Ammonium, NH_3

Deriving a speciated atmospheric nitrogen budget at Auchencorth Moss, a background site in South East Scotland, (M. Twigg et al.), *Poster*, **2015**

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

Numerical simulation of the interaction between ammonium nitrate aerosol and convective boundary-layer dynamics, (E. Barbaro et al.), *Atmospheric Environment,* **2015**, 105, p. 202 - 211

Instruments: MARGA
Analytes: NH_3

Organic nitrate aerosol formation via NO_3 + biogenic volatile organic compounds in the southeastern United States, (B. R. Ayres et al.), *Atmospheric Chemistry and Physics,* **2015**, 15, p. 13377 - 13392

Instruments: MARGA

On the composition of ammonia–sulfuric-acid ion clusters during aerosol particle formation, (S. Schobesberger et al.), *Atmospheric Chemistry and Physics*, **2015**, 14, p. 55 - 78

Instruments: MARGA

Aerosol size distribution and new particle formation in the western Yangtze River Delta of China: 2 years of measurements at the SORPES station, (X. M. Qi et al.), *Atmospheric Chemistry and Physics*, **2015**, 15, p. 12445 - 12464

Instruments: MARGA

Pollution characteristics during haze and clean processes in Guanzhou, (PJ. Liu et al.), *Acta Scientiae Circumstantiae*, **2015**, 35, 11, p. 3433 - 3442

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

Source apportionment of fine particles and its chemical components over the Yangtze River Delta, China during a heavy haze pollution episode, (L. Li et al.), *Atmospheric Environment*, **2015**, 123, p. 415 - 429

Instruments: MARGA

Evolution of gaseous precursors and meteorological parameters during new particle formation events in the Central European boundary layer, (J. Gröss et al.), *Atmospheric Chemistry and Physics Discussions*, **2015**, 15, p. 2305 - 2353

Instruments: MARGA

Citations 2014

Characterization of $PM_{2.5}$ Major Components and Source Investigation in Suburban Hong Kong: A One Year Monitoring Study, (X. H. H. Huang et al.), *Aerosol and Air Quality Research*, **2014**, 14, p. 237 - 250

Instruments: MARGA

Airborne submicron particulate (PM_1) pollution in Shanghai, China: Chemical variability, formation/dissociation of associated semi-volatile components and the impacts on visibility, (Y. Shi et al.), *Science of the Total Environment*, **2014**, 473-474, p. 199 - 206

Instruments: MARGA

One-year observations of size distribution characteristics of major aerosol constituents at a coastal receptor site in Hong Kong – Part 1: Inorganic ions and oxalate, (Q. Bian et al.), *Atmospheric Chemistry and Physics Discussions*, **2014**, 14, p. 1443 - 1480

Instruments: MARGA

Observations of linear dependence between sulfate and nitrate in atmospheric particles, (L. Kong et al.), *Journal of Geophysical Research: Atmospheres*, **2014**, 119, 1, p. 341 - 361

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

Measuring and Modeling Aerosol: Relationship with Haze Events in Shanghai, China, (G. Zhou et al.), *Aerosol and Air Quality Research,* **2014**, 14, p. 783 - 792

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

Estimation of aerosol water and chemical composition from AERONET at Cabauw, the Netherlands, (A. J. van Beeleb et al.), *Atmospheric Chemistry and Physics Discussions*, **2014**, 13, p. 15191 - 15232

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

Complementary mass spectrometric techniques for the characterization of the organic fraction in atmospheric aerosols, (A. L. Vogel), *Thesis, Johannes Gutenberg - Universität, Mainz, Germany,* **2014**

Instruments: MARGA

Influence of biomass burning plumes on HONO chemistry in eastern China, (W. Nie et al.), *Atmospheric Chemistry and Physics Discussions,* **2014**, 14, p. 7859 - 7887

Instruments: MARGA

Insights into characteristics, sources and evolution of submicron aerosols during harvest seasons in Yangtze River Delta (YRD) region, China, (Y. J. Zhang et al.), *Atmospheric Chemistry and Physics Discussions,* **2014**, 14, p. 9109 - 9154

Instruments: MARGA
Analytes: Potassium

Model study on the dependence of primary marine aerosol emission on the sea surface temperature, (S. Barthel et al.), *Atmospheric Chemistry and Physics Discussions*, **2014**, 14, p. 377 - 434

Instruments: MARGA

Online monitoring of water-soluble ionic composition of PM_{10} during early summer over Lanzhou City, (J. Fan et al.), *Journal of Environmental Sciences,* **2014**, 26, 2, p. 353 - 361

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

Gas-phase alkyl amines in urban air; comparison with a boreal forest site and importance for local atmospheric chemistry, (H. Hellen et al.), *Atmospheric Environment,* **2014**, 94, p. 192 - 197

Instruments: MARGA

Using Hourly Measurements to Explore the Role of Secondary Inorganic Aerosol in $PM_{2.5}$ during Haze and Fog in Hangzhou, China, (R. C. Jansen et al.), *Advances in Atmospheric Sciences,* **2014**, 31, 6, p. 1427 - 1434

Instruments: MARGA
Analytes: Nitrate, sulfate, ammonium

An assessment of the performance of the Monitor for AeRosols and GAses in ambient air (MARGA): a semi-continuous method for soluble compounds, (I. C. Rumsey et al.), *Atmospheric Chemistry and Physics*, **2014**, 14, p. 5639 - 5658

Instruments: MARGA
Analytes: Nitrate, sulfate, ammonium

Severe haze episodes and seriously polluted fog water in Ji'nan, China, (X. Wang et al.), *Science of the Total Environment* , **2014,** 493, p. 133 - 137

Instruments: MARGA

Estimation of aerosol water and chemical composition from AERONET Sun–sky radiometer measurements at Cabauw, the Netherlands, (A. J. van Beelen et al.), *Atmospheric Chemistry and Physics,* **2014**, 14, p. 5969 - 5987

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium

The Impact of Nonlocal Ammonia on Submicron Particulate Matter and Visibility Degradation in Urban Shanghai, (R. C. Jansen et al.), *Advances in Meteorology,* **2014**, 534675

Instruments: MARGA, PILS

The air you breathe: A chemical characterization of the inorganic gas-aerosol system in the atmosphere above Portland, OR and Centreville, AL, (H. M. Allen), *Thesis, Reed College, Portland, USA*, **2014**

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

$PM_{2.5}$ Constituents and Hospital Emergency-Room Visits in Shanghai, China, (L. Qiao et al.), *Environmental Science & Technology,* **2014**, 48, 17, p. 10406 - 10414

Instruments: MARGA, Metrosep A Supp 10 - 75/4.0, Metrosep C 4 - 100/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Measurements of inorganic ions and their precursor gases in ambient air in Finland, (U. Makkonen), *Thesis, University of Helsinki, Finland,* **2014**

Instruments: MARGA

Temporal Variations in Optical Properties and Direct Radiative Forcing of Different Aerosol Chemical Components in Seoul using Hourly Aerosol Sampling, (S. K. Song et al.), *Journal of Korean Society for Atmospheric Environment,* **2014***,* 30, 1, p. 1 - 17

Instruments: MARGA

Total sulphate vs. sulphuric acid monomer in nucleation studies, (C. Neitola et al.), *Atmospheric Chemistry and Physics Discussions*, **2014**, 14, p. 25787 - 25824

Instruments: MARGA

On-line Monitoring of Atmospheric Inorganic Gases and Aerosols in the Southeastern and Northwestern U.S., (J. L. Fry et al.), *The Application Notebook (LC GC),* **2014,** October, p. 7 - 9

Instruments: MARGA

Size-resolved Effective Density of Urban Aerosols in Shanghai, (Z. Yin et al.), *Atmospheric Environment,,* **2014***,* 100, p. 133 - 140

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Impacts of new particle formation on aerosol cloud condensation nuclei (CCN) activity in Shanghai: case study, (C. Leng et al.), *Atmospheric Chemistry and Physics,* **2014***,* 14, p. 11353 - 11365

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Variations of cloud condensation nuclei (CCN) and aerosol activity during fog–haze episode: a case study from Shanghai, (C. Leng et al.), *Atmospheric Chemistry and Physics*, **2014**, 14, p. 12499 - 12512

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Photochemical properties and source of pollutants during continuous pollution episodes in Beijing, October, 2011, (J. Gao et al.), *Journal of Environmental Sciences*, **2014**, 26, 1, p. 44 - 53

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Growth of sulphuric acid nanoparticles under wet and dry conditions, (L. Skrabalova et al.), *Atmospheric Chemistry and Physics*, **2014**, 14, p. 6461 - 6475

Instruments: MARGA
Analytes: NH_3

Effect of addition of four base compounds on sulphuric-acid– water new-particle formation: a laboratory study, (K. Neitola et al.), *Boreal Environment Research*, **2014**, 19, Suppl. B, p. 257 - 274

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

Semi-continuous gas and inorganic aerosol measurements at a boreal forest site: seasonal and diurnal cycles of NH_3, HONO and HNO_3, (U. Makkonen et al.), *Boreal Environment Research,* **2014,** 19, Suppl. B, p. 311 - 328

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

One-year observations of size distribution characteristics of major aerosol constituents at a coastal receptor site in Hong Kong – Part 1: Inorganic ions and oxalate, (Q. Bian et al.), *Atmospheric Chemistry and Physics,* **2014,** 14, p. 9013 - 9027

Instruments: MARGA
Analytes: Oxalate

Variations of cloud condensation nuclei (CCN) and aerosol activity during fog–haze episode: a case study from Shanghai, (C. Leng et al.), *Atmospheric Chemistry and Physics,* **2014**, 14, p. 12499 - 12512

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Review of $PM_{2.5}$ Source Apportionment Methods in China, (M. Zheng et al.), *Acta Scientiarum Naturalium Universitatis Pekinensis*, **2014**, 50, 6, p. 1141 - 1154

Instruments: MARGA

Citations 2013

[Aerosol single scattering albedo affected by chemical composition: an investigation using CRDS combined with MARGA], (L. Li et al.), *Atmospheric Research*, **2013**, 124, p. 149 - 157

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, ammonium

Total sulphate vs. sulphuric acid monomer in nucleation studies: which represents the "true" concentration?, (K. Neitola et al.), *Atmospheric Chemistry and Physics Discussions*, **2013**, 13, p. 2313 - 2350

Instruments: MARGA

The detection of nocturnal N_2O_5 as HNO_3 by alkali- and aqueous-denuder techniques, (G. J. Phillips et al.), *Atmospheric Measurement Techniques,* **2013,** 6, p. 231 - 237

Instruments: MARGA
Analytes: N_2O_5

Speciation and trends of organic nitrogen in southeastern U.S. fine particulate matter ($PM_{2.5}$), (S. Samy et al.), *Journal of Geophysical Research: Atmospheres,* **2013,** 118, 4, p. 1996 - 2006

Instruments: MARGA, Metrosep A Supp 10 - 75/4.0, Metrosep C 2 - 150/4.0
Analytes: Anions, cations

Pallas Cloud Experiment, PaCE 2012, (D. Brus et al.), *Report,* **2013**

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

A study of diurnal variations of $PM_{2.5}$ acidity and related chemical species using a new thermodynamic equilibrium model, (S. N. Behera et al.), *Science of the Total Environment*, **2013**, 13, p. 14377 - 14403

Instruments: MARGA

Intense atmospheric pollution modifies weather: a case of mixed biomass burning with fossil fuel combustion pollution in the eastern China, (A. J. Ding et al.), *Atmospheric Chemistry and Physics,* **2013,** 13, p. 14377 - 14403

Instruments: MARGA

Simultaneous Online Monitoring of Inorganic Compounds in Aerosols and Gases in an Industrialized Area, (B. Khezri et al.), *Atmospheric Environment,* **2013,** 80, p. 352 - 360

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

Pallas Cloud Experiment (PaCE) 2012: Intensive campaign on aerosol and cloud properties, (E. Asmi et al.), *Poster, IV Pallas Symposium*, **2013**

Instruments: MARGA

Insights into Chemical Coupling among Acidic Gases, Ammonia and Secondary Inorganic Aerosols, (S. Behera et al.), *Aerosol and Air Quality Research*, **2013**, 13, p. 1282 - 1296

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Physical and chemical characterization of ambient aerosol by HR-ToF-AMS at a suburban site in Hong Kong during springtime 2011, (B. P. Lee et al.), *Journal of Geophysical Research: Atmospheres,* **2013,** 118, 15, p. 8625 - 8639

Instruments: MARGA

Urban Aerosol Characteristics during the World Expo 2010 in Shanghai, (M. Zhang et al.), *Aerosol and Air Quality Research,* **2013,** 13, p. 36 - 48

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

An assessment of the performance of the Monitor for AeRosols and Gases in ambient air (MARGA): a semi-continuous method for soluble compounds, (I. Rumsey et al.), *Atmospheric Chemistry and Physics Discussions,* **2013,** 13, p. 25067 - 25124

Instruments: MARGA
Analytes: Nitrate, sulfate, ammonium

Consecutive transport of anthropogenic air masses and dust storm plume: Two case events at Shanghai, China, (L. Wang et al.), *Atmospheric Research*, **2013**, 127, p. 22 - 33

Instruments: MARGA
Analytes: Nitrate, sulfate, ammonium, calcium

Hygroscopic growth of urban aerosol particles during the 2009 Mirage-Shanghai Campaign, (X. Ye et al.), *Atmospheric Environment,* **2013,** 64, p. 263 - 269

Instruments: MARGA

Characterization of organic aerosol produced during pulverized coal combustion in a drop tube furnace, (X. Wang et al.), *Atmospheric Chemistry and Physics,* **2013,** 13, 21, p. 10919 - 10932

Instruments: MARGA

A case study of the highly time-resolved evolution of aerosol chemical and optical properties in urban Shanghai, China, (Y. Huang et al.), *Atmospheric Chemistry and Physics*, **2013,** 13, p. 3931 - 3944

Instruments: MARGA

In Higher Spheres - 40 years of observations at the Cabauw Site, (W. Monna et al.), *Report, Ministry of Infrastructure and the Environment / Royal Netherlands Meteorological Institute*, **2013**

Instruments: MARGA

Measurements of surface cloud condensation nuclei and aerosol activity in downtown Shanghai, (C. Leng et al.), *Atmospheric Environment,* **2013,** 169, p. 354 - 361

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Initial EMEP intensive results from 2012 and 2013 experiments Auchencorth and Harwell, (B. Langford et al.), *Presentation,* **2013**

Instruments: MARGA

Intense atmospheric pollution modifies weather: a case of mixed biomass burning with fossil fuel combustion pollution in eastern China, (A. J. Ding et al.), *Atmospheric Chemistry and Physics,* **2013,** 13, p. 10545 - 10554

Instruments: MARGA

Particle hygroscopicity during atmospheric new particle formation events: implications for the chemical species contributing to particle growth, (Z. Wu et al.), *Atmospheric Chemistry and Physics*, **2013**, 13, p. 6637 - 6646

Instruments: MARGA

Citations 2012

Semi-continuous gas and inorganic aerosol measurements at a Finnish urban site: comparisons with filters, nitrogen in aerosol and gas phases, and aerosol acidity, (Z. Wuet al.), *Atmospheric Chemistry and Physics*, **2012,** 13, p. 6637 - 6646

Instruments: MARGA, Metrosep A Supp 10 - 75/4.0, Metrosep C 4 - 100/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Aerosol chemical composition at Cabauw, The Netherlands as observed in two intensive periods in May 2008 and March 2009, (A. A. Mensah et al.), *Atmospheric Chemistry and Physics*, **2012,** 12, p. 4723 - 4742

Instruments: MARGA

A review of methods for long term in situ characterization of aerosol dust, (S. Rodriguez et al.), *Aeolian Research,* **2012,** 6, p. 55 - 74

Instruments: MARGA, PILS

Characterization of Fine Particulate Matter and Associations between Particulate Chemical Constituents and Mortality in Seoul, Korea, (J. Y. Son et al.), *Environmental Health Perspectives,* **2012,** 120, 6, p. 872 - 878

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Relationship between water-soluble ions in $PM_{2.5}$ and their precursor gases in Seoul megacity, (Z. H. Shon et al.), Atmospheric Environment, **2012,** 59, p. 540 - 550

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

Morphology, composition and mixing state of individual carbonaceous aerosol in urban Shanghai, (H. Fu et al.), *Atmospheric Chemistry and Physics*, **2012**, 12, p. 693 - 707

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Seasonal Variation of $PM_{2.5}$ and Its Major Ionic Components in an Urban Monitoring Site, (S. Gosh et al.), *Asian Journal of Atmospheric Environment,* **2012,** 6, 1, p. 23 - 32

Instruments: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Estimation of seasonal diurnal variations in primary and secondary organic carbon concentrations in the urban atmosphere: EC tracer and multiple regression approaches, (W. Kim et al.), *Atmospheric Environment,* **2012,** 56, p. 101 - 108

Instruments: MARGA
Analytes: Nitrate, sulfate

Modelling the partitioning of ammonium nitrate in the convective boundary layer, (J. M. J. Aae de Brugh et al.), *Atmospheric Chemistry and Physics*, **2012,** 12, p. 3005 - 3023

Instruments: MARGA
Analytes: Nitrate, sulfate, ammonium, HNO_3, NH_3

Citations 2011

Impact of Asian dust events on airborne bacterial community assessed by molecular analyses, (E. M. Jeon et al.), *Atmospheric Environment*, **2011**, 45, 25, p. 4313 - 4321

Instrumentation: MARGA

Important role of ammonia on haze formation in Shanghai, (X. Ye et al.), *Environmental Research Letters*, **2011**, 6, 2

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Insights into summertime haze pollution events over Shanghai based on online water-soluble ionic composition of aerosols, (H. Du et al.), *Atmospheric Environment*, **2011**, 45, 29, p. 5131 - 5137

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

Morphology, composition and mixing sta te of individual carbonaceous aerosol in urban Shanghai, (H. Fu et al.), *Atmospheric Chemistry and Physics Discussions*, **2011**, 11, p. 20973 - 21011

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Modelling the partitioning of ammonium nitrate in the convective boundary layer, (J. M. J Aan de Brugh et al.), *Atmospheric Chemistry and Physics Discussions*, **2011**, 11, p. 28273 - 27317

Instrumentation: MARGA

Impact of ammonium nitrate chemistry on the AOT in Cabauw, the Netherlands, (J. W. B Derksen et al.), *Atmospheric Environment*, **2011**, 45, 31, p. 5640 - 5646

Instrumentation: MARGA
Analytes: Nitrate, sulfate, ammonium

Illustrating the benefit of using hourly monitoring data on secondary inorganic aerosol and its precursors for model evaluation, (M. Schaap et al.), *Atmospheric Chemistry and Physics*, **2011**, 11, p. 11041 - 11053

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, HCl, HNO_3, HNO_2, SO_2, NH_3

Citations 2010

Jatkuvatoimisen ionikromatografin käyttöönotto ja osittainen validointi, (J. Mäntykenttä), *Thesis, Metropolia, Helsinki, Finland*, **2010**

Instrumentation: MARGA

Agricultural Fire Impacts on the Air Quality of Shanghai during Summer Harvesttime, (H. Li et al.), *Aerosol and Air Quality Research*, **2010**, 10, p. 95 - 101

Instrumentation: MARGA

Insights into Ammonium Particle-to-Gas Conversion: Non-sulfate Ammonium Coupling with Nitrate and Chloride, (H. Du et al.), *Aerosol and Air Quality Research*, **2010**, 10, p. 589 - 595

Instrumentation: MARGA
Analytes: Chloride, nitrate, ammonium

Water and Organic Nitrate Detection in an AMS: Laboratory Characterization and Application to Ambient Measurements, (A. A. Mansah), *Thesis, University of Köln, Germany*, **2010**

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, ammonium

Field inter-comparison of eleven atmospheric ammonia measurement techniques, (K. von Bobrutzki et al.), *Atmospheric Measurement Technique*, **2010,** 3, 1, p. 91 - 112

Instrumentation: MARGA
Analytes: Ammonium

Chemical Characterization of PM_{10} at Melpitz site in Germany – Test of an Online Wet Chemical System for Simultaneous Quantification of Gases and Water Soluble Ions (MARGA), (G. Spindler et al.), *Poster*, **2010**

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

Long-term monitoring of reactive gases and water soluble aerosol components at a remote field site in the UK, (M. Twigg et al.), *Presentation*, **2010**

Instrumentation: MARGA

Citations 2009

Monitoring of the ratio of nitrate to sulphate in size-segregated submicron aerosol in the Netherlands, (H. ten Brink et al.), *Atmospheric Research,* **2009**, 92, 2, p. 270 - 276

Instrumentation: MARGA
Analytes: Nitrate, sulfate

Application report: The completely automated MARGA system for monitoring, *Metrohm Information*, **2009**, 2, p. 22 - 25

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, HCl, SO_2, NH_3

European scale application of atmospheric reactive nitrogen measurements in a low-cost approach to infer dry deposition fluxes, (Y. S. Tang et al.), *Agriculture, Ecosystems & Environment*, **2009**, 133, 3-4, p.183 - 195

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, ammonium, HCl, HNO_3, SO_2, NH_3

Operation of EMEP 'supersites' in the United Kingdom, (W. Bealey et al.), *Annual Report for 2007, Contract CPEA 38*, **2009**

Instrumentation: MARGA

Citations 2008

A Feasibility Study of the MARGA Tool as an Aerosol Analyzer,
(R. T. White et al.), *Extended Abstract: Poster, 10th Conference on Atmospheric Chemistry, New Orleans*, **2008**, 92, 2, p. 270 - 276

Instrumentation: MARGA
Analytes: Nitrate, sulfate, ammonium

Citations 2007

An instrument for semi-continuous monitoring of the size-distribution of nitrate, ammonium, sulphate and chloride in aerosol, (H. ten Brink et al.), *Atmospheric Environment*, **2007**, 41, p. 2768 - 2779

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, ammonium

Modelling and measurements of inorganic gas and aerosol concentrations at a UK EMEP Super Site, (C. Di Marco et al.), *Poster*, **2007**

Instrumentation: MARGA
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, HCl, HNO_3, HNO_2, SO_2, NH_3

Citations 2006

MARGA - Monitoring Instrument for Inorganic Aerosol Composition and Acidifying Gases, (R. P. Otjes et. al), *Geophysical Research Abstracts*, **2006**, 8, 05919

Instrumentation: MARGA
Analytes: Chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Citations 2005

(Semi-) Continuous Measurement Techniques for Reactive Aerosol Components and Gases, (E. Nemitz), *Presentation*, **2005**

Instrumentation: MARGA, PILS, Metrohm 761 Compact IC
Analytes: Nitrate, sulfate

CASTNET Progress Report, (L. Kercher et al.), *Report*, **2005**

Instrumentation: MARGA
Analytes: Nitrate, sulfate, sodium, ammonium, potassium

Aerosol analysis applying PILS (Particle into Liquid Sampler combined with IC or other instrumentation)

Citations 2016

Classification of diurnal patterns of particulate inorganic ions downwind of metropolitan Seoul, (Y. H. Lee et al.), *Environmental Science and Pollution Research*, **2016**, 23, 9, p. 8917 - 8928

Instruments: PILS, Metrohm 861 Advanced Compact IC, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 150/4.0
Analytes: Anions, cations

Oxidative Potential of Secondary Organic Aerosols Produced from Photo-oxidation of Different Hydrocarbons Using Outdoor Chamber under Ambient Sunlight, (H. Jiang et al.), *Atmospheric Environment*, **2016**, 31, p. 382 - 389

Instruments: PILS

Time-resolved molecular characterization of organic aerosols by PILS + UPLC/ESI-Q-TOFMS, (X. Zhang et al.), *Atmospheric Environment*, **2016**, 130, p. 180 - 189

Instruments: PILS, Metrohm IC system

Optical properties and chemical apportionment of summertime $PM_{2.5}$ in the suburb of Nanjing, (F. Cui et al.), *Journal of Atmospheric Chemistry*, **2016**, 73, 2, p. 119 - 135

Instruments: PILS, MARGA

Simulating the SOA formation of isoprene from partitioning and aerosol phase reactions in the presence of inorganics, (R. L. Beardsley et al.), *Atmospheric Chemistry and Physics*, **2016**, 16, p. 5993 - 6009

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Sulfate, ammonium

Hygroscopicity Measurements of Aerosol Particles in the San Joaquin Valley, CA, Baltimore, MD, and Golden, CO, (D. Orozco et al.), *Journal of Geophysical Research: Atmospheres*, **2016**, 121, 12, p. 7344 - 7359

Instruments: PILS, Metrohm 850 Professional IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Ground-Based Measurement and Variation Analysis of Carbonaceous Aerosols in Wuqing, (W. Xu), Acta Scientiarum Naturalium Universitatis Pekinensis, **2016,** 52, 3, p. 409 - 419

Instruments: PILS

Technical note: An improved approach to determining background aerosol concentrations with PILS sampling on aircraft, (C. S. Fukami et al.), *Atmospheric Environment*, **2016**, 136, p. 16 - 20

Instruments: PILS
Analytes: Nitrite, nitrate, sulfate, ammonium, potassium, calcium

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Influences of emission sources and meteorology on aerosol chemistry in a polluted urban environment: results from DISCOVER-AQ California, (D. E. Young et al.), *Atmospheric Chemistry and Physics*, **2016**, 16, p. 5427 - 5451

Instruments: PILS
Analytes: Formate, glycolate nitrite, nitrate, sulfate, sodium, ammonium, potassium

Heterogeneous photooxidation of sulfur dioxide in the presence of airborne mineral dust particles, (J. Y. Park et al.), RSC Advances, **2016**, 6, 63, p. 58617 - 58627

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Sulfate

Real-Time, Online Automated System for Measurement of Water-Soluble Reactive Phosphate Ions in Atmospheric Particles, (K. Violaki et al.), *Analytical Chemistry*, **2016**, 88, 14, p. 7163 - 7170

Instruments: PILS-FIA
Analytes: Phosphate

Fine particle pH and the partitioning of nitric acid during winter in the northeastern United States, (H. Guo et al.), *Journal of Geophysical Research: Atmospheres*, **2016**, 121, 17, p. 10355 - 10376

Instruments: PILS, Metrohm 761 Compact IC, Metrosep A Supp 15 - 50/4.0, Metrosep C 4 - 50/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Short-term dynamic variations of aerosol water-soluble inorganic ions at Mountain Lulin in 2014, (C. Y. Tsa), *Thesis, National Central University, CN,* **2016**

Instruments: PILS, Metrohm IC system
Analytes: Nitrate, sulfate, ammonium, potassium

Optical, physical and chemical properties of aerosols transported to a coastal site in the Western Mediterranean : Focus on primary marine aerosols, (M. Claeys et al.), *Atmospheric Chemistry and Physics Discussions*, **2016**, 602

Instruments: PILS

Wintertime Residential Biomass Burning in Las Vegas, Nevada; Marker Components and Apportionment Methods, (S. G. Brown et al.), *Atmosphere*, **2016**, 17, 4, 58

Instruments: PILS

Exploratory Research of Wintertime Aerosol Chemical Composition at a Ground Location in Fairbanks, Alaska, (R. E. Peltier), *Report, Alaska DEC, Division of Air Quality*, USA, **2016**

Instruments: PILS
Analytes: Fluoride, acetate, formate, methanesulfonate, chloride, nitrite, bromide, chlorate, nitrate, phosphate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

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Short-Term Variability of Fine Inorganic Particulate Matter Over Athens, Greece, (D. Paraskevopoulou et al.), *Poster*, **2016**

Instruments: PILS, Metrohm IC system
Analytes: Chloride, nitrate, sulfate

Evaluation of a Sequential Spot Sampler (S3) for time-resolved measurement of $PM_{2.5}$ sulfate and nitrate through lab and field measurements, (A. Hecobian et al.), *Atmospheric Measurement Techniques,* **2016***,* 9, p. 525 - 533

Instruments: PILS

Evidence for ambient dark aqueous SOA formation in the Po Valley, Italy, (A. P. Sullivan et al.), *Atmospheric Chemistry and Physics,* **2016**, 16, p. 8095 - 9108

Instruments: PILS, PILS-TOC
Analytes: WSOC

Comparison of Real Time Water Soluble Organic Carbon Measurements by Two PILS-TOC Analyzers, (D. J. Park et al.), *Journal of Korean Society for Atmospheric Environment,* **2016***,* 32, 6, p. 633 - 641

Instruments: PILS-TOC
Analytes: WSOC

Source Analysis of Size Distribution and Density Estimation in $PM_{2.5}$ -Part II, (M. S. Bae), *Journal of Korean Society for Atmospheric Environment,* **2016,** 32, 2, p. 158 - 166

Instruments: PILS, Metrohm 883 Basic IC, Metrosep A Supp 5, Metrosep C 4 - 250/4.0
Analytes: Fluoride, chloride, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Citations 2015

Investigating types and sources of organic aerosol in Rocky Mountain National Park using aerosol mass spectrometry, (M. I. Schurman et al.), *Atmospheric Chemistry and Physics,* **2015***,* 15, p. 737 - 752

Instruments: PILS
Analytes: Nitrate, sulfate, ammonium, potassium

ACTRIS ACSM intercomparison – Part 2: Intercomparison of ME-2 organic source apportionment results from 15 individual, co-located aerosol mass spectrometers, (R. Fröhlich et al.), *Atmospheric Measurement Techniques Discussions*, **2015**, 8, p. 1559 - 1613

Instruments: PILS

Effects of anthropogenic emissions on aerosol formation from isoprene and monoterpenes in the southeastern United States, (L. Xu), *PNAS,* **2015,** 112, 1, p. 37 - 42

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Improved Time-Resolved Measurements of Inorganic Ions in Particulate Matter by PILS-IC Integrated with a Sample Pre-Concentration System, (C. Perrino et al.), *Aerosol Science and Technology,* **2015***,* 49, 7, p. 521 - 531

Instruments: PILS

Optical and hygroscopic properties of long-range transported haze plumes observed at Deokjeok Island off the west coast of the Korean Peninsula under the Asian continental outflows, (J. Jung et al.), Journal of Geophysical Research: Atmospheres*,* **2015***,* 120, 17, p. 8861 - 8877

Instruments: PILS, Metrohm 850 Professional IC
Analytes: Nitrate, sulfate

Simulating the SOA formation of isoprene from partitioning and aerosol phase reactions in the presence of inorganics, (R. L. Beardsley et al.), *Atmospheric Chemistry and Physics Discussions,* **2015**, 15, p. 33121 - 33159

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Anions, cations

Role of secondary aerosols in haze formation in summer in the Megacity Beijing, (T. Han et al.), *Journal of Environmental Sciences,* **2015,** 31, p. 51 - 60

Instruments: PILS
Analytes: Nitrate, sulfate, ammonium

Formation and evolution of molecular products in α-pinene secondary organic aerosol, (X. Zhang et al.), *PNAS,* **2015***,* 112, 46, p. 14168 - 14173

Instruments: PILS, HPLC-MS

Diurnal Variability in Secondary Organic Aerosol Formation over the Indo- Gangetic Plain during Winter Using On line Measurement of Water-Soluble Organic Carbon, (N. Rastogi et al.), *Aerosol and Air Quality Research*, **2015**, 15, p. 2225 - 2231

Instruments: PILS-TOC
Analytes: WSOC

On the link between hygroscopicity, volatility, and oxidation state of ambient and water-soluble aerosols in the southeastern United States, (K. M. Cerully et al.), *Atmospheric Chemistry and Physics,* **2015,** 15, p. 8679 - 8694

Instruments: PILS
Analytes: Acetate, formate, chloride, nitrite, nitrate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

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Dialkylsulfate formation in sulfuric acid-seeded secondary organic aerosol produced using an outdoor chamber under natural sunlight, (J. Li et al.), *Environmental Chemistry,* **2015***,* 13, 4, p. 590 - 601

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Sulfate, ammonium

Citations 2014

Development of Analytical Methodologies for the Monitoring of the Atmospheric Particulate Matter, (C. Farao), *Thesis, Sapienza Universita di Rome, Italy*, **2014**

Instruments: PILS, Metrohm 761 Compact IC, 831 KF Coulometer,
874 USB Oven Sample Processor

Laboratory Evaluation of a Microfluidic Electrochemical Sensor for Aerosol Oxidative Load, (K. Koehler et al.), *Aerosol Science and Technology*, **2014,** 48, 5, p. 489 - 497

Instruments: PILS
Analytes: Fluoride, reactive oxygen

Wintertime Aerosol Chemistry in Sub-Arctic Urban Air, (S. Carbone et al.), *Aerosol Science and Technology,* **2014,** 48, 3, p. 313 - 323

Instruments: PILS
Analytes: Inorganic ions

Towards understanding amines and their degradation products from postcombustion CO_2 capture processes with aerosol mass spectrometry, (X. Ge et al.), *Environmental Science and Technology,* **2014,** 48, 9, p. 5066 - 5075

Instruments: PILS, Metrohm 881 Compact IC pro, Metrosep A Supp 15 - 250/4.0, Metrosep C 4 - 250/4.0
Analytes: Fluoride, chloride, nitrite, bromide, nitrate, sulfate, phosphate, glycolate, glyoxylate, formate, acetate, methanesulfonate, malate, malonate, oxalate, maleate, lithium, sodium, ammonium, potassium, calcium, magnesium, amines

Investigations of the Particle Compositions of Transported and Local Emissions in Korea, (M. G. Cayetano et al.), *Aerosol and Air Quality Research,* **2014,** 14, p. 793 - 805

Instruments: PILS, Metrohm IC system
Analytes: Chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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CCN activity of aliphatic amine secondary aerosol, (X. Tang et al.), *Atmospheric Chemistry and Physics*, **2014,** 14, p. 5959 - 5967

Instruments: PILS
Analytes: Anions, cations, monomethylamine, dimethylamine, trimethylamine, monobutylamine

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Chemical characterization and source apportionment of submicron aerosol particles with aerosol mass spectrometers, (S. Carbone), *Thesis, Finnish Meteorological Institute, Helsinki, Finland,* **2014**

Instruments: PILS, PILS-TOC
Analytes: Sodium, potassium, calcium, WSOC

Sources and light absorption of water-soluble organic carbon aerosols in the outflow from northern China, (E. N. Kirillova et al.), *Atmospheric Chemistry and Physics,* **2014,** 14, p. 1413 - 1422

Instruments: PILS-UV/VIS

Insights into factors affecting nitrate in $PM_{2.5}$ in a polluted high NO_x environment through hourly observations and size distribution measurements, (J. Xue et al.), *Journal of Geophysical Research: Atmosphere,* **2014,** 119, 8, p. 4888 - 4902

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Factors that influence surface $PM_{2.5}$ values inferred from satellite observations: perspective gained for the US Baltimore–Washington metropolitan area during DISCOVER-AQ, (S. Crumeyrolle et al.), *Atmospheric Chemistry and Physics*, **2014,** 14, p. 2139 - 2153

Instruments: PILS, PILS-TOC
Analytes: Chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Long-range transport of biomass burning emissions based on organic molecular markers and carbonaceous thermal distribution, (M. S. Bae et al.), *Science of the Total Environment,* **2014,** 466-467, p. 56 - 66

Instruments: PILS-TOC / WSOC

Brown carbon in atmospheric outflow from the Indo-Gangetic Plain: Mass absorption efficiency and temporal variability, (B. Srinivas et al.), *Atmospheric Environment,* **2014,** 89, p. 835 - 843

Instruments: PILS-WSOC

Single particle diversity and mixing state measurements, (R. M. Healy et al.), *Atmospheric Chemistry and Physics Discussion,* **2014,** 14, p. 3973 - 4005

Instruments: PILS

Formation and Growth of Secondary Particles under Low Pressure and Low Temperature Conditions and Their Measurement Techniques, (T. Fujimoto et al.), *Earozoru Kenkyu*, **2014,** 29, S1, p. 6 - 17

Instruments: PILS

Research on Secondary Organic Aerosols Basing on Field Measurement, (S. Guo et al.), *Acta Chimica Sinica,* **2014,** 72, p. 145 - 157

Instruments: PILS-WSOC

A method for characterization of low molecular weight organic acids in atmospheric aerosols using ion chromatography mass spectrometry, (L. C. Brent et al.), *Analytical Chemistry,* **2014,** 86, 15, p. 7328 - 7336

Instruments: PILS-IC-MS
Analytes: Organic acids

Proposed chemical mechanisms leading to secondary organic aerosol in the reactions of aliphatic amines with hydroxyl and nitrate radicals, (D. J. Price et al.), *Atmospheric Environment,* **2014,** 96, p. 135 - 144

Instruments: PILS-ToF/MS

Enhancement in Secondary Particulate Matter Production due to Mountain Trapping, (T. Yao et al.), *Atmospheric Research,* **2014,** 147-148, p. 227 - 236

Instruments: PILS, Metrohm 761 Compact IC, 861 Advanced Compact IC, Metrosep A Supp 1 - 250/4.6, Metrosep C 4 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, potassium

Method development for PILS - IC for large volume environmental chamber experiments on amine - based aerosol, (D. Cameron et al.), *Report, Macquarie University, Sydney, AU*, **2014**

Instruments: PILS, Metrohm 850 Professional IC
Analytes: Monothanolamine, piperazine, 2-amino-2-methyl-1-propanol

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Development, enhancement, and evaluation of aircraft measurement techniques for national ambient air quality standard criteria pollutants, (L. C. Brent), *Thesis, University of Maryland, College Park, USA,* **2014**

Instruments: PILS-IC-MS
Analytes: Organic acids

Characteristics of $PM_{2.5}$ Carbonaceous Aerosol using PILS-TOC and GC/MS-TD in Seoul, (D. J. Park et al.), *Journal of the Korean Society for Atmospheric Environment,* **2014,** 30, 5, p. 461 - 476

Instruments: PILS, Metrohm IC System, Metrosep C 4 - 250/4.0
Analytes: Cations

Airborne characterization of smoke marker ratios from prescribed burning, (A. P. Sullivan et al.), *Atmospheric Chemistry and Physics,* **2014,** 14, p. 10535 - 10545

Instruments: PILS-TOC / WSOC

Chemical composition and sources of coastal marine aerosol particles during the 2008 VOCALS-REx campaign, (Y. N. Lee et al.), *Atmospheric Chemistry and Physic*, **2014,** 14, p. 5057 - 5072

Instruments: PILS
Analytes: Methanesulfonate, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Seasonal and diurnal changes in inorganic ions, carbonaceous matter and mass in ambient aerosol particles in an urban, background area, (H. Timonen et al.), *Boreal Environment Research,,* **2014,** 19, Suppl. B, p. 71 - 86

Instruments: PILS

Carbonaceous aerosols in the Western Mediterranean during summertime and their contribution to the aerosol optical properties at ground level, (J. Sciare et al.), *Poster, CNRS - LSCE, GIF/YVETTE, France,* **2014**

Instruments: PILS

Characteristics of Aerosol Optical Properties and Their Chemical Apportionments during CAREBeijing 2006, (T. Han et al.), *Aerosol and Air Quality Research,* **2014,** 14, p. 1431 - 1442

Instruments: PILS
Analytes: Chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Vertical profiles of cloud condensation nuclei, aerosol hygroscopicity, water uptake, and scattering across the United States, (J. J. Lin et al.), *Poster, AGU Fall Meeting,* **2014**

Instruments: PILS, PILS-TOC
Analytes: WSOC

Factors contributing to elevated concentrations of $PM_{2.5}$ during wintertime near Boise, Idaho, (G. Ruchathi Mwaniki et al.), *Atmospheric Pollution Research,* **2014,** 5, p. 96 - 103

Instruments: PILS, Metrohm 761 Compact IC, PILS-TOC
Analytes: Nitrate, sulfate, ammonium, WSOC

Secondary organic aerosol formation and composition from the photooxidation of methyl chavicol (estragole), (K. L. Pereira et al.), *Atmospheric Chemistry and Physics,* **2014,** 14, p. 5349 - 5368

Instruments: PILS offline

Simulation of aromatic SOA formation using the lumping model integrated with explicit gas-phase kinetic mechanisms and aerosol-phase reactions, (Y. Im et al.), *Atmospheric Chemistry and Physics,* **2014,** 14, p. 4013 - 4027

Instruments: PILS
Analytes: Sulfate, ammonium

Identification of Gross Polluting Ships to Promote a Level Playing Field within the Shipping Sector, (J. Mellqvist et al.), *Technical Report, Earth and Space Sciences, Chalmers University of Technology, No. 11*, **2014**

Instruments: PILS
Analytes: Sulfate

Citations 2013

Sources, Composition and Absorption Ångström Exponent of Light-absorbing Organic Components in Aerosol Extracts from the Los Angeles Basin, (X. Zhang et al.), *Environmental Science and Technology,* **2013**, 47, 8, p. 3685 - 3693

Instruments: PILS-TOC
Analytes: WSOC

Characteristics, sources and water-solubility of ambient submicron organic aerosol in springtime in Helsinki, Finland, (H. Timonen et al.), *Journal of Aerosol Science*, **2013**, 56, p. 67 - 77

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

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Chemical Characterisation of fine particles from biomass burning, (K. Saarnio),Thesis, Finnish Meteorological Institute, Helsinki, Finland, **2013**

Instruments: PILS-IC-MS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, levoglucosan

[Online determination of levoglucosan in ambient aerosols with particle-into-liquid sampler – high-performance anion-exchange chromatography – mass spectrometry (PILS–HPAEC–MS)], (K. Saarnio et al.), *Atmospheric Measurement Techniques*, **2013**, 6, p. 2839 - 2849

Instruments: PILS-IC-MS
Analytes: Levoglucosan

[Vesiliukoisten yhdisteiden määrittäminen ilmakehän pienhiukkasista ja kaasuista], (M. Hemmilä), *Thesis, Helsinki University, Finland*, **2013**

Instruments: PILS, Metrohm 761 Compact IC

[Role of sea salt aerosols in the formation of aromatic secondary organic aerosol: yields and hygroscopic properties], (R. Beardsley et al.), *Environmental Chemistry*, **2013**, 10, 3, p. 167 - 177

Instruments: PILS, Metrohm IC system

[Real-Time Study of Particle-Phase Products from α-Pinene Ozonolysis and Isoprene Photooxidation Using Particle into Liquid Sampling Directly Coupled to a Time-of-Flight Mass Spectrometer (PILS-ToF)], (C. H. Clark et al.), *Aerosol Science and Technology*, **2013**, 41, 12, p. 1374 - 1382

Instruments: PILS-ToF/MS
Analytes: Nitrite, nitrate, sulfate, ammonium, potassium, calcium

Role of atmospheric ammonia in particulate matter formation in Houston during summertime, (L. Gong et al.), *Atmospheric Environment,* **2013**, 77, p. 893 - 900

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Airborne observations of aerosol extinction by in situ and remote-sensing techniques: Evaluation of particle hygroscopicity, (L. D. Zeimba et al.), *Geophysical Research Letters*, **2013**, 41, 2, p. 417 - 422

Instruments: PILS-TOC
Analytes: WSOC

NO_3 radical, OH radical and O_3-initiated secondary aerosol formation from aliphatic amines, (X. Tang et al.), *Atmospheric Environment,* **2013,** 72, p. 105 - 112

Instruments: PILS
Analytes: Ammonium, momomethylamine, dimethylamine, trimethylamine, monoethylamine, diethylamine, triethylamine, triethylamine-N-oxide

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Observations of atmospheric reactive nitrogen species in Rocky Mountain National Park and across northern Colorado, (K. B. Benedict et al.), *Atmospheric Environment,* **2013,** 64, p. 66 - 76

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

[Quantitative determination of carbonaceous particle mixing state in Paris using single-particle mass spectrometer and aerosol mass spectrometer measurements], (R. M. Healy et al.), *Atmospheric Chemistry and Physics*, **2013**, 13, p. 9479 - 9496

Instruments: PILS
Analytes: Sodium, potassium

[Size-resolved measurements of brown carbon in water and methanol extracts and estimates of their contribution to ambient fine-particle light absorption], (J. Liu et al.), *Atmospheric Chemistry and Physics*, **2013,** 13, p. 12389 - 12404

Instruments: PILS-TOC
Analytes: WSOC

[Evidence of aqueous secondary organic aerosol formation from biogenic emissions in the North American Sonoran Desert], (J. S. Youn et al.), *Geophysical Research Letters*, **2013,** 40, 13, p. 3468 - 3472

Instruments: PILS-TOC
Analytes: WSOC

[Development and testing of an online method to measure ambient fine particulate reactive oxygen species (ROS) based on the 2' ,7'-dichlorofluorescin (DCFH) assay], (L. E: King et al.), *Atmospheric Measurement Techniques*, **2013**, 6, p. 1647 - 1658

Instruments: PILS-IC, PILS-ROS
Analytes: Sulfate, reactive oxygen

[Estimating the toxicity of ambient fine aerosols using freshwater rotifer Brachionus calyciflorus (Rotifera: Monogononta)](), ** (V. Verma et al.), *Environmental Pollution,* **2013, 182, p. 379 - 384

Instruments: PILS

Wintertime aerosol chemical composition and source apportionment of the organic fraction in the metropolitan area of Paris, (M. Crippa et al.), *Atmospheric Chemistry and Physics*, **2013**, 13, p. 961 - 981

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Identification of marine and continental aerosol sources in Paris using high resolution aerosol mass spectrometry, (M. Crippa et al.), *Journal of Geophysical Research: Atmospheres,* **2013,** 118, 4, p. 1950 - 1963

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Citations 2012

Secondary Organic Aerosol Formation from Photooxidation of a Mixture of Dimethyl Sulfide and Isoprene, (T. Chen et al.), *Atmospheric Environment,* **2012***,* 46, p. 271 - 278

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Methanesulfonate, sulfate

Aerosol Acidity Measurement Using Colorimetry Coupled With a Reflectance UV-Visible Spectrometer, (J. Li et al.), *Aerosol Science and Technology*, **2012,** 46, 8, p. 833 - 842

Instruments: PILS, Metrohm 761 Compact IC

Aerosol optical properties at Pasadena, CA during CalNex 2010, (J. E. Thompson et al.), *Atmospheric Environment,* **2012,** 55, p. 190 - 200

Instruments: PILS

Chamber simulation of photooxidation of dimethyl sulfide and isoprene in the presence of NO_x, (T. Chen et al.), *Atmospheric Chemistry and Physics Discussions*, **2012,** 12, p. 14669 - 14695

Instruments: PILS, Metrohm 761 Compact IC

Evaluation of Composition-Dependent Collection Efficiencies for the Aerodyne Aerosol Mass Spectrometer using Field Data, (A. M. Middlebrook et al.), *Aerosol Science and Technology,* **2012**, 46, 3, p. 258 - 271

Instruments: PILS

Laboratory evaluation of a microfluidic electrochemical sensor for aerosol oxidative load, (J. Shapiro), *Thesis, Colorado State University, Fort Collins, USA*, **2012**

Instruments: PILS,PILS-VA
Analytes: Fluoride, dithiothreitol

Evidence of formation of submicrometer water-soluble organic aerosols at a deciduous forest site in northern Japan in summer, (Y. Miyazaki et al.), *Journal of Geophysical Research: Atmospheres,* **2012,** 117, D19

Instruments: PILS, Metrohm 761 Compact IC, PILS-TOC
Analytes: Sulfate

A review of methods for long term in situ characterization of aerosol dust, (S. Rodriguez et al.), *Aeolian Research,* **2012,** 6, p. 55 - 74

Instruments: PILS, MARGA

Microfluidic Electrochemical Sensor for On-Line Monitoring of Aerosol Oxidative Activity, (Y. Sameenoi et al.), *Journal of the American Chemical Society*, **2012**, 134, 25, p. 10562 - 10568

Instruments: PILS
Analytes: Oxidative activity

Determination of the biogenic secondary organic aerosol fraction in the boreal forest by NMR spectroscopy, (E. Finessi et al.), *Atmospheric Chemistry and Physics*, **2012,** 12, p. 941 - 959

Instruments: PILS
Analytes: Anions, cations

Development of methods for assessing oxidative stress caused by atmospheric aerosols, (Y. Sameenoi), *Thesis, Colorado State University Fort Collins, USA,* **2012**

Instruments: PILS, Metrohm 861 Advanced Compact IC, 881 Compact IC pro, Metrosep A Supp 7 - 250/4.0
Analytes: Fluoride

Determination of anions, cations and heavy metals in ambient air by ion chromatography-voltammetry, (H. Sun et al.), *Zhongguo Wuji Fenxi Huaxue,* **2012**, 2, 3, p. 24 - 27

Instruments: PILS-IC-VA, Metrohm 850 Professional IC, 797 VA Computrace, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 150/4.0,
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, zinc, lead, cadmium, copper

A year-long back trajectory analysis of sources of reactive nitrogen measured continuously in the Rocky Mountains, (K. A. Gebhart et al.), *Air and Waste Management Association Annual Conference and Exhibition, 104th, Orlando, FL, USA,* **2012**

Instruments: PILS
Analytes: Nitrate, sulfate, ammonium

Investigation of a New Microchip Electrophoresis Instrument for Semi-Continuous Aerosol Composition Measurements, (A. R. Evanoski-Cole), *Thesis, Colorado State University, Fort Collins, USA*, **2012**

Instruments: PILS

On the gas-particle partitioning of soluble organic aerosol in two urban atmospheres with contrasting emissions: 2. Gas and particle phase formic acid, (J. Liu et al.), *Journal of Geophysical Research,* **2012,** 117, D21

Instruments: PILS-TOC
Analytes: WSOC

On the gas-particle partitioning of soluble organic aerosol in two urban atmospheres with contrasting emissions: 1. Bulk water-soluble organic carbon, (X. Zhang et al.), *Journal of Geophysical Research,* **2012,** 117, D21

Instruments: PILS-TOC
Analytes: WSOC

Spatial and seasonal variations of fine particle water-soluble organic carbon (WSOC) over the southeastern United States: implications for secondary organic aerosol formation, (X. Zhang et al.), *Atmospheric Chemistry and Physics,* **2012***,* 12, p. 6593 - 6607

Instruments: PILS-TOC
Analytes: WSOC

Aerosol hygroscopicity and its impact on atmospheric visibility and radiative forcing in Guangzhou during the 2006 PRIDE-PRD campaign, (Y. Liu et al.), *Atmospheric Environment*, **2012,** 60, p. 59 - 67

Instruments: PILS
Analytes: Chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Application of profluorescent nitroxides for measurements of oxidative capacity of combustion generated particles, (S. Stevanovic), *Chemical Industry & Chemical Engineering Quarterly,* **2012,** 18, 4, p. 653 - 659

Instruments: PILS
Analytes: Reactive oxygen

Development and Use of Particle into Liquid Sampling Time-of-Flight Mass Spectrometry (PILS-ToF) for Characterization of Aerosol Particles, (C. H. Clark), *Thesis, University of California Riverside, USA,* **2012**

Instruments: PILS-ToF
Analytes: MS

Aerosol and gas re-distribution by shallow cumulus clouds: An investigation using airborne measurements, (A. Wonaschuetz et al.), *Journal of Geophysical Research,* **2012**, 117, D17

Instruments: PILS-TOC
Analytes: WSOC

The characteristics and origins of carbonaceous aerosol at a rural site of PRD in summer of 2006, (W. W. Hu), *Atmospheric Chemistry and Physics,* **2012,** 12, p. 1811 - 1822

Instruments: PILS-TOC
Analytes: WSOC

Citations 2011

Identification of chemistry-dependent artifacts on gravimetric PM fine readings at the T1 site during the MILAGRO field campaign, (M. Moya et al.), *Atmospheric Environment,* **2011**, 45, 1, p. 244 - 252

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Laboratory and Field Testing of an Automated Atmospheric Particle-Bound Reactive Oxygen Species Sampling-Analysis System, (Y. Wang et al.), *Journal of Toxicology*, **2011,** 2011, 419476

Instruments: PILS
Analytes: Reactive oxygen

Using highly time resolved fine particulate compositions to find particle sources in St. Louis, MO, (G. Wang), *Atmospheric Pollution Research,* **2011,** 2, 2, p. 219 - 230

Instruments: PILS
Analytes: Nitrate, sulfate

Case Study of Water-Soluble Metal Containing Organic Constituents of Biomass Burning Aerosol, (A. L. Chang-Graham), *Environmental Science and Technology,* **2011**, 45, 4, p. 1257 - 1263

Instruments: PILS-MS

Strategy for the meteorological and environmental airborne observations over the Korean Peninsula, (C. Lee et al.), *Asia-Pacific Journal of Atmospheric Sciences,* **2011**, 47, 1, p. 91 - 96

Instruments: PILS

Molecular chemistry of organic aerosols through the application of high resolution mass spectrometry, (S. A. Nizkorodov), *Physical Chemistry Chemical Physics*, **2011,** 13, 9, p. 3612 - 3629

Instruments: PILS-MS

The Pasadena Aerosol Characterization Observatory (PACO): chemical and physical analysis of the Western Los Angeles Basin aerosol, (S. P. Hersey et al.), *Atmospheric Chemistry and Physics Discussion,* **2011,** 11, p. 5867 - 5933

Instruments: PILS

The 2005 Study of Organic Aerosols at Riverside (SOAR-1): instrumental intercomparisons and fine particle composition, (K. S. Docherty et al.), *Atmospheric Chemistry and Physics Discussion,* **2011,** 11, p. 6301 - 6362

Instruments: PILS

An overview of measurement comparisons from the INTEX-B/MILAGRO airborne field campaign, (M. M. Kleb et al.), *Journal of Aerosol Science,* **2011**, 42, 9, p. 615 - 620

Instruments: PILS
Analytes: Sulfate

Enhanced sulfate formation on ozone-exposed soot, (D. Orrling et al.), *Atmospheric Environment*, **2011,** 60, p. 59 - 67

Instruments: PILS
Analytes: Chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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A study of acidity on $PM_{2.5}$ in Hong Kong using online ionic chemical composition measurements, (J. Xue et al.), *Atmospheric Environment,* **2011,** 45, 39, p. 7081 - 7088

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium

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Monitoring of inorganic ions, carbonaceous matter and mass in ambient aerosol particles with online and offline methods, (H. Timonen et al.), *Atmospheric Measurement Techniques Discussions,* **2011**, 4, p. 6577 - 6614

Instruments: PILS
Analytes: Methanesulfonate, chloride, nitrate, sulfate, oxalate, sodium, ammonium, potassium

Chemical characterization of urban background aerosol using online and filter methods, (H. Timonen), *Thesis, Finnish Meteorological Institute, Helsinki, Finland,* **2011**

Instruments: PILS-TOC
Analytes: WSOC

Observed chemical characteristics of longrange transported particles at a marine background site in Korea, (M. G. Cayetano), *Journal of the Air & Waste Management Association*, **2011,** 61, 11, p. 1192 - 1203

Instruments: PILS, Metrohm 850 Professional IC
Analytes: Fluoride, chloride, nitrate, sulfate, lithium sodium, ammonium, potassium, calcium, magnesium

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Photolytic processing of secondary organic aerosols dissolved in cloud droplets, (A. P. Bateman et al.), *Physical Chemistry Chemical Physics,* **2011,** 13, 26, p. 12199 - 12212

Instruments: PILS

Water – soluble organic aerosol in the Los Angeles Basin and outflow regions: Airborne and ground measurements during the 2010 CalNex field campaign, (H. T. Duong et al.), *Journal of Geophysical Research,* **2011,** 116, D21

Instruments: PILS-TOC
Analytes: WSOC

Filterable water-soluble organic nitrogen in fine particles over the southeastern USA during summer, (N. Rastogi et al.), *Atmospheric Environment*, **2011**, 43, 33, p. 6040 - 6047

Instruments: PILS

An Aerosol Chemical Speciation Monitor (ACSM) for Routine Monitoring of the Composition and Mass Concentrations of Ambient Aerosol, (N. L. Ng et al.), *Aerosol Science and Technology*, **2011,** 45, 7, p. 780 - 794

Instruments: PILS

Time-Resolved Measurements of $PM_{2.5}$ Carbonaceous Aerosols at Gosan, Korea, (T. Batmunkh et al.), *Journal of the Air & Waste Management Association*, **2011,** 61, 11, p. 1174 - 1182

Instruments: PILS-TOC
Analytes: WSOC

Ganges Valley Aerosol Experiment, (V. R. Kotamarthi et al.), *EM Magazine*, **2011**, August, p. 20 - 26

Instruments: PILS-TOC
Analytes: WSOC

Large contribution of water – insoluble secondary organic aerosols in the region of Paris (France) during wintertime, (J. Sciare et al.), *Journal of Geophysical Research,* **2011**, 116, D22

Instruments: PILS-TOC
Analytes: WSOC

Airborne instruments to measure atmospheric aerosol particles, clouds and radiation: A cook's tour of mature and emerging technology, (D. Baumgardner et al.), *Atmospheric Research,* **2011,** 102, p. 10 - 29

Instruments: PILS

Novel Approaches to the Sampling of Atmospheric Aerosols and Determination of Chemical Composition, (E. Parshintsev), *Thesis, University of Helsinki, Finland,* **2011**

Instruments: PILS-TOC
Analytes: WSOC

Characterization of the sources and processes of organic and inorganic aerosols in New York City with a high-resolution time-of-flight aerosol mass spectrometer, (Y. L. Sun et al.), *Atmospheric Chemistry and Physics,* **2011,** 11, p. 1581 - 1602

Instruments: PILS, Metrohm 761 Compact IC, Metrosep A Supp 5 - 250/4.0, Metrosep C 4
Analytes: Anions, cations

Airborne cloud condensation nuclei measurements during the 2006 Texas Air Quality Study, (A. Asa-Awuku et al.), *Journal of Geophysical Research,* **2011**, 116, D11

Instruments: PILS-TOC
Analytes: WSOC

Characterization and source apportionment of submicron aerosol with aerosol mass spectrometer during the PRIDE-PRD 2006 campaign, (R. Xiao et al.), *Atmospheric Chemistry and Physics*, **2011,** 11, p. 6911 - 6929

Instruments: PILS-TOC
Analytes: WSOC

Assessing regional scale predictions of aerosols, marine stratocumulus, and their interactions during VOCALS-REx using WRF-Chem, (Q. Yang et al.), *Atmospheric Chemistry and Physics,* **2011,** 11, p. 11951 - 11975

Instruments: PILS
Analytes: Chloride, sodium

Understanding the sources and atmospheric processes of soluble iron in aerosols using a synergistic measurement approach, (M. M. Oakes), *Thesis, Georgia Institute of Technology, Atlanta, USA,* **2011**

Instruments: PILS-UV/VIS
Analytes: Iron(II)

Citations 2010

Solid-phase extraction of organic compounds in atmospheric aerosol particles collected with the particle-into-liquid sampler and analysis by liquid chromatography–mass spectrometry, (J. Parshintsev et al.), *Talanta,* **2010,** 80, 3, p. 1170 - 1176

Instruments: PILS, LC-MS

Performance of an Aerodyne Aerosol Mass Spectrometer (AMS) during Intensive Campaigns in China in the Summer of 2006, (N. Takegawa et al.), *Environmental Pollution*, **2010,** 158, 3, p. 862 - 872

Instruments: PILS, Metrohm 850 Professional IC
Analytes: Nitrate, sulfate

High time-resolution chemical characterization of the water-soluble fraction of ambient aerosols with PILS-TOC-IC and AMS, (H. Timonen et al.), *Atmospheric Measurement Techniques Discussions,* **2010,** 3, 4, p. 1775 - 1805

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Investigating water soluble organic aerosols: sources and evolution, (A. N. Hecibian), *Thesis, Georgia Institute of Technology, Atlanta, USA,* **2010**

Instruments: PILS, Metrohm IC system, PILS-TOC
Analytes: Sulfate

Particle-into-liquid sampler on-line coupled with solid-phase extraction-liquid chromatography–mass spectrometry for the determination of organic acids in atmospheric aerosols, (J. Parshintsev et al.), *Journal of Chromatography, A,* **2010**, 1217, 33, p. 5427 - 5433

Instruments: PILS-IC-MS
Analytes: Organic acids

Reactive intermediates revealed in secondary organic aerosol formation from isoprene, (J. D. Surratt et al.), *PNAS*, **2010,** 107, 15, p. 6640 - 6645

Instruments: PILS

Source Apportionment of Sulfur and Nitrogen Species at Rocky Mountain National Park using Modeled Conservative Tracer Releases and Tracers of Opportunity, (W. C. Malm et al.), *29th Conference on Agricultural and Forest Meteorology, Paper #33,* **2010**

Instruments: PILS
Analytes: Chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Chemical Composition of Gas- and Aerosol-Phase Products from the Photooxidation of Naphthalene, (K. E. Kautzman et al.), *Journal of Physical Chemistry,* **2010**, 114, 2, p. 913 - 934

Instruments: PILS

[Water-Soluble Organic Aerosol material and the light-absorption characteristics of aqueous extracts measured over the Southeastern United States](#), ** (A. Hecobian et al.), *Atmospheric Chemistry and Physics,* **2010, 10, p. 5965 - 5977

Instruments: PILS-TOC
Analytes: WSOC

A closure study of aerosol hygroscopic growth factor during the 2006 Pearl River Delta Campaign, (X. Liu et al.), *Advances in Atmospheric Sciences*, **2010,** 27, 4, p. 947 - 956

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Chemical composition of fine particles in fresh smoke plumes from boreal wild-land fires in Europe, (K. Saarnio et al.), *Science of the Total Environment,* **2010,** 408, 12, p. 2527 - 2542

Instruments: PILS

An overview of the MILAGRO 2006 campaign: Mexico City emissions and their transport and transformation, (L. T. Molina et al.), *Atmospheric Chemistry and Physics Discussions,* **2010,** 10, p. 7819 - 7883

Instruments: PILS, PILS-TOC
Analytes: Chloride, nitrate, sulfate, WSOC

[Compositional and mixing state impacts on CCN concentrations in an heterogeneous urban environment](), (R.H. Moore et al.), *12th Conference on Atmospheric Chemistry,* **2010**

Instruments: PILS

Phenol Groups in Northeastern U.S. Submicrometer Aerosol Particles Produced from Seawater Sources, (R. Bahadur et al.), *Environmental Science and Technology*, **2010,** 44, 7, p. 2542 - 2548

Instruments: PILS

Comparison of SOC estimates and uncertainties from aerosol chemical composition and gas phase data in Atlanta, (J. E. Pachon et al.), *Atmospheric Environment,* **2010,** 44, 32, p. 3907 - 3914

Instruments: PILS-TOC

Analysis of the Chemical Composition of Atmospheric Organic Aerosols by Mass Spectrometry, (J. D. Surrat), *Thesis, Caltech, Pasadena, USA,* **2010**

Instruments: PILS
Analytes: Sulfate, ammonium

Real-time Atmospheric Chemistry Field Instrumentation, (D. K. Farmer et al.), *Atmospheric Chemistry,* **2010,** 82, p. 7879 - 7884

Instruments: PILS

Cloud albedo increase from carbonaceous aerosol, (W. R. Leaitch et al.), *Atmospheric Chemistry and Physics*, **2010,** 10, p. 7669 - 7684

Instruments: PILS
Analytes: Anions, cations

Brown carbon and water-soluble organic aerosols over the southeastern United States, (A. Hecobian et al.), *Atmospheric Chemistry and Physics Discussions,* **2010,** 10, p. 7601 - 7639

Instruments: PILS-TOC
Analytes: WSOC

Evaluation of the WRF-Chem "Aerosol Chemical to Aerosol Optical Properties" Module using data from the MILAGRO campaign, (J. C. Barnard et al.), *Atmospheric Chemistry and Physics,* **2010,** 10, p. 7325 - 7340

Instruments: PILS
Analytes: Chloride, nitrite, nitrate, sulfate, sodium, potassium, calcium, magnesium

Recent Developments in Aerosol Measurement Techniques and the Metrological Issues, (S. G. Aggarwal), *Journal of Metrology Society of India,* **2010,** 25, 3, p. 165 - 189

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Anions, cations

Characterization of the sources and processes of organic and inorganic aerosols in New York City with a high-resolution time-of-flight aerosol mass spectrometer, (Y. L. Sun et al.), *Atmospheric Chemistry and Physics Discussions*, **2010,** 10, p. 22669 - 22723

Instruments: PILS, Metrohm 761 Compact IC, Metrosep A Supp 5 - 250/4.0, Metrosep C 4
Analytes: Anions, cations

Ground-Based Observing Systems for Atmospheric Aerosol Chemistry and Composition, (S. Decesari), *Integrated Ground-based Observing Systems,* **2010,** Part 2, p. 175 - 187

Instruments: PILS

Ocean Emission Effects on Aerosol-Cloud Interactions: Insights from Two Case Studies, (A. Sorooshian et al.), *Advances in Meteorology,* **2010,** 2010, 3013

Instruments: PILS

High-Resolution Electrospray Ionization Mass Spectrometry Analysis of Water-Soluble Organic Aerosols Collected with a Particle into Liquid Sampler, (A. P. Bateman et al.), *Analytical Chemistry,* **2010,** 82, p. 8010 - 8216

Instruments: PILS-TOC
Analytes: WSOC

Characterization of soluble iron in urban aerosols using near-real time data, (M. Oakes et al.), *Journal of Geophysical Research*, **2010,** 115, D15

Instruments: PILS-IC, PILS-UV/VIS
Analytes: Chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, iron(II)

Application report: Determination of heavy metals in fine dust, *Metrohm INFO,* **2010,** 2, p. 24 - 27

Instruments: PILS-VA
Analytes: Lead, Cadmium, copper

Constraining the contribution of organic acids and AMS m/z 44 to the organic aerosol budget: On the importance of meteorology, aerosol hygroscopicity, and region, (A. Sorooshian et al.), *Geophysical Research Letters,* **2010,** 37, L21

Instruments: PILS
Analytes: Acetate, formate, pyruvate, glyoxylate, maleate, malate, methanesulfonate

Deposition of reactive nitrogen during the Rocky Mountain Airborne Nitrogen and Sulfur (RoMANS) study, (K. B. Beem et al.), *Environmental Pollution,* **2010,** 158, p. 862 - 872

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Towards Abatement of Selected Emissions from Metals Manufacturing, (D. Orrling), *Thesis, Royal Institute of Technology, Stockholm SE*, **2010**

Instruments: PILS, Metrosep A Supp 5 - 100/4.0
Analytes: Sulfate

New Technique for Online Measurement of Water-Soluble Fe(II) in Atmospheric Aerosols, (N. Rastogi et al.), *Environmental Science and Technology,* **2009,** 43, 7, p. 2425 - 2430

Instruments: PILS
Analytes: Iron(II)

Organic nitrate and secondary organic aerosol yield from NO_3 oxidation of beta-pinene evaluated using a gas-phase kinetics/aerosol partitioning model, (J. L. Fry et al.), *Atmospheric Chemistry and Physics*, **2009,** 9, p. 1431 - 1449

Instruments: PILS
Analytes: Nitrate

Nocturnal isoprene oxidation over the Northeast United States in summer and its impact on reactive nitrogen partitioning and secondary organic aerosol, (S. S. Brown et al.), *Atmospheric Chemistry and Physics Discussions,* **2009,** 9, p. 225 - 269

Instruments: PILS-TOC
Analytes: WSOC

Thermodynamic characterization of Mexico City aerosol during MILAGRO 2006, (C. Fountoukis et al.), *Atmospheric Chemistry and Physics,* **2009,** 9, p. 2141 - 2156

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, calcium, magnesium

Gas/particle partitioning of water-soluble organic aerosol in Atlanta, (C. J. Hennigan et al.), Atmospheric Chemistry and Physics Discussions, **2009**, 9, p. 635 - 671

Instruments: PILS-TOC
Analytes: WSOC

Aerosol hygroscopicity in the marine atmosphere: a closure study using high-time resolution, multiple-RH DASH-SP and size-resolved C-ToF-AMS data, (S. P. Hersey et al.), *Atmospheric Chemistry and Physics*, **2009,** 9, p. 2543 - 2554

Instruments: PILS

Anthropogenic aerosols observed in Asian continental outflow at Jeju Island, Korea, in spring 2005, (L. K. Sahu et al.), *Journal of Geophysical Research,* **2009,** 114, D3

Instruments: PILS, PILS-TOC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Closure on the single scattering albedo in the WRF-Chem framework using data from the MILAGRO campaign, (J. C. Barnard et al.), *Atmospheric Chemistry and Physics Discussions,* **2009**, 9, p. 5009 - 5054

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Comprehensive Simultaneous Shipboard and Airborne Characterization of Exhaust from a Modern Container Ship at Sea, (S. M. Murphy et al.), *Environmental Science and Technology,* **2009,** 43, 13, p. 4626 - 4640

Instruments: PILS
Analytes: Sulfate, oxalate

Analysis of organic compounds in ambient aerosols collected with the particle-into-liquid-sampler, (J. Parshintsev et al.), *Boreal Environment Research*, **2009,** 14, p. 630 - 640

Instruments: PILS, LC-MS

Searching for evidence of acid-catalyzed enhancement of secondary organic aerosol formation using ambient aerosol data, (R. L. Tanner et al.), *Atmospheric Environment,* **2009,** 43, 21, p. 3440 - 3444

Instruments: PILS

Underestimation of sulfate concentration in $PM_{2.5}$ using a semi-continuous particle instrument based on ion chromatography, (X. Yao et al.), *Journal of Environmental Monitoring,* **2009,** 11, p. 1292 - 1297

Instruments: PILS
Analytes: Sulfate

On the Link Between Ocean Biota Emissions, Aerosol, and Maritime Clouds: Airborne, Ground, and Satellite Measurements off the Coast of California, (A. Sorooshian et al.), Global Biogeochemical Cycles, **2009**, 23, GB40

Instruments: PILS
Analytes: Inorganic ion, organic acids, amines

Chemical characterization of water-soluble organic carbon aerosols at a rural site in the Pearl River Delta, China, in the summer of 2006, (Y. Miyazaki et al.), *Journal of Geophysical Research*, **2009,** 114, D14

Instruments: PILS-TOC
Analytes: WSOC

Investigation of ship-plume chemistry using a newly-developed photochemical ship-plume model, (H. S. Kim et al.), *Atmospheric Chemistry and Physics Discussions*, **2009,** 9, p. 11699 - 11751

Instruments: PILS
Analytes: Nitrate, sulfate

Investigation of ship-plume chemistry using a newly-developed photochemical ship-plume model, (H. S. Kim et al.), *Atmospheric Chemistry and Physics*, **2009**, 9, p. 7531 - 7550

Instruments: PILS
Analytes: Nitrate, sulfate

Oxygenated fraction and mass of organic aerosol from direct emission and atmospheric processing measured on the R/V Ronald Brown during TEXAQS/GoMACCS 2006, (L. M. Russell et al.), *Journal of Geophysical Research*, **2009,** 114, D7

Instruments: PILS-TOC
Analytes: WSOC

Aging of black carbon in outflow from anthropogenic sources using a mixing state resolved model: Model development and evaluation, (N. Oshima et al.), *Journal of Geophysical Research,* **2009,** 114, D6

Instruments: PILS, PILS-TOC
Analytes: Inorganic ions, WSOC

Vyskyt, Zdroje a Stanoveni Kovu v Ovzdusi, (M. Vojtesek et al.), Chemicke Listy, **2009,** 103, p. 136 - 144

Instruments: PILS
Analytes: Sodium, potassium, calcium

The formation, properties and impact of secondary organic aerosol: current and emerging issues, (M. Hallquist et al.), *Atmospheric Chemistry and Physics,* **2009,** 9, p. 5155 - 5236

Instruments: PILS, PILS-TOC
Analytes: Inorganic ions, WSOC

Using High Time Resolution Aerosol and Number Size Distribution Measurements to Estimate Atmospheric Extinction, (W. C. Malm et al.), Journal of the Air & Waste Management Association, **2009**, 59, 9, p. 1049 - 1060

Instruments: PILS
Analytes: Chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Aerosol composition of the tropical upper troposphere, (K. D. Froyd et al.), *Atmospheric Chemistry and Physics Discussions*, **2009,** 9, p. 4363 - 4385

Instruments: PILS
Analytes: Sulfate, ammonium

Aqueous-phase reactive uptake of dicarbonyls as a source of organic aerosol over eastern North America, (T. M. Fu et al.), *Atmospheric Environment,* **2009,** 43, 10, p. 1814 - 1822

Instruments: PILS

Estimation of Source Apportionment for Semi-Continuous $PM_{2.5}$ and Identification of Location for Local Point Sources at the St. Louis Supersite, USA, (I. J. Hwang), *Journal of Korean Society for Atmospheric Environment,* **2009**, 25, 2, p. 154 - 166

Instruments: PILS

Representing droplet size distribution and cloud processes in aerosol-cloud-climate interaction studies, (W. C. Hsieh), *Thesis, Georgia Institute of Technology, Atlanta, USA,* **2009**

Instruments: PILS

Modelling research on the aerosol scattering hygroscopic growth factor based on measurement--Taking 2006 CARE Beijing campaign for example, (X. G. Kiu et al.), *China Environmental Science,* **2009,** 29, 12, p. 1243 - 1248

Instruments: PILS

Mise en place d'une mesure rapide de la composition chimique de l'aérosol en zone urbaine : étude en mégapoles, (O. d'Argouges et al.), *Thesis, Universite de Paris VII - Denis Diderot, Paris, France,* **2009**

Instruments: PILS

Performance of an Aerodyne Aerosol Mass Spectrometer (AMS) during Intensive Campaigns in China in the Summer of 2006, (N. Takegawa et al.), *Aerosol Science and Technology,* **2009,** 43, 3, p. 189 - 204

Instruments: PILS

Continuous observations of water-soluble ions in $PM_{2.5}$ at Mount Tai (1534 m a.s.l.) in central-eastern China, (Y. Zhou et al.), *Journal of Atmospheric Chemistry*, **2009**, 64, p. 107 - 127

Instruments: PILS
Analytes: Fluoride, chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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A review of advancements in particulate matter sampling and analysis and its application to identifying source impacts at receptor locations, (P. A. Solomon et al.), *Air Quality and Climate Change*, **2009,** 43, 4, p. 35 - 42

Instruments: PILS

Deciphering the Role of Radical Precursors during the Second Texas Air Quality Study, (E. P. Olaguer et al.), *Journal of the Air & Waste Management Association*, **2009,** 59, 11, p. 1258 - 1277

Instruments: PILS-TOC
Analytes: WSOC

Analysis of the Chemical Composition of Atmospheric and Chamber Generated Aerosol Using Mass Spectrometry, (S. Murphy), *Thesis, California Institute of Technology Pasadena, California, USA,* **2009**

Instruments: PILS
Analytes: Acetate, formate, chloride, nitrate, sulfate, oxalate, methacrylate, pyruvate, sodium, ammonium, potassium, calcium, magnesium

Investigation of ship-plume chemistry using a newly-developed photochemical/dynamic ship-plume model, (H. S. Kim), *Atmospheric Chemistry and Physics,* **2009,** 9, p. 7531 - 7550

Instruments: PILS

Emission and chemistry of organic carbon in the gas and aerosol phase at a sub-urban site near Mexico City in March 2006 during the MILAGRO study, (J. A. de Gouw et al.), *Atmospheric Chemistry and Physics,* **2009,** 9, p. 3425 - 3442

Instruments: PILS-TOC
Analytes: WSOC

Citations 2008

An automated and semi-continuous method for the analysis of water-soluble constituents in $PM_{2.5}$, (B. K. Lee et al.), *Science of the Total Environment,* **2008,** 393, 1, p. 145 - 153

Instruments: PILS
Analytes: Anions, cations

New Directions: Future needs for global monitoring and research of aerosol chemical composition, (W. Maenhaut), *Atmospheric Environment,* **2008,** 42, p. 1070 - 1072

Instruments: PILS-TOC
Analytes: WSOC

Advances in integrated and continuous measurements for particle mass and chemical composition, (J. C. Chow et al.), *Journal of the Air & Waste Management Association,* **2008,** 58, 2, p. 141 - 163

Instruments: PILS

Aerosol Composition and Hygroscopicity Studies: Instrument Development/Characterization, Ambient and Laboratory Measurements, and Modeling, (A. Sorooshian et al.), *Thesis, California Institute of Technology, Pasadena, California, USA,* **2008**

Instruments: PILS
Analytes: Chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Comprehensive airborne characterization of aerosol from a major bovine source, (A. Sorooshian et al.), *Atmospheric Chemistry and Physics Discussions,* **2008,** 8, p. 10415 - 10479

Instruments: PILS
Analytes: Monoethylamine, diethylamine

On the volatility and production mechanisms of newly formed nitrate and water soluble organic aerosol in Mexico City, (C.J. Hennigan), *Atmospheric Chemistry and Physics,* **2008,** 8, p. 3761 - 3768

Instruments: PILS-IC, PILS-TOC, Metrohm IC system
Analytes: Nitrate, sulfate, WSOC

Secondary organic aerosol (SOA) formation from reaction of isoprene with nitrate radicals (NO_3), (N.L. Ng et al.), *Atmospheric Chemistry and Physics Discussions,* **2008,** 8. p. 3163 - 3226

Instruments: PILS
Analytes: Nitrate

Observations of fine and coarse particle nitrate at several rural locations in the United States, (T. Lee et al.), *Atmospheric Environment,* **2008,** 42, 11, p. 2720 - 2732

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Analysis of aircraft and satellite measurements from the Intercontinental Chemical Transport Experiment (INTEX-B) to quantify long-range transport of East Asian sulfur to Canada, (A. van Donkelaar et al.), *Atmospheric Chemistry and Physics,* **2008,** 8, p. 2999 - 3014

Instruments: PILS
Analytes: Sulfate

Semi-continuous measurement of $PM_{2.5}$ ionic composition at several rural locations in the United States, (T. Lee et al.), *Atmospheric Environment*, **2008**, 42, 27, p. 6655 - 6669

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Aerosol inorganic composition at a tropical site: discrepancies between filter-based sampling and a semicontinuous method, (I. Trebs et al.), *Aerosol Science and Technology,* **2008,** 42, 4, p. 255 - 269

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, ammonium

Investigating the sources and atmospheric processing of fine particles from Asia and the Northwestern United States measured during INTEX B, (R. E. Peltier et al.), *Atmospheric Chemistry and Physics,* **2008**, 8, p. 1835 - 1853

Instruments: PILS, Metrohm 761 Compact IC, Metrosep Dual 4 - 25/4.6, Metrosep Cation 1-2
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Characterization of the South Atlantic marine boundary layer aerosol using an Aerodyne Aerosol Mass Spectrometer, (S. R. Zorn et al.), *Atmospheric Chemistry and Physics Discussions,* **2008,** 8, p. 4831 - 4876

Instruments: PILS
Analytes: Sulfate

Characteristics of the transport and vertical structure of aerosols during ABC-EAREX2005, (I. J. Choi), *Atmospheric Environment,* **2008,** 42, p. 8513 - 8523

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Apportionment of Primary and Secondary Organic Aerosols in Southern California during the 2005 Study of Organic Aerosols in Riverside (SOAR-1), (K. S. Docherty et al.), *Environmental Science and Technology,* **2008,** 42, p. 7655 - 7662

Instruments: PILS-TOC
Analytes: WSOC

Chemical Composition Fluctuations in the Gaseous and Particulate Phases of Urban Aerosols, (K. J. Godri), *Thesis, University of Toronto, Canada,* **2008**

Instruments: PILS

Evolution of Asian aerosols during transpacific transport in INTEX-B, (E. J. Dunlea et al.), *Atmospheric Chemistry and Physics Discussions,* **2008,** 8, p. 15375 - 15461

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, ammonium, potassium, magnesium

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Boundary layer aerosol chemistry during TexAQS/GoMACCS 2006: Insights into aerosol sources and Transformation Processes, (T. S. Bates et al.), *Journal of Geophysical Research,* **2008,** 113, D7

Instruments: PILS, Metrohm 761 Compact IC

Chemical characteristics of $PM_{2.5}$ ions measured by a semicontinuous measurement system during the fall season at a suburban site, Gwangju, Korea, (S. B. Hang et al.), *Atmospheric Research,* **2008,** 89, 1, p. 62 - 75

Instruments: PILS

Sources of particulate matter in the northeastern United States in summer: 1. Direct emissions and secondary formation of organic matter in urban plumes, (C. A. de Gouw, J.A. Brock et al.), *Journal of Geophysical Research,* **2008,** 113, D8

Instruments: PILS, PILS-TOC
Analytes: Anions, cations, WSOC

Atmospheric hydrogen peroxide and organic hydroperoxides during PRIDE-PRD'06, China: their concentration, formation mechanism and contribution to secondary aerosols, (W. Hua et al.), *Atmospheric Chemistry and Physics Discussions,* **2008,** 8, p. 10481 - 10530

Instruments: PILS-TOC
Analytes: WSOC

Secondary organic aerosol (SOA) formation from reaction of isoprene with nitrate radicals (NO_3), (N. L. Ng et al.), *Atmospheric Chemistry and Physics,* **2008,** 8, p. 4117 - 4140

Instruments: PILS
Analytes: Nitrate

Examination of discrepancies between beta-attenuation and gravimetric methods for the monitoring of particulate matter, (K. Takahashi et al.), *Atmospheric Environment,* **2008,** 42, 21, p. 5232 - 5240

Instruments: PILS
Analytes: Anions, cations

Sources of organic carbon in fine particulate matter in northern European urban air, (S. Saarikoski et al.), *Atmospheric Chemistry and Physics,* **2008,** 8, p. 6281 - 6295

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, ammonium

[Atmospheric water-soluble organic carbon measurements at Summit, Greenland], (C. H. Anderson et al.), *Atmospheric Environment,* **2008**, 42, 22, p. 5612 - 5621

Instruments: PILS-TOC
Analytes: WSOC

[Cloud condensation nuclei activity at Jeju Island, Korea in spring 2005], (M. Kuwata et al.), *Atmospheric Chemistry and Physics,* **2008,** 8, p. 2933 - 2984

Instruments: PILS, PILS-TOC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, WSOC

[Chemical Mass Closure and Source-Specific Composition of Atmospheric Particles], (S. Saarikoski), *Thesis, Finnish Meteorological Institute, Helsinki, Finnland,* **2008**

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, oxalate, sodium, ammonium, potassium

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[CMAQ Model Performance Enhanced When In-Cloud Secondary Organic Aerosol is Included: Comparisons of Organic Carbon Predictions with Measurements], (A. G. Carlton et al.), *Environmental Science and Technology,* **2008,** 42, 23, p. 8797 - 8802

Instruments: PILS-TOC
Analytes: WSOC

Correlations between Water-Soluble Organic Aerosol and Water Vapor: A Synergistic Effect from Biogenic Emissions?, (C. J. Hennigan et al.), *Environmental Science and Technology,* **2008**, 42, 24, p. 9079 - 9085

Instruments: PILS-TOC
Analytes: WSOC

Development and Laboratory Testing of an Automated Monitor for the Measurement of Atmospheric Particle-Bound Reactive Oxygen Species (ROS), (P. Venkatachari et al.), *Aerosol Science and Technology,* **2008,** 42, 8, p. 629 - 635

Instruments: PILS
Analytes: Reactive oxygen

Influence of particle size and chemistry on the cloud nucleating properties of aerosols, (P. K. Quinn), *Atmospheric Chemistry and Physics,* **2008,** 8, p. 1029 - 1042

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Sulfate

Rapid, Size-Resolved Aerosol Hygroscopic Growth Measurements: Differential Aerosol Sizing and Hygroscopicity Spectrometer Probe (DASH-SP), (A. Sorooshian et al.), *Aerosol Science and Technology,* **2008,** 42, 6, p. 445 - 464

Instruments: PILS

Total observed organic carbon (TOOC) in the atmosphere: a synthesis of North American observations, (C. Heald et al.), *Atmospheric Chemistry and Physics,* **2008**, 8, p. 2007 - 2025

Instruments: PILS-TOC
Analytes: WSOC

Sources of organic carbon in PM_1 in Helsinki urban air, (S. Saarikoski et al.), *Atmospheric Chemistry and Physics Discussionsy,* **2008,** 8, p. 7805 - 7846

Instruments: PILS

Citations 2007

Fine aerosol bulk composition measured on WP-3D research aircraft in vicinity of the Northeastern United States – results from NEAQS, (R.E. Peltier et al.), *Atmospheric Chemistry and Physics,* **2007,** 7, p. 3073 - 3112

Instruments: PILS, Metrohm 761 Compact IC, Metrosep A Supp 5 - 100/4.0, Metrosep Cation 1-2, PILS-TOC
Analytes: Chloride, nitrate, sulfate, cations, WSOC

Secondary aerosol formation from atmospheric reactions of aliphatic amines, (S. M. Murphy et al.), *Atmospheric Chemistry and Physics Discussion*, **2007**, 7, p. 289 - 349

Instruments: PILS
Analytes: Acetate, formate, nitrate, sulfate, amines

A Study of Secondary Organic Aerosol Formation in the Anthropogenic - Influenced Southeastern United States, (R. J. Weber et al.), *Journal of Geophysical Research,* **2007**, 112, D16

Instruments: PILS-TOC

No evidence for acid-catalyzed secondary organic aerosol formation in power plant plumes over metropolitan Atlanta, Georgia, (R. E. Peltier et al.), *Geophysical Research Letters,* **2007**, 34, 6

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Chemical characterization of the ambient organic aerosol soluble in water: 2. Isolation of acid, neutral, and basic fractions by modified size-exclusion chromatography, (A. P. Sullivan et al.), *Journal of Geophysical Research,* **2007**, 111, D5

Instruments: PILS-TOC
Analytes: WSOC

Intercomparison of Real Time Ammonium Measurements at Urban and Rural Locations in New York, (M. S. Bae et al.), *Aerosol Science and Technology,* **2007,** 41, p. 329 - 341

Instruments: PILS

Oxygenated and water-soluble organic aerosols in Tokyo, (Y. Kondo), *Journal of Geophysical Research,* **2007**, 112, D1

Instruments: PILS

Chemical composition of atmospheric aerosols between Moscow and Vladivostok, (S. Kuokka et al.), *Atmospheric Chemistry and Physics Discussions,* **2007**, 7, p. 7473 - 7508

Instruments: PILS

Interference of organic signals in highly time resolved nitrate measurements by low mass resolution aerosol mass spectrometry, (M. S. Bae et al.), *Journal of Geophysical Research,* **2007,** 112, D22

Instruments: PILS
Analytes: Nitrate, sulfate, ammonium

Thermodynamic characterization of Mexico City aerosol during MILA-GRO 2006, (C. Fountoukis et al.), *Atmospheric Chemistry and Physics Discussions,* **2007**, 7, p. 9203 - 9233

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Regional variation of organic functional groups in aerosol particles on four U.S. east coast platforms during the International Consortium for Atmospheric Research on Transport and Transformation 2004 campaign, (S. Gilardoni et al.), *Journal of Geophysical Research,* **2007,** 112, D10

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Oxalate, glutarate, malonate, pyruvate

Thermodynamic Modeling of Organic Aerosol, (C. Tong), *Thesis, California Institute of Technology,* Pasadena, CA, USA, **2007**

Instruments: PILS

On the Source of Organic Acid Aerosol Layers above Clouds, (A. Sorooshian et al.), *Environmental Science & Technology,* **2007,** 41, 13, p. 4647 - 4654

Instruments: PILS-UV/VIS
Analytes: Nitrate, sulfate, ammonium

Effect of NO_x level on secondary organic aerosol (SOA) formation from the photooxidation of terpenes, (N. L. Ng et al.), *Atmospheric Chemistry and Physics,* **2007**, 7, p. 5159 - 5174

Instruments: PILS
Analytes: Nitrate

Chemical and Microphysical Characterization of ambient Aerosols with the Aerodyne Aerosol Mass Spectrometer, (M. R. Canagaratna et al.), *Mass Spectrometry Reviews,* **2007,** 26, p. 185 - 222

Instruments: PILS

Particulate organic acids and overall water-soluble aerosol composition measurements from the 2006 Gulf of Mexico Atmospheric Composition and Climate Study (GoMACCS), (A. Sorooshian), *Journal of Geophysical Research,* **2007**, 112, D13

Instruments: PILS

Semi-continuous measurements of the DMS oxidation products (MSA and nss-SO_4) in the aerosol phase at Amsterdam Isl.; a remote site of the Austral Ocean, (J. Sciare et al.), *Geophysical Research Abstracts,* **2007,** 9, 7362

Instruments: PILS
Analytes: Formate, methanesulfonate, sulfate

Investigating a Liquid-Based Method for Online Organic Carbon Detection in Atmospheric Particles, (R. E. Peltier et al.), *Aerosol Science and Technology,* **2007**, 41, 12, p. 1117 - 1127

Instruments: PILS-TOC
Analytes: WSOC

Using a moving measurement platform for determining the chemical composition of atmospheric aerosols between Moscow and Vladivostok, (S. Kuokka et al.), *Atmospheric Chemistry and Physics,* **2007,** 7, p. 4793 - 4805

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Ambient submicron Particles in North America: Their sources, Fate and Impact, (R.E. Peltier), *Thesis, Georgia Institute of Technology , Atlanta, USA,* **2007**

Instruments: PILS, Metrohm 761 Compact IC Metrosep Dual 4 - 25/4.6, Metrosep Cation 1-2
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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An On-Line Method of Measuring Gaseous Ammonia and Ammonium in Aerosol in Atmosphere, (H. Dong et al.), *Acta Scientiarum Naturalium Universitatis Pekinensis,* **2007,** 43, 6, p. 816 - 821

Instruments: PILS
Analytes: Ammonium

Total Observed Organic Carbon (TOOC): A synthesis of North American observations, (C. L. Heald et al.), *Atmospheric Chemistry and Physics Discussions,* **2007,** 7

Instruments: PILS

Investigating the sources and atmospheric processing of fine particles from Asia and the Northwestern United States measured during INTEX B, (R. E. Peltier et al.), *Atmospheric Chemistry and Physics Discussions,* **2007,** 7, p. 17429 - 17474

Instruments: PILS, Metrohm 761 Compact IC, Metrosep Dual 4 - 25/4.6, Metrosep Cation 1-2
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Evaluation of several $PM_{2.5}$ forecast models using data collected during the ICARTT/NEAQS 2004 field study, (S. McKeen), *Journal of Geophysical Research,* **2007,**112, D10

Instruments: PILS

Aerosol Properties and Processes: A Path from Field and Laboratory Measurements to Global Climate Models, (S. J. Ghan et al.), *Bulletin of the American Meteorological Society,* **2007,** July, p. 1059 - 1083

Instruments: PILS

Chemical characteristics of water-soluble organic carbon in the Asian outflow, (Y. Miyazaki et al.), *Journal of Geophysical Research,* **2007**, 112, D22

Instruments: PILS-TOC
Analytes: WSOC

Contribution of Selected Dicarboxylic and omega-Oxocarboxylic Acids in Ambient Aerosol to the m/z 44 Signal of an Aerodyne Aerosol Mass Spectrometer, (N. Takegawa et al.), *Aerosol Science and Technology,* **2007,** 41, p. 418 - 437

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, ammonium

Characterizing Ionic Components of Aerosol in Rural Environments: Temporal Variability, Size Distributions, and the Form of Particle Nitrate, (T. Y. Lee), *Thesis, Colorado State University, Fort Collins, Colorado, USA,* **2007**

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Daily Patterns in $PM_{2.5}$ Ion Concentrations in Claremont, California, (W. Wagner et al.), *Journal of Young Investigators,* **2007,** 17, 211

Instruments: PILS; Metrohm IC system

St. Louis – Midwest Fine Particulate Matter Supersite, (J. R. Turner), *Revised final report, EPA / Washington University, St. Louis, USA,* **2007**

Instruments: PILS
Analytes: Formate, acetate, nitrate, sulfate, oxalate

Vertical profiles of ultrafine to supermicron particles measured by aircraft over Osaka metropolitan area in Japan, (S. Hasegawa et al.), *Atmospheric Environment,* **2007,** 41, 4, p. 717 - 729

Instruments: PILS
Analytes: Anions, cations

Cloud condensation nuclei activity at Jeju Island, Korea in spring 2005, (M. Kuwata), *Atmospheric Chemistry and Physics Discussions,* **2007,** 7, p. 15805 - 15851

Instruments: PILS, PILS-TOC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, WSOC

Aerosol–cloud drop concentration closure for clouds sampled during the International Consortium for Atmospheric Research on Transport and Transformation 2004 campaign, (C. Fountoukis et al.), *Journal of Geophysical Research,* **2007,** 112, D10

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, oxalate, ammonium

Chemical composition of aerosols during a major biomass burning episode over northern Europe in spring 2006: Experimental and modelling assessments, (S. Aarikoski et al.), *Atmospheric Environment,* **2007**, 41, p. 3577 - 3589

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

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Evidence for Organosulfates in Secondary Organic Aerosol, (J. D. Surratt et al.), *Environmental Science and Technology,* **2007,** 41, 2, p. 517 - 527

Instruments: PILS
Analytes: Sulfate, ammonium

An evaluation of reaction probabilities of sulfate and nitrate precursors onto East Asian dust particles, (C. H. Song et al.), *Journal of Geophysical Research: Atmospheres,* **2007,** 112, D18

Instruments: PILS
Analytes: Sulfate, nitrate

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Instruments: PILS

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Instruments: PILS

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Instruments: PILS

Citations 2006

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(A. Sorooshian et al.), *Aerosol Science and Technology,* **2006**, 40, p. 396 - 409

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium

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Aerosol direct radiative effects over the northwest Atlantic, northwest Pacific, and North Indian Oceans: estimates based on in-situ chemical and optical measurements and chemical transport modeling,
(T. S. Bates et al.), *Atmospheric Chemistry and Physics Discusscussion*, **2006,** 6, p. 175 - 362

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Sulfate, calcium

Comparison between lidar and nephelometer measurements of aerosol hygroscopicity at the Southern Great Plains Atmospheric Radiation Measurement site, (M. Pahlow et al.), *Journal of Geophysical Research,* **2006,** 111, D5

Instruments: PILS

Partitioning of HNO_3 and particulate nitrate over Tokyo: Effect of vertical mixing, (Y. Morino et al.), *Journal of Geophysical Research,* **2006,** 111, D15

Instruments: PILS
Analytes: Nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

An investigation of the chemistry of ship emission plumes during ITCT 2002, (G, Chen et al.), *Journal of Geophysical Research,* **2006,** 110, D10

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Sulfate

Variability in Nocturnal Nitrogen Oxide Processing and Its Role in Regional Air Quality, (S. S. Brown et al.), *Science,* **2006,** 311, p. 67 - 70

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Nitrate, sulfate

Reactions of Bromide Ions with Atmospheric Trace Gases and Aerosols, (A. Thompson), *Thesis, Georgia Institute of Technology, Atlanta, USA,* **2006**

Instruments: PILS
Analytes: Bromide, nitrate, sulfate

Use of advanced receptor modelling for analysis of an intensive 5-week aerosol sampling campaigns, (K. C. Buset et al.), *Atmospheric Environment,* **2006,** 40, Suppl.; p. 482 - 499

Instruments: PILS
Analytes: Nitrate, sulfate

Evaluation of a URG ambient ion monitoring system (AIM) for measuring watersoluble ion components of ambient $PM_{2.5}$: Intercomparison with PILS-IC monitor, (K. J. Moon et al.), *International Aerosol Conference 2006, St. Paul (abstracts), MN, USA,* **2006,** p. 416 - 417

Instruments: PILS, Metrohm 761 Compact IC

Intercomparison of Real Time $PM_{2.5}$ Ammonium Measurements at Urban and Rural Locations in New York, (M. S. Bae et al.), *International Aerosol Conference 2006, St. Paul, MN, USA (Abstracts)*, **2006,** p. 536 - 537

Instruments: PILS
Analytes: Ammonium

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Instruments: PILS
Analytes: Nitrate, sulfate, calcium, magnesium

Ionic Composition of Aerosols in Rocky Mountain National Park: A Pilot Study, (S. Raja et al.), *International Aerosol Conference 2006, St. Paul, MN, USA (Abstracts),* **2006**

Instruments: PILS
Analytes: Nitrate, sulfate, ammonium

Analysis of Ambient Semi-continuous Data Collected at the St. Louis - Midwest Supersite, (E. Kim et al.), *International Aerosol Conference 2006, St. Paul, MN, USA (Abstracts),* **2006**

Instruments: PILS
Analytes: Nitrate, sulfate

Observation of Persistent Layer of Enhanced Organic Aerosol Concentrations Above Cloudtops off the Northern California Coast, (M. Alexander et al.), *International Aerosol Conference 2006, St. Paul, MN, USA (Abstracts),* **2006**

Instruments: PILS
Analytes: Sulfate

CCN Activity of Cloud Processed Organic Aerosol Collected during MASE 2005, (A. A. Asa-Awuku et al.), *International Aerosol Conference 2006, St. Paul, MN, USA (Abstracts),* **2006**

Instruments: PILS
Analytes: Sulfate

Measuring Water-Aerosol Interactions Downwind of Mexico City: Inferences about Chemical Composition and Aging of Ambient Aerosol, (S. Lance et al.), *International Aerosol Conference 2006, St. Paul, MN, USA (Abstracts),* **2006**

Instruments: PILS

Analysis of Southern California Organic Aerosols During the 2005 Study of Organic Aerosols in Riverside (SOAR) Campaign, (K. S Docherty et al.), *International Aerosol Conference 2006, St. Paul (abstracts), MN, USA,* **2006**

Instruments: PILS-TOC
Analytes: WSOC

Secondary Organic Aerosol Formation in Metropolitan Atlanta Georgia, (R. J. Weber et al.), *International Aerosol Conference 2006, St. Paul, MN, USA (Abstracts)*, **2006**

Instruments: PILS-TOC
Analytes: WSOC

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Instruments: PILS-TOC
Analytes: WSOC

Aerosol Chemistry Observations Using the Trans-Siberian Railroad – Results of the Year 2005 TROICA-9 Expedition, (R. Hillamo et al.), *International Aerosol Conference 2006, St. Paul, MN, USA (Abstracts),* **2006**

Instruments: PILS-TOC
Analytes: WSOC

Oxalic acid in clear and cloudy atmospheres: Analysis of data from International Consortium for Atmospheric Research on Transport and Transformation 2004, (A. Sorooshian et al.), *Journal of Geophysical Research,* **2006,** 111, D23

Instruments: PILS
Analytes: Oxalate

Airborne measurements of carbonaceous aerosol soluble in water over northeastern United States: Method development and an investigation into water-soluble organic carbon sources, (A. P. Sullivan et al.), *Journal of Geophysical Research,* **2006,** 111, D23

Instruments: PILS-TOC
Analytes: WSOC

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Instruments: PILS-TOC
Analytes: WSOC

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Instruments: PILS-TOC
Analytes: WSOC

Influence of Ohio River valley emissions on fine particle sulfate measured from aircraft over large regions of the eastern United States and Canada during INTEX-NA, (C. J. Hennigan et al.), *Journal of Geophysical Research,* **2006,** 111, D24

Instruments: PILS, Metrohm IC system, Metrosep A Supp 5 - 100/4.0, Metrosep Cation 1-2
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Analysis of Urban Gas-phase Ammonia Measurements from the 2002 Atlanta Aerosol Nucleation and Real-time Characterization Experiment (ANARChE), (J. B. Nowak et al.), *Journal of Geophysical Research*, **2006,** 111, D17

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium

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Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Size-selective nonrefractory ambient aerosol measurements during the Particulate Matter Technology Assessment and Characterization Study–New York 2004 Winter Intensive in New York City, (S. Weimer et al.), *Journal of Geophysical Research,* **2006,** 111, D18

Instruments: PILS
Analytes: Nitrate, sulfate

Urban Impacts on Atmospheric Chemistry: Surface Ozone in Large versus Small Urban Centers and urban Pollution in Asian Dust Storms, (K. L. Maxwell-Meier et al.), *Thesis, Georgia Institute of Technology, Atlanta, USA,* **2006**

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Time-resolved measurements of water-soluble organic carbon in Tokyo, (Y. Miyazaki et al.), *Journal of Geophysical Research,* **2006,** 111, D23

Instruments: PILS-TOC
Analytes: WSOC

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Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Impacts of sources and aging on submicrometer aerosol properties in the marine boundary layer across the Gulf of Maine, (P. K. Quinn et al.), *Journal of Geophysical Research*, **2006,** 111, D23

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Sulfate, ammonium

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Instruments: PILS, PILS-TOC
Analytes: Anions, cations, WSOC

Application of the CACM and MPMPO modules using the CMAQ model for the eastern United States, (J. Chen et al.), *Journal of Geophysical Research,* **2006,** 111, D23

Instruments: PILS

Influence of relative humidity upon pollution and dust during ACE-Asia: Size distributions and implications for optical properties, (S. G. Howell et al.), *Journal of Geophysical Research,* **2006,** 111, D6

Instruments: PILS
Analytes: Nitrate, sulfate, ammonium

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Instruments: PILS
Analytes: Nitrate, sulfate, ammonium

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Instruments: PILS-TOC
Analytes: WSOC

Citations 2005

A Method for Airborne Measurements of Water-Soluble Organic Carbon: PILS-TOC results from the TOC results from the NOAA WP-3D during ICARTT, (A. Sullivan et al.) *AAAR Fall Meeting,* **2005,** Presentation

Instruments: PILS-TOC
Analytes: WSOC

Fine Particle Composition Measured During ICARTT – An Overview Of Inorganic Ions And Water Soluble Organic Carbon, (R. Peltier et al.), *AAAR Fall ,* **2005,** Presentation

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Measurements of Ambient Carbonaceous Particles That Are Soluble in Water, (A. Sullivan et al.), *ACS Fall Meeting,* **2005,** Presentation

Instruments: PILS-TOC
Analytes: WSOC

Sources of Organic Aerosols Soluble in Sources of Organic Aerosols Soluble in Water in the Southeastern U.S. Water in the Southeastern U.S., (A. Sullivan et al.), *AGU Fall Meeting,* **2005,** Presentation

Instruments: PILS-TOC
Analytes: WSOC

Characterization of an Aerodyne Aerosol Mass Spectrometer (AMS): Intercomparison with Other Aerosol Instruments, (N. Takegawa et al.), *Aerosol Science and Technology,* **2005,** 39, 8, p. 760 - 770

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, ammonium

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Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium

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Closure between measured and modeled cloud condensation nuclei (CCN) using size-resolved aerosol compositions in downtown Toronto, (K. Broekhuizen et al.), *Atmospheric Chemistry and Physics Discussions,* **2005,** 5, p. 6263 - 6293

Instruments: PILS
Analytes: Sulfate

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Instruments: PILS

Comparison Between a Aerodyne Aerosol Mass Spectrometer and a Dual Particle-Into-Liquid-Sampler-IC-TOC System, (X. Yu et al.) *AGU, Fall Meeting 2005,* **2005**

Instruments: PILS
Analytes: Chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Comparisons of Aerosol Phase Sulfate, Nitrate, and Ammonium Concentrations Measured by an Aerodyne Aerosol Mass Spectrometer and a Particle Into Liquid Sampler, (R. Bahreini et al.), *AGU, Fall Meeting 2005,* **2005**

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Nitrate, sulfate, ammonium

Fast Time Response Measurements of Aerosol Composition by Chemical Ionization Mass Spectrometry, (A. Hecobian et al.), *AGU, Fall Meeting 2005,* **2005**

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Nitrate, sulfate

Correlation of Oxygenated Organic Aerosol With Water Soluble Organic Carbon in Tokyo, (Y. Kondo et al.), *AGU, Fall Meeting 2005,* **2005**

Instruments: PILS

Observation of Enhanced Organic Aerosol Concentrations Above Cloudtops in Marine Stratus Experiment (MASE2005) off the Northern California Coast, (M. L. Alexander et al.), *AGU, Fall Meeting 2005,* **2005**

Instruments: PILS

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Instruments: PILS, Metrohm 761 Compact IC
Analytes: Sulfate

Chemical evolution of an isolated power plant plume during the Tex-AQS 2000 study, (S. R. Springston et al.),*Atmospheric Environment,* **2005,** 5, 39, p. 3431 - 3443

Instruments: PILS
Analytes: Sulfate, ammonium

Dust composition and mixing state inferred from airborne composition measurements during ACE-Asia C130 Flight #6, (C. H. Song et al.), *Atmospheric Environment,* **2005,** 39, p. 359 - 369

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

The Near Real-Time Technology for the Soluble Aerosol Compositions Measurements: The in-situ IC System, (S. Y. Chang) *CAART Newsletter,* **2005,** June, 39, p. 6 - 7

Instruments: PILS

Aerosol composition and water content during NEAQS 2004, (T. B. Onasch et al.), *Geophysical Research Abstracts,* **2005,** 7, 10395

Instruments: PILS, Metrohm 761 Compact IC

Cloud Chemistry Measurements during ICARTT 2004, (K. Hayden et al.), *Geophysical Research Abstracts,* **2005,** 7, 10401

Instruments: PILS

Impact of particulate organic matter on the relative humidity dependence of light scattering: A simplified parameterization, (P. K. Quinn et al.), *Geophysical Research Letters,* **2005,** 32, L22
Instruments: PILS

Intercomparison and closure calculations using measurements of aerosol species and optical properties during the Yosemite Aerosol Characterization Study, (W. C. Malm et al.), *Journal of Geophysical Research,* **2005,** 110, D14

Instruments: PILS

Dominance of organic aerosols in the marine boundary layer over the Gulf of Maine during NEAQS 2002 and their role in aerosol light scattering, (T. S. Bates et al.), *Journal of Geophysical Research,* **2005,** 110, D18

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Sulfate, ammonium

Export efficiency of black carbon aerosol in continental outflow: global implications, (R. J. Park et al.), *AGU, Journal of Geophysical Research,* **2005,** 110, D11

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Nitrate, sulfate, ammonium

Budget of organic carbon in a polluted atmosphere: Results from the New England Air Quality Study in 2002, (J. A. de Gouw et al.), *Journal of Geophysical Research,* **2005,** 110, D16

Instruments: PILS
Analytes: Sulfate, ammonium

Contribution of particulate nitrate to airborne measurements of total reactive nitrogen, (Y. Miyazaki et al.), *Journal of Geophysical Research,* **2005,** 110, D1

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Nitrate

Bulk Deposition and Aerosol-Gaseous Input of Elements in the Forested Area of Coastal Region (Pomerania, North Poland), (K. J. Kram) *Polish Journal of Rheology,* **2005,** 53, 2, p. 261 - 268

Instruments: PILS, Metrohm 690 Ion Chromatograph
Analytes: Chloride, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Investigation into Secondary Organic Aerosol Formation in Metro Atlanta, (R. J. Weber et al.), *Presentation,* **2005**

Instruments: PILS-TOC
Analytes: WSOC

(Semi-) Continuous Measurement Techniques for Reactive Aerosol Components and Gases, (E. Nemitz), *Presentation,* **2005**

Instruments: PILS, Metrohm 761 Compact IC, MARGA
Analytes: Nitrate, sulfate

An Investigation into the Ionic Chemical Composition and Mixing State of Biomass Burning Particles Recorded During TRACE-P P3B Flight#10, (C. H. Song et al.), *Journal of Atmospheric Chemistry,* **2005,** 51, 1, p. 43 - 64

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Nitrate, sulfate, ammonium, potassium

Citations 2004

Development, Operation and Applications of an Aerosol Generation, Calibration and Research Facility, (O. Hogrefe et al.) *Aerosol Science and Technology,* **2004,** 38, S1, p. 196 - 214

Instruments: PILS

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Instruments: Metrosep Cation 1-2
Analytes: Sodium, ammonium, potassium, calcium, magnesium

Transport and transformation of sulfur compounds over East Asia during the TRACE-P and ACE-Asia campaigns, **(**M. Zhang et al.), *Atmospheric Environment,* **2004**, 38, p. 6947 - 6959

Instruments: PILS
Analytes: Sulfate

ACE-ASIA: Regional Climatic and Atmospheric Chemical Effects of Asian Dust and Pollution, (J. H. Seinfeld et al.), *Bulletin of the American Meteorological Society,* **2004,** 85, 3, p. 367 - 380

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Sulfate, calcium

Comparisons of Model Aerosol Mass and Chemical Composition with Observations from the 2002 New England Air Quality Study, (G. J. Frost et al.), *Geophysical Research Abstracts,* **2004,** 6, 04420

Instruments: PILS
Analytes: Sulfate

Field Applications of an Aerosol Mass Spectrometer: What are we learning about Aerosol Chemical and Microphysical Properties?, (D. Worsnop et al.), *Geophysical Research Abstracts,* **2004,** 6, 07659

Instruments: PILS
Analytes: Sulfate

Three-dimensional simulations of inorganic aerosol distributions in east Asia during spring 2001, (Y. Tang et al.), *Journal of Geophysical Research,* **2004,** 109, D19

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Impacts of biomass burning in Southeast Asia on ozone and reactive nitrogen over the western Pacific in spring, (Y. Kondo et al.), *Journal of Geophysical Research,* **2004,** 109, D15

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Nitrate

Impacts of dust on regional tropospheric chemistry during the ACE-Asia experiment: A model study with observations, (Y. Tang et al.) *Journal of Geophysical Research,* **2004,** 109, D19

Instruments: PILS
Analytes: Nitrate, sulfate, ammonium, calcium

Inorganic composition of fine particles in mixed mineral dust–pollution plumes observed from airborne measurements during ACE-Asia, (K. Maxwell-Meier et al.), *Journal of Geophysical Research,* **2004,** 109, D19

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Intercomparisons of airborne measurements of aerosol ionic chemical composition during TRACE-P and ACE-Asia, **(**Y. Ma et al.), *Journal of Geophysical Research,* **2004,** 109

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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A comparison of similar aerosol measurements made on the NASA P3-B, DC-8, and NSF C-130 aircraft during TRACE-P and ACE-Asia, (K. G Moore II et al.), *Journal of Geophysical Research,* **2004,** 109, D15

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Spatial distribution and size evolution of particles in Asian outflow: Significance of primary and secondary aerosols during ACE-Asia and TRACE-P, (C. S. McNaughton et al.), *Journal of Geophysical Research,* **2004,** 109, D19

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Nitrate, sulfate, ammonium

Size distributions and mixtures of dust and black carbon aerosol in Asian outflow: Physiochemistry and optical properties, (A. D. Clarke et al.), *Journal of Geophysical Research,* **2004,** 109, D15

Instruments: PILS, Metrohm 761 Compact IC

Submicron aerosol composition at Trinidad Head, California, during ITCT 2K2: Its relationship with gas phase volatile organic carbon and assessment of instrument performance, (J. D. Allan et al.), *Journal of Geophysical Research,* **2004,** 109, D23

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Sulfate

Semicontinuous $PM_{2.5}$ sulfate and nitrate measurements at an urban and a rural location in New York: PMTACS-NY summer 2001 and 2002 campaigns, (O. Hogrefe et al.), *Journal of the Air & Waste Management Association,* **2004,** 54, 9, p. 1040 - 1060

Instruments: PILS
Analytes: Nitrate, sulfate

An Aerosol Mass Spectrometer: Instrument Development, Data Analysis Techniques and Quantitative Atmospheric Particulate Measurements, (J. D. Allen) *Thesis, University of Manchester, Great Britain,* **2004**

Instruments: PILS
Analytes: Nitrate, sulfate, ammonium

Real-time Carbon and Sulfate Measurements from the MANE-VU Rural Aerosol Intensive Network (RAIN): Design, Methods and Early Data, (A. A. Allen et al.), *Paper #18, Air & Waste Management Association Visibility Specialty Conference,* **2004**

Instruments: PILS
Analytes: Sulfate

Analyses of Atmospheric Pollutants in Atlanta and Hong Kong Using Observation-Based Methods, (J. Zhang), *Thesis, Georgia Institute of Technology, Atlanta, USA,* **2004**

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Nitrate, sulfate, ammonium

Multi-scale Simulations of Tropospheric Chemistry in the Eastern Pacific and US West Coast during Spring 2002, (Y. Tang et al.), *Journal of Geophysical Research,* **2004,** 109, D23

Instruments: PILS, Metrohm 761 Compact IC
Analytes: nitrate, sulfate, ammonium

Citations 2003

Seasonal variation of non-refractory submicron aerosols in Tokyo measured using the Aerodyne AMS, (N. Takegawa et al.), *AAAR 2003 Poster session,* **2003,** Presentation

Instruments: PILS
Analytes: Nitrate, sulfate

Semi-continuous Measurements of Aerosol Chemical Composition During the Summer 2002 Yosemite National Park Special Study, (J. Collet et al.), *96th Annual Meeting of the Air and Waste Management Association (AWMA), June 2003,* **2003**

Instruments: PILS
Analytes: Chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Hygroscopic Characteristics of Organic Laden Ambient Aerosols in Yosemite National Park, (W. C. Malm et al.), AGU, *Fall Meeting 2003, abstract #A42E-03,* **2003**

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Non-Refractory Submicron Aerosol Mass Loadings during NEAQS, (A. M. Middlebrook et al.), *AGU, Fall Meeting 2003,* **2003**

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Sulfate, ammonium

Aerosol chemical characterization by a Particle-Into-Liquid Sampler and an annular denuder/filter pack system in three field experiments in 2003, (T. Lee et al.) *AGU, Fall Meeting 2003,* **2003**

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Refinements to the particle-into-liquid sampler (PILS) for ground and airborne measurements of water soluble aerosol composition, (D. A. Orsini et al.), *Atmospheric Environment,* **2003,** 37, p. 1243 - 1259

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Intercomparison and evaluation of four semi-continuous $PM_{2.5}$ sulfate instruments, (F. Drewnick et al.), *Atmospheric Environment,* **2003,** 37, p. 3335 - 3350

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Sulfate

Chemical composition characteristics of precipitations at two sites in Jeju Island, (C. H. Kang et al.), *Bulletin of the Korean Chemical Society,* **2003,** 24(3), p. 363 - 368

Instruments: Metrohm Modular IC, Metrosep A Supp 4 - 250/4.0, Metrosep Cation 1-2
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Aerosol measurements of long range transport events from Asia, (P. Hudson et al.), *EGS - AGU - EUG Joint Assembly, Nice, France,* **2003**

Instruments: PILS

Short-Term Temporal Variation of PM_1 Chemical Composition Measured in Tokyo, (Y. Miyazaki et al.), *Goldschmidt Conference 2003,* **2003**

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Chloride, nitrate

Aerosol properties during the Yosemite Aerosol Characterization Study of 2002, (C. Carrico et al.), *Improve,* **2003,** 12, 2, p. 4 - 6

Instruments: PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium

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Characteristics and influence of biosmoke on the fine-particle ionic composition measured in Asian outflow during the Transport and Chemical Evolution Over the Pacific (TRACE-P) experiment, (Y. Ma et al.), *Journal of Geophysical Research,* **2003,** 108, D21

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

[Ambient aerosol sampling using the Aerodyne Aerosol Mass Spectrometer], (J. L. Jimenez et al.) *Journal of Geophysical Research,* **2003,** 108, D7

Instruments: PILS
Analytes: Nitrate, sulfate

[An intercomparison of lidar-derived aerosol optical properties with airborne measurements near Tokyo during ACE-Asia], (T. Murayama et al.), *Journal of Geophysical Research,* **2003,** 108, D23

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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[A global aerosol model forecast for the ACE-Asia field experiment], (M. Chin et al.), *Journal of Geophysical Research,* **2003,** 108, D23

Instruments: PILS
Analytes: Sulfate, calcium

[New particle formation in anthropogenic plumes advecting from Asia observed during TRACE-P,] **(**R. Weber et al.), *Journal of Geophysical Research,* **2003,** 108, D21

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Transport and Chemical Evolution over the Pacific (TRACE-P) aircraft mission: Design, execution, and first results, (D. J. Jacob et al.), *Journal of Geophysical Research,* **2003,** 108, D20

Instruments: PILS, Metrohm 761 Compact IC

Comprehensive characterization of $PM_{2.5}$ aerosols in Singapore, (R. Balasubramanian et al.), *Journal of Geophysical Research,* **2003,** 108, D16

Instruments: Metrohm Modular IC
Analytes: Sulfate

Short-term Temporal Variation in $PM_{2.5}$ Mass and Chemical Composition during the Atlanta Supersite Experiment, 1999, (R. Weber et al.), *Journal of the Air & Waste Management Association,* **2003,** 53, 1

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Nitrate, sulfate

Airborne measurement of inorganic ionic components in fine aerosol particles using the particle-into-liquid sampler coupled to ion chromatography technique during ACE-Asia and TRACE-P, (Y. N. Lee et al.), *Journal of Geophysical Research - Atmospheres,* **2003,** 108, D23

Instruments: PILS, Metrohm 761 Compact IC, Metrosep A Supp 5 - 100/4.0, Metrosep Cation 1-2
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Citations 2002

On-line measurements of particle chemical composition with the Particle-Into-Liquid Sampler (PILS), (R. J. Weber et al.) *American Geophysical Union, Fall Meeting 2002,* **2002**

Instruments: PILS, Metrohm 761 Compact IC

Absorbing Aerosol in Asian Outflow: Size Dependent Properties, Links to Chemistry, and Humidity Growth, (A. Clarke et al.), *AGU, Fall Meeting 2002,* **2002**

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Nitrate, sulfate

Aerosol In Asian Outflow: Correspondence of Size-dependent Aerosol Volatility to Chemistry, Humidity Growth, and Absorption, **(**S. G. Howell et al.), *American Geophysical Union, Fall Meeting 2002,* **2002**

Instruments: PILS, Metrohm 761 Compact IC

Evidence of Heterogeneous Surface Chemistry in Asian Springtime Aerosol: a Focus on the Interactions of Fine Asian Mineral Dust with Urban Plumes, **(**L. L. Meier et al.), *AGU, Fall Meeting 2002,* **2002**

Instruments: PILS

Characterization of the Aerosol Chemical Composition Using a Particle-Into-Liquid-Sampler During the NEOPS 2001Experiment, (X. Yu et al.), *AGU, Fall Meeting 2002,* **2002**

Instruments: PILS
Analytes: Nitrate, sulfate

Intercomparison and Evaluation of Semi-Continuous $PM_{2.5}$ Nitrate and Sulfate Instruments During PMTACS-NY Summer 2001 Campaign in New York City, (O. Hogrefe et al.), *AGU, Fall Meeting 2002,* **2002**

Instruments: PILS
Analytes: Nitrate, sulfate

Improving Radiative Assessments of Aerosol Chemical, Physical and Optical Properties Through Aerosol Volatility Studies Over Optically Effective Sizes, (Y. Shinozuka et al.),*AGU, Fall Meeting 2002,* **2002**

Instruments: PILS

Generation of controlled atmospheres for the determination of the irritant potency of peroxyacetic acid, (G. Hecht et al.), *Annals of Occupational Hygiene,* **2002,** 46, 1, p. 89 - 96

Instruments: Metrohm Modular IC
Analytes: Acetate

Intercomparison of Near Real-Time Monitors of $PM_{2.5}$ Nitrate and Sulfate at the EPA Atlanta Supersite, (R. Weber et al.) *Journal of Geophysical Research,* **2002,** 108, D7

Instruments: PILS

An evaluation of the thermodynamic equilibrium assumption for fine particulate composition: Nitrate and ammonium during the 1999 Atlanta Supersite Experiment, (J. Zhang et al.), *Journal of Geophysical Research,* **2002,** 108, D10

Instruments: PILS, Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium

Citations 2001

A Particle-into-Liquid Collector for Rapid Measurement of Aerosol Bulk Chemical Composition, (R. J. Weber et al.), *Aerosol Science and Technology,* **2001,** 35, p. 718 - 727

Instruments: Initial Publication on the PILS
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium

Citations 2016

Size-segregated urban particulate matter: mass closure, chemical composition, and primary and secondary matter content, (W. Rogula-Kozlowska), *Air Quality, Atmosphere & Health,* **2016,** 9, p. 533 - 550

Instruments: Metrohm IC system
Analytes: Chloride, nitrate, sulfate, sodium, ammonium

The PM_{10} compositions, sources and health risks assessment in mechanically ventilated office buildings in an urban environment, (M. Othman et al.), *Air Quality, Atmosphere & Health,* **2016,** 9, 6, p. 597 - 612

Instruments: Metrohm 850 Professional IC, Metrosep A Supp 5 - 150/4.0
Analytes: Fluoride, chloride, nitrate, sulfate

Atmospheric aerosols local-regional discrimination for a semi-urban area in India, (R. K. Hooda et al.), *Atmospheric Research,* **2016,** 168, p. 13 - 23

Instruments: Metrohm 861 Advanced Compact IC, 813 Compact Autosampler
Analytes: Nitrate, sulfate

Springtime variations of organic and inorganic constituents in submicron aerosols ($PM_{1.0}$) from Cape Hedo, Okinawa, (B. Kunwar et al.), *Atmospheric Environment,* **2016,** 30, p. 84 - 94

Instruments: Metrohm 761 Compact IC
Analytes: Nitrate, ammonium

Reactions of Methanesulfonic Acid with Amines and Ammonia as a Source of New Particles in Air, (H. Chen et al.), *The Journal of Physical Chemistry,* **2016,** 120, 8, p. 1526 - 1536

Instruments: Metrohm IC system
Analytes: Ammonium, methylamine, dimethylamine, trimethylamine

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Characteristics of the water-soluble components of aerosol particles in Hefei, China, (X. I. Deng et al.), *Journal of Environmental Sciences,* **2016,** 42, p. 32 - 40

Instruments: Metrohm 850 Professional IC, 858 Professional Sample Processor, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 150/4.0
Analytes: Chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Inorganic markers, carbonaceous components and stable carbon isotope from biomass burning aerosols in Northeast China, (F. Cao et al.), *Science of the Total Environment,* **2016,** 572, p. 1244 - 1251

Instruments: Metrohm 761 Compact IC
Analytes: Methanesulfonate, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Emissions from the combustion of eucalypt and pine chips in a fluidized bed reactor, (E. D. Vicente et al.), *Journal of Environmental Sciences,* **2016,** 42, p. 246 - 258

Instruments: Metrohm 881 Compact IC pro, 896 IC Amperometric Detector, PAD
Analytes: Levoglucosan

Impact of emission control on $PM_{2.5}$ and the chemical composition change in Beijing-Tianjin-Hebei during the APEC summit 2014, (W. Wen et al.) *Environmental Science and Pollution Research,* **2016,** 23, 5, p. 4509 - 4521

Instruments: Metrohm 861 Advanced Compact IC

Size distribution and sources of humic-like substances in particulate matter at an urban site during winter, (S. S. Park et al.), *Environmental Science: Processes & Impacts Formerly the Journal of Environmental Monitoring,* **2016,** 8, 1, p. 32 - 41

Instruments: Metrohm 861 Advanced Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Chemical composition and source apportionment of ambient $PM_{2.5}$ during the non-heating period in Taian, China, (B. Liu et al.), *Atmospheric Research,* **2016,** 170, p. 23 - 33

Instruments: Metrohm Advanced Modular IC
Analytes: Chloride, nitrate, sulfate, ammonium

Effect of agriculture and vegetation on carbonaceous aerosol concentrations ($PM_{2.5}$ and PM_{10}) in Puszcza Borecka National Nature Reserve (Poland), (A. Witkowska et al.), *Air Quality, Atmosphere & Health,* **2016**, 9, 7, p. 761 - 773

Instruments: Metrohm 850 Professional IC, Metrosep A Supp 7 - 250/4.0, Metrosep C 4 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Organic and inorganic components of aerosols over the central Himalayas: winter and summer variations in stable carbon and nitrogen isotopic composition, (P. Hegde et al.), *Environmental Science and Pollution Research,* **2016,** 23, 7, p. 6102 - 6118

Instruments: Metrohm 761 Compact IC Metrosep C 2 - 150/4.0
Analytes: Methanesulfonate, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Source apportionment and health risk assessment of PM_{10} in a naturally ventilated school in a tropical environment, (N. Mohamad et al.), *Ecotoxicology and Environmental Safety,* **2016,** 124, p. 351 - 362

Instruments: Metrohm 850 Professional IC, 881 Compact IC pro
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Characteristics of water-soluble inorganic species in PM_{10} and $PM_{2.5}$ at two coastal sites during spring in Korea, (S. S. Park et al.) *Atmospheric Pollution Research,* **2016,** 7, 2, p. 370 - 383

Instruments: Metrohm 861 Advanced Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Synergy of receptor and dispersion modelling: Quantification of PM_{10} emissions from road and soil dust not included in the inventory, (S. PriyaDarshini et al.), *Atmospheric Pollution Research,* **2016,** 7, 3, p. 403 - 411

Instruments: Metrohm 882 Compact IC plus
Analytes: Anions, cations

Formation of high-molecular-weight compounds via the heterogeneous reactions of gaseous C_8–C_{10} n-aldehydes in the presence of atmospheric aerosol components, (Y. Han et al.), *Atmospheric Environment,* **2016,** 126, p. 290 - 297

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrite, nitrate, phosphate, sulfate

Changes in visibility with $PM_{2.5}$ composition and relative humidity at a background site in the Pearl River Delta region, (X. Fu et al.), *Journal of Environmental Sciences,* **2016,** 40, p. 10 - 19

Instruments: Metrohm 883 Basic IC plus
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Effects of Amines on Particle Growth Observed in New Particle Formation Events, (Y. Tao et al.), *Journal of Geophysical Research: Atmospheres,* **2016**, 121, 1, p. 324 - 335

Instruments: Metrohm 883 Basic IC plus Metrosep A Supp 5 - 250/4.0, Metrosep C 4 - 250/4.0
Analytes: Fluoride, chloride, nitrate, bromide, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium, monomethylamine, monoethylamine, dimethylamine, monoethanolamine, triethanolamine, diethylamine, trimethylamine

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Role of transition metals with water soluble organic carbon in the formation of secondary organic aerosol and metallo-organics in PM_1 sampled during post monsoon and pre-winter time, (D. K. Singh et al.), *Journal of Aerosol Science,* **2016,** 94, p. 56 - 69

Instruments: Metrohm 761 Compact IC
Analytes: Anions

Characterization and source apportionment of organic aerosol using offline aerosol mass spectrometry, (K. R. Daellenbach et al.), *Atmospheric Measurement Techniques,* **2016,** 9, p. 23 - 39

Instruments: Metrohm 850 Professional IC, Metrosep A Supp 5, Metrosep C 4
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Stable carbon and nitrogen isotopic compositions of ambient aerosols collected from Okinawa Island in the western North Pacific Rim, an outflow region of Asian dusts and pollutants, (B. Kunwar et al.), *Atmospheric Environment,* **2016,** 131, p. 243 - 253

Instruments: Metrohm 761 Compact IC
Analytes: Nitrate, ammonium

Variation of CCN activity during new particle formation events in the North China Plain, (N. Ma et al.), *Atmospheric Chemistry and Physics Discussion,* **2016,** 23

Instruments: Metrohm 690 Ion Chromatograph

Analysis of National Verses Long-Range Transport Contribution to Organic and Inorganic Aerosol Load in Selected Location in Poland, (B. Blaszczak et al.), *Air Pollution Modeling and its Application XXIV, Chapter 11,* **2016**

Instruments: Metrohm IC system

Chemical Composition of Particulate Matters in Makkah – Focusing on Cations, Anions and Heavy Metals, (T. M. A. Habeebullah), *Aerosol and Air Quality Research,* **2016,** 16, p. 336 - 347

Instruments: Metrohm 850 Professional IC
Analytes: Fluoride, chloride, nitrite, nitrate, phosphate, sulfate, ammonium

An inter-comparison of $PM_{2.5}$ at urban and urban background sites: Chemical characterization and source apportionment, (D. Cesari et al.), *Atmospheric Research,* **2016**, 174-175, p. 106 - 119

Instruments: Metrohm Modular IC, Metrosep A Supp 7 - 250/4.0, Metrosep C 4 - 150/4.0, 797 VA Computrace
Analytes: Anions, cations, platinum

Fungal spores overwhelm biogenic organic aerosols in a mid - latitudinal forest, (C. Zhu et al.), *Atmospheric Chemistry and Physics Discussion,* **2016,** 671

Instruments: Metrohm 761 Compact IC
Analytes: Nitrate, sulfate

The Cellular Toxicity of $PM_{2.5}$ Emitted from Coal Combustion in Human Umbilical Vein Endothelial Cells, (F. F. Wang et al.), *Biomedical and Environmental Sciences,* **2016,** 29, 2, p. 107 - 116

Instruments: Metrohm 761 Compact IC
Analytes: Anions, cations

$PM_{2.5}$ Chemical Composition Analysis in Different Functional Subdivisions in Tangshan, China, (W. Wen et al.), *Aerosol and Air Quality Research,* **2016,** 16, p. 1351 - 1664

Instruments: Metrohm 861 Advanced Compact IC
Analytes: Nitrate, sulfate, ammonium

Hygroscopic growth of water-soluble matter extracted from remote marine aerosols over the western North Pacific: Influence of pollutants transported from East Asia, (S. K. R. Boreddy et al.), *Science of the Total Environment,* **2016,** 557-559, p. 285 - 295

Instruments: Metrohm 761 Compact IC

Contribution of dissolved organic matter to submicron water- soluble organic aerosols in the marine boundary layer over the eastern equatorial Pacific, (Y. Miyazaki et al.), *Atmospheric Chemistry and Physics Discussion,* **2016,** 164

Instruments: Metrohm 761 Compact IC
Analytes: Methanesulfonate, anions, cations

Characterizing and sourcing ambient $PM_{2.5}$ over key emission regions in China I: Water-soluble ions and carbonaceous fractions, (J. Zhou et al.), *Atmospheric Environment,* **2016,** 135, p. 20 - 30

Instruments: Metrohm IC system
Analytes: Chloride, nitrate, sulfate, ammonium

Chemical characterization of atmospheric particulate matter and their source apportionment at an emerging industrial coastal city, Visakhapatnam, India, (S. Police et al.), *Atmospheric Pollution Research,* **2016,** 7, 4, p. 725 - 733

Instruments: Metrohm Modular IC, 693 VA Processor
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium, lead, copper, cadmium

Influences of Long-Range Transported Air Pollutants on Atmospheric TSP Aerosol Compositions at Jeju Island of Korea during 2011–2013, (J. M. Song et al.), *Bulletin of the Korean Chemical Society,* **2016**, 37, 5, p. 626 - 631

Instruments: Metrohm Advanced Compact IC, Metrosep C 4
Analytes: Cations

Concentration Variations in Primary and Secondary Particulate Matter near a Major Road in Korea, (Y. S. Ghim et al.), *Asian Journal of Atmospheric Environment,* **2016,** 10, 1, p. 32 - 41

Instruments: Metrohm Modular System, Metrosep A Supp 5, Metrosep C 2- 150/4.0, Metrosep C 4 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Chemical and light absorption properties of humic-like substances from biomass burning emissions under controlled combustion experiments, (S. S. Park et al.), *Atmospheric Environment,* **2016,** 136, p. 114 - 122

Instruments: Metrohm 861 Advanced Compact IC
Analytes: Chloride, nitrate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

Spatial and Seasonal Variations of Water Soluble Ions in PM_{10} of Mid-Brahmaputra Plain of Assam Valley, (P. Bhuyan et al.), *Asian Journal of Water, Environment and Pollution,* **2016,** 13, 2, p. 69 - 81

Instruments: Metrohm Modular IC, 766 IC Sample Processor
Analytes: Fluoride, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Chemical composition and characteristics of ambient aerosols and rainwater residues during Indian summer monsoon: Insight from aerosol mass spectrometry, (A. Chakraborty et al.), *Atmospheric Environment,* **2016,** 136, p. 144 - 155

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate

Composition and source apportionment of PM_1 at urban site Kanpur in India using PMF coupled with CBPF, (P. Rai et al.), *Atmospheric Research,* **2016,** 178-179, p. 506 - 520

Instruments: Metrohm 761 Compact IC

Seasonal variability of $PM_{2.5}$ composition and sources in the Klang Valley urban-industrial environment, (N. Amil et al.), *Atmospheric Chemistry and Physics,* **2016,** 16, p. 5357 - 5381

Instruments: Metrohm Advanced Modular IC, 882 Compact IC plus, Metrosep A Supp 5 - 150/4.0
Analytes: Fluoride, chloride, nitrite, bromide, nitrate, phosphate, sulfate

Variability of Atmospheric Radon-222 and Secondary Aerosol Components in Accordance with Air Mass Transport Pathways at Jeju Island, Korea, during 2011–2014, (J. O. Bu et al.), *Bulletin of the Korean Chemical Society,* **2016**, 37, 6, p. 841 - 846

Instruments: Metrohm Advanced Modular IC, Metrosep A Supp 5, Metrosep C 4 - 150/4.0
Analytes: Chloride, nitrate, sulfate, ammonium

Seasonal Variations in Water Soluble Inorganic Ions, OC and EC in PM_{10} and $PM_{>10}$ Aerosols over Delhi: Influence of Sources and Meteorological Factors, (P. Kumar et al.), *Kumar, P.; Yadav, S.,* **2016,** 16, p. 1165 - 1178

Instruments: Metrohm 882 Compact IC plus, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Regional Characteristics of Air Pollutants during Heavy Haze Events in the Yangtze River Delta, China, (H. Wang et al.), *Aerosol and Air Quality Research,* **2016,** 16, 9, p. 2159 - 2171

Instruments: Metrohm 850 Professional IC, 858 professional Sample Processor, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Physiochemical properties of carbonaceous aerosol from agricultural residue burning: Density, volatility, and hygroscopicity, (C. Li et al.), *Atmospheric Environment,* **2016,** 140, p. 94 - 105

Instruments: Metrohm 850 Professional IC, Metrosep A Supp 7 - 250/4.0
Analytes: Fluoride, chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Monsoonal variations in atmospheric surfactants at different coastal areas of the Malaysian Peninsula, (S. A. Jaafar et al.), *Marine Pollution Bulletin,* **2016,** 109, 1, p. 480 - 489

Instruments: Metrohm 881 Compact IC pro, Metrosep A Supp 5 - 150/4.0
Analytes: Fluoride, chloride, nitrate, sulfate

Factors, origin and sources affecting PM_1 concentrations and composition at an urban background site, (S. Squizzato et al.), *Atmospheric Research,* **2016,** 180, p. 262 - 273

Instruments: Metrohm IC System, Metrosep column
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Characteristics and Relationships between Indoor and Outdoor $PM_{2.5}$ in Beijing: A Residential Apartment Case Study, (Y. Han et al.), *Aerosol and Air Quality Research,* **2016,** 16, 10, p. 2386 - 2395

Instruments: Metrohm 792 Basic IC
Analytes: Chloride, nitrate, sulfate

Determining the relationship between chemical composition and size, shape and effective density of airborne fine particles through concurrent use of inertial and optical based measurements, (A. Kumar et al.), *Particuology,* **2016**, 28, p. 93 - 101

Instruments: Metrohm 882 Compact IC plus
Analytes: Fluoride, chloride, nitrate, sulfate

Water-soluble ions species of size-resolved aerosols: Implications for the atmospheric acidity in São Paulo megacity, Brazil, (M. Vieira-Filho et al.), *Atmospheric Research,* **2016,** 181, p. 281 - 287

Instruments: Metrohm IC system, Metrosep A Supp 5 - 250/4.0, Metrosep C 2 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Influences of Asian Dust, Haze, and Mist Events on Chemical Compositions of Fine Particulate Matters at Gosan Site, Jeju Island in 2014, (J. M. Song et al.), *Journal of the Korea Air Pollution,* **2016,** 32, 1, p. 67 - 81

Instruments: Metrohm Modular system, Metrosep A Supp 16, Metrosep C 6 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Gas-phase ammonia and water-soluble ions in particulate matter analysis in an urban vehicular tunnel, (M. S. Vieira-Filho et al.), *Environmental Science and Pollution Research,* **2016,** 23, 19, p. 19876 - 19886

Instruments: Metrohm IC system, Metrosep A Supp 5 - 250/4.0
Analytes: Fluoride, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Attributes of aerosol bound water soluble ions and carbon, and their relationships with AOD over the Brahmaputra Valley, (P. Bhuyan et al.), *Atmospheric Environment,* **2016,** 142, p. 194 - 209

Instruments: Metrohm 882 Compact IC plus, Metrosep C 4 - 150/4.0
Analytes: Sodium, ammonium, potassium, calcium, magnesium

Chemical characterisation and source apportionment of PM_1 during massive loading at an urban location in Indo-Gangetic Plain: impact of local sources and long-range transport, (P. Rajput et al.), *Tellus B,* **2016,** 68, 30659

Instruments: RSC Advances
Analytes: Chloride, nitrate, sulfate

Water-soluble ions and carbon content of size-segregated aerosols in New Delhi, India: direct and indirect influences of firework displays, (P. Kumar et al.), *Environmental Science and Pollution Research,* **2016,** 23, 20, p. 20749 - 20760

Instruments: Metrohm 882 Compact IC plus
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Relationship between physico-chemical characteristics and potential toxicity of PM_{10}, (L. Megido et al.), *Chemosphere,* **2016**, 162, p. 73 - 79

Instruments: Metrohm 861 Advanced Compact IC
Analytes: Chloride, nitrate, sulfate, ammonium

Inorganic ions in ambient fine particles over a National Park in central India: Seasonality, dependencies between SO_4^{2-}, $NO_3^{=}$, and $NH_4^{\pm}$, and neutralization of aerosol acidity, (S. Kumar et al.), *Atmospheric Environment,* **2016,** 143, p. 152 - 163

Instruments: Metrohm 883 Basic IC plus
Analytes: Nitrate, sulfate, ammonium, potassium, calcium

The diurnal variability of sulfate, and nitrate, aerosols during wintertime in the Indo-Gangetic Plain: implications for heterogeneous phase chemistry, (P. Rajput et al.), *RSC Advances,* **2016,** 6, 92, p. 89879 - 89887

Instruments: Metrohm 761 Compact IC
Analytes: Nitrate, sulfate, ammonium

Chemical characteristics of aerosol and rain water during an El-Niño and PDO influenced Indian summer monsoon, (P. Rajeev et al.), *Atmospheric Environment,* **2016,** 145, p. 192 - 200

Instruments: Metrohm IC system, Metrosep A Supp 5 - 250/4.0, Metrosep C 4 - 250/4.0
Analytes: Fluoride, chloride, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Source contributions and potential source regions of size-resolved water-soluble organic carbon measured at an urban site over one year,
(G. H. Yu et al.), *Environmental Science: Processes & Impacts,* **2016,** 18, 10, p. 1343 - 1358

Instruments: Metrohm 861 Advanced Compact IC
Analytes: Nitrate, sulfate

Investigation of Biomass Burning Chemic al Components over Northern Southeast Asia during 7-SEAS/BASELINE 2014 Campaign,
(C. Khamkaew et al.), *Aerosol and Air Quality Research,* **2016,** 16, 11, p. 2655 - 2670

Instruments: Metrohm 882 Compact IC plus
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Effects of Particulate Matter and Its Chemical Constituents on Elderly Hospital Admissions Due to Circulatory and Respiratory Diseases,
(T. M. Ferreira et al.), *International Journal of Environmental Research and Public Health,* **2016,** 13, 10, 947

Instruments: Metrohm 850 Professional IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Chemical Composition of $PM_{2.5}$ and its Impact on Visibility in Guangzhou, Southern China, (W. Chen et al.), *Aerosol and Air Quality Research,* **2016**, 16, p. 2349 - 2361

Instruments: Metrohm 883 Basic IC pro
Analytes: Fluoride, chloride, nitrite, bromide, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Influence of atmospheric dry deposition of inorganic nutrients on phytoplankton biomass in the coastal Bay of Bengal, (K. Yadav et al.), *Marine Chemistry,* **2016,** 187, p. 25 - 34

Instruments: Metrohm 850 Professional IC, Metrosep A Supp 5 - 250/4.0, Metrosep C 4 - 150/4.0
Analytes: Nitrite, phosphate, ammonium

Water soluble and insoluble components of urban $PM_{2.5}$ and their cytotoxic effects on epithelial cells (A549) in vitro, (Y. Zou et al.), *Environmental Pollution,* **2016,** 212, p. 627 - 635

Instruments: Metrohm Modular IC

The in vitro toxicological effects of particulate emissions from small - and medium-scale heating systems, (S. Kasurinen), *Thesis, University of Eastern Finland, Joensuu, Finland,* **2016**

Instruments: Metrohm Modular IC, Metrosep A Supp 5 - 150/4.0
Analytes: Chloride, nitrate, phosphate, sulfate

Caracterização dos íons majoritários do material particulado da atmosfera de Ribeirão Preto, uma cidade canavieira do estado de São Paulo, (D. C. O. dos Reis), *Thesis, Universidade de Sao Paulo, Brazil,* **2016**

Instruments: Metrohm 881 Compact IC pro, Metrosep A Supp 5 - 250/4.0, Metrosep C 4 - 150/4.0
Analytes: Anions, cations

Comprehensive assessment of $PM_{2.5}$ physicochemical properties during the Southeast Asia dry season (south-west monsoon), (M. F. Khan et al.), *Journal of Geophysical Research: Atmospheres,* **2016,** 121, 24, p. 14589 - 14611

Instruments: Metrohm 850 Professional IC, 881 Compact IC pro, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 100/4.0
Analytes: Anions, cations

Chemical Characterization and Source Apportionment of Ambient $PM_{2.5}$ over Key Emission Regions in China, (J. Zhou), *Thesis, University of Calgary, Canada,* **2016**

Instruments: Metrohm IC system
Analytes: Fluoride, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Relative contributions of NH_3, NO_2, NH_4^+ and NO_3^- to total Nitrogen deposition at an agricultural site in the Indo-Gangetic Plain of India, (S. Singh et al.), *Proceedings of the 2016 International Nitrogen Initiative Conference , Melburne Australia,* **2016**

Instruments: Metrohm IC system

Aerosol and rain water study during Indian summer monsoon, (P. Rajeev et al.), *Paper, IASTA Conference 2016,* **2016**

Instruments: Metrohm IC system
Analytes: Anions, cations

Chemical Composition of PM_{10} at Urban Sites in Naples (Italy), (P. Di Vaio et al.), *Atmosphere,* **2016,** 7, 12, 163

Instruments: Metrohm 761 Compact IC, Metrosep A Supp 5, Metrosep C 4
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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The sensitivity of the model for determination of aerosol black carbon sources to selected input parameters, (T. Bizjak), *Thesis, University of Nova Gorica, Slovenia,* **2016**

Instruments: Metrohm IC system, PAD
Analytes: Levoglucosan

Determination of trimethylamine N-oxide level and its metabolic precursors in biological material, (A. B. Marchenko et al.), *Bulletin of the Karaganda University,* **2016,** 4, 84, p. 107 - 112

Instruments: Metrohm 761 Compact IC, Metrosep C 2 - 250/4.0
Analytes: Trimethylamine-N-oxide

Development of a Digital Microfluidic Lab-on-a-chip for Analysis of Atmospheric Inorganic Ions, (J. I. Connolly), *Thesis, University of Nevada, Reno, USA,* **2016**

Instruments: Metrohm 761 Compact IC, Metrosep A Supp 5, Metrosep C 2
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium

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Composition and emission characteristics of fine particulate matters at the 1100 Site of Mt. Halla during 2011-2012, (J. M. Song et al.), *Analytical Science & Technology,* **2016,** 29, 5, p. 209 - 218

Instruments: Metrohm Advanced Modular IC, Metrosep A Supp 5, Metrosep A Supp 16 Metrosep C 4 - 150/4.0
Analytes: Fluoride, acetate, formate, methanesulfonate, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Citations 2015

Chemical composition and source apportionment of the ambient $PM_{2.5}$ in Hangzhou, China, (G. Liu et al.), *Particuology,* **2015**, 18, p. 135 - 143

Instruments: Metrohm Modular IC, Metrosep A Supp 4 - 250/4.0, Metrosep C 2 - 250/4.0
Analytes: Fluoride, chloride, nitrate, sulfate, sodium, ammonium, potassium

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Time-resolved distributions of bulk parameters, diacids, ketoacids and α-dicarbonyls and stable carbon and nitrogen isotope ratios of TC and TN in tropical Indian aerosols: Influence of land/sea breeze and secondary processes, (C. M. Pavuluri et al.), *Atmospheric Research,* **2015,** 153, p. 188 - 199

Instruments: Metrohm 761 Compact IC, Metrosep A Supp 5, Metrosep C 4
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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An integrated approach for the chemical characterization and oxidative potential assessment of indoor $PM_{2.5}$, (V. G. Mihucz et al.), *Microchemical Journal,* **2015,** 119, p. 22 - 29

Instruments: Metrohm 881 Compact IC pro, 863 IC Compact Autosampler
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

FT-IR Quantification of the Carbonyl Functional Group in Aqueous-Phase Secondary Organic Aerosol from Phenols, (K. M. George et al.), *Atmospheric Environment,* **2015,** 100, p. 230 - 237

Instruments: Metrohm 881 Compact IC pro, Metrosep A Supp 15 - 250/4.0
Analytes: Malate, fumarate, malonate, oxalate, maleate, pyruvate

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Surfactants in atmospheric aerosols and rainwater around lake eco-system, (I. S. Razak et al.), *Environmental Science and Pollution Research,* **2015,** 22, 8, p. 6024 - 6033

Instruments: Metrohm 881 Compact IC pro, Metrosep A Supp 5 - 150/4.0
Analytes: Fluoride, chloride, nitrate, sulfate

One-year intensive characterization on $PM_{2.5}$ nearby port area of Thessaloniki, Greece, (E. I. Tolis et al.), *Environmental Science and Pollution Research,* **2015,** 22, 9, p. 6812 - 6826

Instruments: Metrohm 850 Professional IC, 882 Compact IC pro,
Metrosep A Supp 5 - 250/4.0
Analytes: Nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Toxicological effects of particulate emissions – A comparison of oil and wood fuels in small- and medium-scale heating systems, (S. Kasurinen et al.), *Atmospheric Environment,* **2015,** 103, p. 321 - 330

Instruments: Metrohm 882 Compact IC plus, Metrosep A Supp 5 - 150/4.0
Analytes: Chloride, nitrate, phosphate, sulfate

Source apportionment of carbonaceous fine particulate matter ($PM_{2.5}$) in two contrasting cities across the Indo–Gangetic Plain, (A. M. Villalobos et al.), *Atmospheric Pollution Research,* **2015**, 6, 3, p. 398 - 405

Instruments: Metrohm Compact IC
Analytes: Nitrate, sulfate

Chemical characteristics of long-range-transported fine particulate matter at Gosan, Jeju Island, in the spring and fall of 2008, 2009, 2011, and 2012, (K. Y. Lee et al.), *Journal of the Air & Waste Management Association,* **2015,** 65, 4, p. 445 - 454

Instruments: Metrohm 850 Professional IC, Metrosep A Supp 5,
Metrosep C 4 - 150/4.0
Analytes: Anions, cations

Effect of fuel zinc content on toxicological responses of particulate matter from pellet combustion in vitro, (O. Uski et al.), *Science of the Total Environment,* **2015,** 511, p. 331 - 340

Instruments: Metrohm 882 Compact IC plus, Metrosep A Supp 5
Analytes: Anions

Insights into the chemical composition of summertime $PM_{2.5}$ at the northeast of the Qinghai-Xizang (Tibet) Plateau, (J. Xu et al.), *Atmospheric Chemistry and Physics Discussions,* **2015,** 15, p. 1307 - 1341

Instruments: Metrohm 881 Compact IC pro, Metrosep A Supp 15 - 250/4.0,
Metrosep C 4 - 250/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

PM$_{2.5}$ acidity at a background site in the Pearl River Delta region in fall-winter of 2007–2012, (X. Fu et al.), *Journal of Hazardous Materials,* **2015,** 286, p. 484 - 492

Instruments: Metrohm 883 Basic IC pro, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 100/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Characteristics of new particle formation events in Nanjing, China: effect of watersoluble ions, (J. An et al.), *Atmospheric Environment,* **2015,** 108, p. 32 - 40

Instruments: Metrohm 850 Professional IC
Analytes: Fluoride, chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Stable Isotopic and Chemical Characteristics of Bulk Aerosols during Winter and Summer Season at a Station in Western Coast of India (Goa), (R. Agnihotri et al.), *Aerosol and Air Quality Research,* **2015,** 15, p. 888 - 900

Instruments: Metrohm 850 Professional IC, Metrosep A Supp 5 - 250/4.0, Metrosep C 4 - 150/4.0
Analytes: Fluoride, chloride, nitrate, bromide, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Industrial dust sulphate and its effects on biochemical and morphological characteristics of Morus (Morus alba) plant in NCR Delhi, (G. P. Gupta et al.), *Environmental Monitoring and Assessment,* **2015**, 197, 67

Instruments: Metrohm 883 Basic IC pro
Analytes: Fluoride, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Source Contribution of $PM_{2.5}$ at Different Locations on the Malaysian Peninsula, (O. Ee-Ling et al.), *Bulletin of Environmental Contamination and Toxicology,* **2015,** 94, 4, p. 537 - 542

Instruments: Metrohm 881 Compact IC pro, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 100/4.0
Analytes: Anions, cations

Fossil vs. non-fossil sources of fine carbonaceous aerosols in four Chinese cities during the extreme winter haze episode of 2013, (J. L. Zhang et al.), *Atmospheric Chemistry and Physics,* **2015,** 15, p. 1299 - 1312

Instruments: Metrohm 850 Professional IC
Analytes: Potassium

Sources and chemical characterization of organic aerosol during the summer in the eastern Mediterranean, (E. Kostenidou et al.), *Atmospheric Chemistry and Physics Discussions,* **2015,** 15, p. 3455 - 3491

Instruments: Metrohm 761 Compact IC
Analytes: Anions, cations

[**Carbonaceous aerosols on the south edge of the Tibetan Plateau: concentrations, seasonality and sources**]**,** (Z. Cong et al.), *Atmospheric Chemistry and Physics,* **2015,** 15, p. 1573 - 1584

Instruments: Metrohm 761 Compact IC, Metrosep C 2 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Chemical composition and mass closure of ambient particulate matter at a crossroads and a highway in Katowice, Poland, (R. Rogula-Kozlowska et al.), *Environment Protection Engineering,* **2015,** 41, 2, p. 15 - 29

Instruments: Metrohm IC system
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Atmosphärische Stickstoffeinträge in Hochmoore Nordwestdeutschlands und Möglichkeiten ihrer Reduzierung – eine Fallstudie aus einer land - wirtschaftlich intensiv genutzten Region, (K. Mohr et al.), *Thünen Report 23, Johann Heinrich von Thünen-Institut, Braunschweig, Germany,* **2015**

Instruments: Metrohm 882 Compact IC pro
Analytes: Nitrite, nitrate, ammonium

Effect of biomass burning over the western North Pacific Rim: wintertime maxima of anhydrosugars in ambient aerosols from Okinawa, (C. Zhu et al.), *Atmospheric Chemistry and Physics,* **2015,** 15, p. 1959 - 1973

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Investigation of the tracers for plastic-enriched waste burning aerosols, (S. Kumar et al.), *Atmospheric Environment,* **2015**, 108, p. 49 - 58

Instruments: Metrohm 761 Compact IC
Analytes: Anions, cations

First ice core records of NO_3– stable isotopes from Lomonosovfonna, Svalbard, (C. P. Vega et al.), *Journal of Geophysical Research: Atmospheres,* **2015,** 120, 1, p. 313 - 330

Instruments: Metrohm 850 Professional IC
Analytes: Fluoride, chloride, bromide, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Changes in chemical composition and oxidative potential of urban $PM_{2.5}$ between 2010 and 2013 in Hungary, (T. Szigeti et al.), *Science of the Total Environment,* **2015,** 518-519, p. 534 - 544

Instruments: Metrohm 881 Compact IC pro, 863 IC Compact Autosampler, Metrosep A Supp 7 - 250/4.0
Analytes: Fluoride, chloride, bromide, nitrate, phosphate, sulfate

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Composition Variation of Atmospheric Fine Particulate Matters in Accordance with Air Mass Transport Pathways at Background Site of Korea in 2013, (H. J. Ko et al.), *Journal of the Korean Society for Atmospheric Environment,* **2015,** 31, 1, p. 15 - 27

Instruments: Metrohm Advanced Modular IC, Metrosep A Supp 5, Metrosep C 4 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Penetration of biomass-burning emissions from South Asia through the Himalayas: new insights from atmospheric organic acids, (Z. Cong et al.), *Scientific Reports,* **2015,** 8, 9580

Instruments: Metrohm 761 Compact IC, Metrosep C 2 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Emissions of biogenic volatile organic compounds and subsequent formation of secondary organic aerosols in a Larix kaempferi forest, (T. Mochizuki et al.), *Atmospheric Chemistry and Physics Discussions,* **2015,** 15, p. 10739 - 10771

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate

Chemical characteristics of submicron particulates ($PM_{1.0}$) in Wuhan, central China, (X. P. Lyu et al.), *Atmospheric Research,* **2015,** 161-162, p. 169 - 178

Instruments: Metrohm 883 Basic IC plus
Analytes: Fluoride, chloride, bromide, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Development and Field Evaluation of a Multiple Slit Nozzle-Based High Volume $PM_{2.5}$ Inertial Impactor Assembly (HVIA), (A. Kumar et al.), *Aerosol and Air Quality Research,* **2015,** 15, p. 1188 - 1200

Instruments: Metrohm 882 Compact IC plus
Analytes: Chloride, nitrate, sulfate

Atmospheric chemistry of nitrogenous aerosols in Northeast Asia: biological sources and secondary formation, (C. M. Pavuluri et al.), *Atmospheric Chemistry and Physics Discussions,* **2015**, 15, p. 12617 - 12652

Instruments: Metrohm 761 Compact IC
Analytes: Methanesulfonate, nitrate, ammonium

Chemical composition and size distribution of summertime $PM_{2.5}$ at a high altitude remote location in the northeast of the Qinghai–Xizang (Tibet) Plateau: insights into aerosol sources and processing in free troposphere, (J. Z. Xu et al.), *Atmospheric Chemistry and Physics,* **2015,** 15, p. 5069 - 5081

Instruments: Metrohm 881 Compact IC pro, Metrosep A Supp 15 - 250/4.0, Metrosep C 4 - 250/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Organic tracers of primary biological aerosol particles at subtropical Okinawa Island in the western North Pacific Rim, (C. Zhu et al.), *Journal of Geophysical Research, Atmospheres,* **2015,** p. 5504 - 5523

Instruments: Metrohm 761 Compact IC
Analytes: Anions, cations

Characterization of Volatilization of Filter-Sampled $PM_{2.5}$ Semi-Volatile Inorganic Ions Using a Backup Filter and Denuders, (C. H. Kim et al.), *Aerosol and Air Quality Research,* **2015,** 15, p. 814 - 820

Instruments: Metrohm IC system, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Spatial distribution of source areas of $PM_{2.5}$ by Concentration Weighted Trajectory (CWT) model applied in $PM_{2.5}$ concentration and composition data, (K. Dimitriou et al.), *Atmospheric Environment,* **2015,** 116, p. 138 - 145

Instruments: Metrohm Modular System, Metrosep Dual 2 - 75/4.6, Metrosep C 4 - 150/4.0
Analytes: Anions, cations

Spatial, seasonal trends and transboundary transport of $PM_{2.5}$ inorganic ions in the Veneto region (Northeastern Italy), (M. Masiol et al.), *Atmospheric Environment,* **2015,** 117, p. 19 - 31

Instruments: Metrohm 883 Compact IC plus, Metrosep A Supp 4 - 250/4.0, Metrosep C 4 - 100/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Source apportionment of $PM_{2.5}$ in Guangzhou combining observation data analysis and chemical transport model simulation, (H. Cui et al.), *Atmospheric Environment,* **2015**, 116, p. 262 - 271

Instruments: Metrohm 883 Compact IC plus
Analytes: Nitrate, sulfate, ammonium

Hygroscopic and phase transition properties of alkyl ammonium sulfates at low relative humidities, (Y. Chu et al.), *Physical Chemistry Chemical Physics,* **2015,** 17, 30, p. 19789 - 19796

Instruments: Metrohm 881 Compact IC pro
Analytes: Amines

Source identification of water-soluble organic aerosols at a roadway site using a positive matrix factorization analysis, (S. Park et al.), *Science of The Total Environment,* **2015,** 533, p. 410 - 421

Instruments: Metrohm 861 Advanced Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Water-soluble ions in atmospheric aerosols measured in five sites in the Yangtze River Delta, China: Size-fractionated, Seasonal variations and Sources, (H. Wang et al.), *Atmospheric Environment,* **2015,** 123, Part B, p. 370 - 379

Instruments: Metrohm 850 Professional IC, 858 Professional Sample Processor, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Sistema de amstragem atmosferica com base em denuderes: protocolo de montagem, instalacao, amstragem, preparacao e analise de denuderes e filtros, (M. C. Forti et al.), *Report, INPE São José dos Campos, Brazil,* **2015**

Instruments: Metrohm 850 Professional IC, 872 Extension Module, 858 Professional Sample Processor
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Size distribution and optical properties of mineral dust aerosols transported in the western Mediterranean, (C. Denjean et al.), *Atmospheric Chemistry and Physics Discussions,* **2015,** 15, p. 21607 - 21669

Instruments: Metrohm 850 Professional IC, Metrosep A Supp 16 - 250/4.0, Metrosep C 4 - 250/4.0
Analytes: Short-chain organic acids, anions, cations

Fine particulate matter associated with monsoonal effect and the responses of biomass fire hotspots in the tropical environment, (M. F. Khan et al.), *Atmospheric Chemistry and Physics Discussions,* **2015,** 15, p. 22215 - 22261

Instruments: Metrohm 850 Professional IC, 881 Compact IC pro, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 100/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Water Soluble Ionic Species in the Atmospheric Fine Particulate Matters ($PM_{2.5}$) in a Southeast Asian Mega City (Dhaka, Bangladesh), (A. Salam et al.), *Open Journal of Air Pollution,* **2015**, 4, p. 99 - 108

Instruments: Metrohm 881 Compact IC pro
Analytes: Chloride, bromide, nitrate, phosphate, sulfate, sodium, ammonium, calcium

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Particulate and gaseous emissions from the combustion of different biofuels in a pellet stove, (E. D. Vicente et al.), *Atmospheric Environment,* **2015,** 120, p. 15 - 27

Instruments: Metrohm 881 Compact IC pro, 896 IC Amperometric Detector, PAD
Analytes: Levoglucosan

Atmospheric chemistry of nitrogenous aerosols in northeastern Asia: biological sources and secondary formation, (C. M. Pavuluri et al.), *Atmospheric Chemistry and Physics,* **2015,** 15, p. 9883 - 9896

Instruments: Metrohm 761 Compact IC
Analytes: Methanesulfonate, nitrate, ammonium

Characterization and source apportionment of organic aerosol using offline aerosol mass spectrometry, (K. R. Daellenbach et al.), *Atmospheric Measurement Techniques Discussions,* **2015,** 8, p. 8599 - 8644

Instruments: Metrohm IC system, Metrosep A Supp 5, Metrosep C 4
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Evolution of biomass burning smoke particles in the dark, (C. Li et al.), *Atmospheric Environment,* **2015**, 120, p. 244 - 252

Instruments: Metrohm 850 Professional IC, Metrosep A Supp 7 - 250/4.0, Metrosep C 4 - 150/4.0
Analytes: Acetate, methanesulfonate, oxalate, formate, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Characteristics of chemical compositions of rainwater in Lanzhou City in 2010, (Y. T. Guo et al.), *Journal of Lanzhou University (Natural Sciences),* **2015,** 51, 4, p. 546 - 552

Instruments: Metrohm IC system

Characterization of Gaseous Pollutants and Water-Soluble Inorganic Ions in $PM_{2.5}$ during Summer Time at an Urban Site of North India, (S. Behera et al.), *Journal of Hazardous, Toxic, and Radioactive Waste,* **2015,** 20, 4

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Day and night variation in chemical composition and toxicological responses of size segregated urban air PM samples in a high air pollution situation, (P. I. Jalava et al.), *Atmospheric Environment,* **2015**, 120, p. 427 - 437

Instruments: Metrohm 882 Compact IC plus, Metrosep A Supp 5 - 150/4.0
Analytes: Fluoride, chloride, nitrate, bromide, phosphate, sulfate

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In-situ measured seasonal characteristics of near-surface aerosols over Bay of Bengal and MODIS retrieved columnar properties: A multi-campaign analysis, (A. Sudha et al.), *Journal of Geophysical Research: Atmospheres,* **2015,** 120, 19, p. 10548 - 10568

Instruments: Metrohm IC system

Apportioning the Secondary Particles in Atmospheric PM_{10} in a Residential Area, (S. P. Shukla), *International Journal of Engineering Research and General Science,* **2015,** 3, 5, p. 316 - 326

Instruments: Metrohm 761 Compact IC
Analytes: Fluoride, chloride, nitrate, sulfate, ammonium

Meteorological-gaseous influences on seasonal $PM_{2.5}$ variability in the Klang Valley urban-industrial environment, (N. Amil et al.), *Atmospheric Chemistry and Physics Discussions,* **2015,** 15, p. 23423 - 23479

Instruments: Metrohm 882 Compact IC plus, 732 Conductivity Detector, 889 IC Sample Center, Metrosep A Supp 5 - 150/4.0
Analytes: Fluoride, chloride, nitrite, bromide, nitrate, phosphate, sulfate

A Preliminary Assessment of Chemical Constituents of Atmospheric Particulate Matter and their Sources in Faisalabad, Pakistan, (W. Javed et al.), *Journal of the Chemical Society of Pakistan,* **2015**, 37, 4, p. 830 - 840

Instruments: Metrohm 940 Professional IC Vario
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Spatial, temporal and size distribution of particulate matter and its chemical constituents in Faisalabad, Pakistan, (W. Javed et al.), *Atmósfera,* **2015,** 28, 2 , p. 99 - 116

Instruments: Metrohm 940 Professional IC Vario
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Dicarboxylic acids, oxoacids, benzoic acid, -dicarbonyls, WSOC, OC, and ions in spring aerosols from Okinawa Island in the western North Pacific Rim: size distributions and formation processes, (D. K. Deshmukh et al.), *Atmospheric Chemistry and Physics Discussions,* **2015,** 15, p. 26509 - 26554

Instruments: Metrohm 761 Compact IC, Metrosep C 2 - 150/4.0
Analytes: Methanesulfonate, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

[Chemical Mass Balance Source Apportionment of Size-Fractionated Particulate Matter in Nanjing, China], (P. Chen et al.), *Aerosol and Air Quality Research,* **2015**, 15, p. 1855 - 1867

Instruments: Metrohm 850 Professional IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Diurnal variations of carbonaceous components, major ions, and stable carbon and nitrogen isotope ratios in suburban aerosols from northern vicinity of Beijing, (N. He et al.), *Atmospheric Environment,* **2015,** 123, Part A, p. 18 - 24

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Characterization of saline dust emission resulted from Urmia Lake drying, (A. Gholampour et al.), *Journal of Environmental Health Science and Engineering,* **2015,** 13, 82

Instruments: Metrohm 850 Professional IC
Analytes: Fluoride, chloride, sodium, ammonium, potassium, calcium, magnesium

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Determination of the Concentration and Composition of PM_{10} during the Middle Eastern Dust Storms in Sanandaj, Iran, (G. Hosseini et al.), *Journal of Research in Health Sciences,* **2015,** 15, 3

Instruments: Metrohm 850 Professional IC
Analytes: Fluoride, chloride, sodium, potassium, calcium, magnesium

Potential Sources of Trace Metals and Ionic Species in $PM_{2.5}$ in Guadalajara, Mexico: A Case Study during Dry Season, (M. A. Murillo-Tovar et al.), *Atmosphere,* **2015**, 6, 12, p. 1858 - 1870

Instruments: Metrohm 861 Advanced Compact IC, Metrosep A Supp 5- 150/4.0, Metrosep C 2 - 150/4.0
Analytes: Chloride, nitrite, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Chemical Composition and Source Apportionment of Ambient Particulates in Puli, Nantou County, (M. D. Lin et al.), *Thesis, National Chung Hsing University, Taichung, Taiwan,* **2015**

Instruments: Metrohm 790 Personal IC, Metrosep A Supp 4 - 250/4.0, Metrosep C 4 - 250/4.0
Analytes: Fluoride, chloride, nitrite, bromide, nitrate, phosphate, sulfate, cations

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Source apportionment and dynamic changes of carbonaceous aerosols during the haze bloom–decay process in China based on radiocarbon and organic molecular tracers, (J. Liu et al.), *Atmospheric Chemistry and Physics Discussion,* **2015,** 15, p. 34949 - 34979

Instruments: Metrohm 883 Basic IC plus
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Wintertime source - apportionment of PM_1 from Kanpur in the Indo - Gangetic plain, (P. Rajput et al.), *Climate Change,* **2015,** 1, 4, p. 503 - 507

Instruments: Metrohm IC system
Analytes: Chloride, nitrate, sulfate, ammonium

Time Resolved Analysis of Water Soluble Organic Carbon by Aerosol-into-Mist System, (I. H. Cho et al.), *Journal of Korean Society for Atmospheric Environment,* **2015**, 31, 6, p. 497 - 507

Instruments: Metrohm 883 Basic IC plus, Metrosep A Supp 5,
Metrosep C 4 - 250/4.0
Analytes: Fluoride, chloride, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Characteristics, seasonality and sources of inorganic ions and trace metals in North-east Asian aerosols, (C. M. Pavuluri et al.), *Atmospheric Environment,* **2015,** 123, Part A, p. 18 - 24

Instruments: Metrohm 761 Compact IC
Analytes: Anions, cations

Efeito da massa e dos constituinetes quimicos do material perticulado inalavel sobre admissoes hsopitalares por doencas respiratorias e circulatorias em cidade de Porte Medio, (T. Morais Ferreira et al.), *Thesis, Universidade de Sao Paolo, Brazil,* **2015**

Instruments: Metrohm 850 Professional IC, Metrosep A Supp 5,
Metrosep C 4 - 100/4.0
Analytes: Anions, cations

PM_{10} concentration and its composition in Sanandaj, Iran, (G. Hosseini et al.), *Paper, Proceedings of the 14 th International Conference on Environmental Science and Technology Rhodes, Greece,* **2015**

Instruments: Metrohm 850 Professional IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Citations 2014

Fine particle emissions in three different combustion conditions of a wood chip-fired appliance – Particulate physico-chemical properties and induced cell death, (J. Leskinen et al.), *Atmospheric Environment,* **2014**, 86, p. 129 - 139

Instruments: Metrohm 882 Compact IC plus
Analytes: Anions

Ionic composition of submicron particles ($PM_{1.0}$) during the long-lasting haze period in January 2013 in Wuhan, central China, (H. Cheng et al.), *Journal of Environmental Sciences,* **2014,** 26, 4, p. 810 - 817

Instruments: Metrohm 882 Compact IC plus,Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 100/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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An investigation into the relationship between the major chemical components of particulate matter in urban air, (Y. H. Kim et al.), *Chemosphere,* **2014,** 95, p. 387 - 394

Instruments: Metrohm 850 Professional IC

Indoor/outdoor relationships of PM_{10}, $PM_{2.5}$, and PM_1 mass concentrations and their water-soluble ions in a retirement home and a school dormitory, (M. S. Hassanvand et al.), *Atmospheric Environment,* **2014,** 82, p. 375 - 382

Instruments: Metrohm 850 Professional IC

Hygroscopic properties of particles nebulized from water extracts of aerosols collected at Chichijima Island in the western North Pacific: an outflow region of Asian dust, (S. K. R. Boreddy et al.), *Journal of Geophysical Research: Atmospheres,* **2014**, 119, 1, p. 167 - 178

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Formation and evolution of biogenic secondary organic aerosol over a forest site in Japan, (Y. Han et al.), *Journal of Geophysical Research: Atmospheres,* **2014,** 119, 1, p. 259 - 273

Instruments: Metrohm 761 Compact IC
Analytes: Methanesulfonate, chloride, nitrite, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Biogenic and anthropogenic sources of oxalate, in $PM_{2.5}$ in a mega city, Shanghai, (F. Yang et al.), *Atmospheric Research,* **2014,** 138, p. 356 - 363

Instruments: Metrohm IC system
Analytes: Chloride, nitrate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

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Optical properties and chemical composition of $PM_{2.5}$ in Shanghai in the spring of 2012, (G. Huang et al.), *Particuology,* **2014,** 13, p. 52 - 59

Instruments: Metrohm Modular IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

[Fine particles ($PM_{2.5}$) at a CAWNET background site in Central China: chemical compositions, seasonal variations and regional pollution events](), (H.r. Cheng et al.), *Atmospheric Environment,* **2014**, 86, p. 193 - 202

Instruments: Metrohm 883 Basic IC plus, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 100/4.0
Analytes: Nitrate, sulfate, sodium, calcium, magnesium

[Characteristics of water-soluble inorganic ions in $PM_{2.5}$ and $PM_{2.5–10}$ in the coastal urban agglomeration along the Western Taiwan Strait Region, China](), (L. Yin et al.), *Environmental Science and Pollution Research,* **2014,** 21, 7, p. 5141 - 5156

Instruments: Metrohm 883 Basic IC plus, Metrosep A Supp 5 - 150/4.0
Analytes: Fluoride, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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[The dark side of the tradition: The polluting effect of Epiphany folk fires in the eastern Po Valley (Italy)](), (M. Masiol et al.), *Science of The Total Environment,* **2014,** 473-474, p. 549 - 564

Instruments: Metrohm IC system, Metrosep A Supp 7-250/4.0, Metrosep C 3 - 150/4.0
Analytes: Fluoride, chloride, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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[Seasonal Cycles of Water-Soluble Organic Nitrogen Aerosols in a Deciduous Broadleaf Forest in Northern Japan](), (Y. Miyazaki et al.), *Journal of Geophysical Research: Atmospheres,* **2014,** 119, 3, p. 1440 - 1454

Instruments: Metrohm 761 Compact IC
Analytes: Nitrite, nitrate

Source Identification of Particulate Matter in a Semi-urban Area of Malaysia Using Multivariate Techniques, (N.B.A. Wahid et al.), *Bulletin of Environmental Contamination and Toxicology,* **2014**, 92, 3, p. 317 - 322

Instruments: Metrohm 850 Professional IC
Analytes: Fluoride, chloride, nitrate, sulfate

Effects of long-term exposure to ammonium, sulfate, particles on growth and gas exchange rates of Fagus crenata, Castanopsis sieboldii, Larix kaempferi and Cryptomeria japonica seedlings, (M. Yamaguchi et al.), *Atmospheric Environment,* **2014,** 97, p. 493 - 500

Instruments: Metrohm 883 Basic IC plus
Analytes: Sulfate

Chemical Characterization of Summertime Dust Events at Kanpur: Insight into the Sources and Level of Mixing with Anthropogenic Emissions, (S. Ghosh et al.), *Aerosol and Air Quality Research,* **2014,** 14, 3, p. 879 - 891

Instruments: Metrohm 882 Compact IC plus
Analytes: Chloride, nitrate, sulfate

Size distribution of water-soluble ions in aerosol from an offshore site of Nantong in autumn, (B. Wen et al.), *China Environmental Science,* **2014,** 34, 1, p. 49 - 57

Instruments: Metrohm 850 Professional IC, Metrosep A Supp 7 - 250/4.0, Metrosep C 4 - 150/4.0
Analytes: Fluoride, acetate, formate, chloride, nitrite, nitrate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

Understanding the anthropogenic influence on formation of biogenic secondary organic aerosols via analysis of organosulfate,s and related oxidation products, (Q. T. Nguyen et al.), *Atmospheric Chemistry and Physics Discussions,* **2014**, 14, p. 2449 - 2498

Instruments: Metrohm Advanced Modular IC, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 150/4.0
Analytes: Nitrate, sulfate, ammonium

Design and characterization of a smog chamber for studying gas-phase chemical mechanisms and aerosol formation, (X. Wang et al.), *Atmospheric Measurement Techniques,* **2014,** 7, p. 301 - 313

Instruments: Metrohm 883 Basic IC plus
Analytes: Anions

Comparative study of indoor air pollution using traditional and improved cooking stoves in rural households of Northern India, (S. Singh et al.), *Energy for Sustainable Development,* **2014,** 19, p. 1 - 6

Instruments: Metrohm 883 Basic IC plus
Analytes: Fluoride, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Source Apportionment of Particulate Matter (PM_{10}) and Indoor Dust in a University Building, (J.N.M. Zhong et al.), *Environmental Forensics,* **2014,** 15, 1, p. 5 - 16

Instruments: Metrohm 881 Compact IC pro
Analytes: Chloride, nitrate, sulfate

Source apportionment of surfactants in marine aerosols at different locations along the Malacca Straits, (N.I.H. Mustaffa et al.), *Environmental Science and Pollution Research,* **2014**, 21, 10, p. 6590 - 6602

Instruments: Metrohm 850 Professional IC, 881 Compact IC pro, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 100/4.0
Analytes: Anions, cation

Different toxic mechanisms are activated by emission PM depending on combustion efficiency, (O. Uski et al.), *Atmospheric Environment,* **2014,** 89, p. 623 - 632

Instruments: Metrohm 882 Compact IC pro, Metrosep A Supp 5 - 150/4.0
Analytes: Fluoride, chloride, bromide, sulfate

Treinamento tecnico para a utilizacao da tecnica de cromatografia a liquido para analise de cations e anions em extrato aquoso de particulado atmosferico, (S.P. Crispim et al.), *Report, Instituto Nacional de Pesquisas Espaciais - INPE, Sao Jose dos Campos, Brazil,* **2014**

Instruments: Metrohm 850 Professional IC, 858 Professional Sample Center, Metrosep A Supp 5 - 100/4.0, Metrosep C 4 - 100/4.0
Analytes: Chloride, nitrate, sulfate, cations

Determination of alkyl amines in atmospheric aerosol particles: a comparison of gas chromatography-mass spectrometry and ion chromatography approaches, (R. J. Huang et al.), *Atmospheric Measurement Techniques Discussions,* **2014,** 7, p. 2127 - 2152

Instruments: Metrohm 761 Compact IC, Metrosep C 4 - 150/4.0
Analytes: Sodium, ammonium, potassium, calcium, magnesium, methylamine, ethylamine, dimethylamine, trimethylamine, diethylamine, propylamine, butylamine

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Chemical characterization of particulate matter (PM) and source apportionment study during winter and summer period for the city of Kozani, Greece, (E. I. Tolis et al.), *Central European Journal of Chemistry,* **2014,** 12, 6, p. 643 - 651

Instruments: Metrohm 850 Professional IC, Metrosep A Supp 5 - 250/4.0
Analytes: Anions

Source apportionment of PM_{10} in a north-western Europe regional urban background site (Lens, France) using positive matrix factorization and including primary biogenic emissions, (A. Waked et al.), *Atmospheric Chemistry and Physics,* **2014,** 14, p. 3325 - 3346

Instruments: Metrohm IC system, PAD, Metrosep A Supp 15
Analytes: Levoglucosan, mannosan, galactosan, arabitol, sorbitol, mannitol

Low-molecular-weight hydroxyacids in marine atmospheric aerosol: evidence of a marine microbial origin, (Y. Miyazaki et al.), *Biogeosciences Discussions,* **2014**, 11, p. 5743 - 5763

Instruments: Metrohm 761 Compact IC
Analytes: Anions, cations

Observations of gas-phase hydrochloric acid in the polluted marine boundary layer, (T. Crisp et al.), *Journal of Geophysical Research: Atmospheres,* **2014,** 119, 11, p. 6897 - 6915

Instruments: Metrohm IC system
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, magnesium

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One-year observations of carbonaceous and nitrogenous components and major ions in the aerosols from subtropical Okinawa Island, an outflow region of Asian dusts, (B. Kunwar et al.), *Atmospheric Chemistry and Physics,* **2014,** 14, p. 1819 - 1836

Instruments: Metrohm 761 Compact IC, Metrosep C 2 - 150/4.0
Analytes: Anions, sodium, ammonium, potassium, calcium, magnesium

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Possible sources of two size-resolved water-soluble organic carbon fractions at a roadway site during fall season, (S. S. Park et al.), *Atmospheric Environment,* **2014,** 94, p. 134 - 143

Instruments: Metrohm 861 Advanced Compact IC, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 150/4.0
Analytes: Anions, cations

Mass closure and source apportionment of $PM_{2.5}$ by Positive Matrix Factorization analysis in urban Mediterranean environment, (E. Mantas et al.), *Atmospheric Environment,* **2014**, 94, p. 154 - 163

Instruments: Metrohm Modular IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Seasonal variations of stable carbon isotopic composition of bulk aerosol carbon from Gosan site, Jeju Island in the East China Sea, (S. Kundu et al.), *Atmospheric Environment,* **2014,** 94, p. 316 - 322

Instruments: Metrohm 761 Compact IC
Analytes: Methanesulfonate, potassium

Chemical Properties of insoluble precipitation residue Particles, (J. M. Creamean et al.), *Journal of Aerosol Science,* **2014,** 76, p. 13 - 27

Instruments: Metrohm Advanced Modular IC, Metrosep A Supp 5 - 100/4.0, Metrosep C 2 - 100/4.0
Analytes: Chloride, nitrate, phosphate, sulfate, lithium, sodium, ammonium, potassium, calcium, magnesium

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Ion chemistry for atmospheric size-segregated aerosol and depositions at an offshore site of Yangtze River Delta region, China, (S. Kong et al.), *Atmospheric Research,* **2014,** 147-148, p. 205 - 226

Instruments: Metrohm 850 Professional IC, Metrosep A Supp 7 - 250/4.0, Metrosep C 4 - 15/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Chemical Composition Characteristics of Fine Particulate Matter at Atmospheric Boundary Layer of Background Area in Fall, 2012, (H. J. Ko et al.), *Journal of the Korean Chemical Society,* **2014**, 58, 3, p. 267 - 276

Instruments: Metrohm Advanced Modular IC, Metrosep A Supp 5,
Metrosep C 4 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Seasonal distributions of low molecular weight dicarboxylic acids, ketoacids and α-dicarbonyls in ambient aerosols collected at Cape Hedo, Okinawa, an outflow region of Asian dusts, (B. Kunwar), *Thesis, Hokkaido University, Japan,* **2014**

Instruments: Metrohm 761 Compact IC
Analytes: Anions, cations

The influences of macro- and microphysical characteristics of sea-fog on fog-water chemical composition, (Y. Yue et al.), *Advances in Atmospheric Sciences,* **2014,** 31, 3, p. 624 - 636

Instruments: Metrohm 850 Professional IC, Metrosep A Supp 7 - 250/4.0,
Metrosep C 4 - 15/4.0
Analytes: Anions, cations

Diwali Fireworks: Early Signs of Impact on PM_{10} Properties of Rural Brahmaputra Valley, (P. Deka et al.), *Aerosol and Air Quality Research,* **2014,** 14, 6, p. 1752 - 1762

Instruments: Metrohm 882 Compact IC pro, Metrosep A Supp 5 - 250/4.0,
Metrosep C 4 - 150/4.0
Analytes: Anions, cations

Surfactants in the sea-surface microlayer and atmospheric aerosol around the southern region of Peninsular Malaysia, (S. A. Jaafar et al.), *Marine Pollution Bulletin,* **2014**, 84, 1-2, p. 35 - 43

Instruments: Metrohm 882 Compact IC pro, Metrosep A Supp 5 - 150/4.0
Analytes: Fluoride, chloride, bromide, sulfate

Organosulfates from Pinene and Isoprene over the Pearl River Delta, South China: Seasonal Variation and Implication in Formation Mechanisms, (Q. F. He et al.), *Environmental Science & Technology,* **2014,** 48, 16, p. 9236 - 9245

Instruments: Metrohm 883 Compact IC plus
Analytes: Nitrate, sulfate

Influence of crustal aerosols on wet deposition at a rural site of North-East India, (M. J. Kulshrestha et al.), *International Journal of Environmental Studies,* **2014,** 71, 4, p. 510 - 525

Instruments: Metrohm 792 Basic IC
Analytes: Fluoride, chloride, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Field performance evaluation during fog-dominated wintertime of a newly developed denuder-equipped PM_1 sampler, (D. K. Singh et al.), *Environmental Science and Pollution Research,* **2014,** 21, 6, p. 4551 - 4564

Instruments: Metrohm 761 Compact IC
Analytes: Anions, cations

Trends of ambient fine particles and major chemical components in the Pearl River Delta region: Observation at a regional background site in fall and winter, (X. Fu et al.), *Science of the Total Environment,* **2014**, 497-498, p. 274 - 281

Instruments: Metrohm 883 Compact IC plus, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 100/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Chemical characterization of SOA formed from aqueous-phase reactions of phenols with the triplet excited state of carbonyl and hydroxyl radical, (L. Yu et al.), *Atmospheric Chemistry and Physics Discussions,* **2014,** 14, p. 21149 - 21187

Instruments: Metrohm 881 Compact IV pro, Metrosep A Supp 15 - 250/4.0
Analytes: Fluoride, chloride, nitrite, bromide, nitrate, phosphate, sulfate

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Spatial and seasonal variability of the mass concentration and chemical composition of $PM_{2.5}$ in Poland, (W. Rogula-Kozlowska et al.), *Air Quality, Atmosphere, & Health,* **2014,** 7, 1, p. 41 - 58

Instruments: Metrohm IC system
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Difference in production routes of water-soluble organic carbon in $PM_{2.5}$ observed during non-biomass and biomass burning periods in Gwangju, Korea, (G. H. Yu et al.), *Environmental Science: Processes & Impacts,* **2014**, 16, 7, p. 1726 - 1736

Instruments: Metrohm 861 Advanced Compact IC
Analytes: Chloride, nitrate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

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Traffic-Generated Changes in the Chemical Characteristics of Size-Segregated Urban Aerosols, (W. Rogula-Kozlowska), *Bulletin of Environmental Contamination and Toxicology,* **2014,** 93, 4, p. 493 - 502

Instruments: Metrohm IC system
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Altitudinal effect to the size distribution of water soluble inorganic ions in PM at Huangshan, China, (L. Li et al.), *Atmospheric Environment,* **2014,** 98, p. 242 - 252

Instruments: Metrohm 850 Professional IC, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Understanding the anthropogenic influence on formation of biogenic secondary organic aerosols in Denmark via analysis of organosulfates and related oxidation products, (Q. T. Nguyen et al.), *Atmospheric Chemistry and Physics,* **2014**, 14, p. 8961 - 8981

Instruments: Metrohm Advanced Modular IC, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 150/4.0
Analytes: Nitrate, sulfate, ammonium

Aerosol fast flow reactor for laboratory Studies of new particle formation, (M. J. Ezell et al.), *Journal of Aerosol Science,* **2014,** 78, p. 30 - 40

Instruments: Metrohm IC system

Physicochemical Characteristics of Fine Ambient Aerosol from Quasi-Rural Area in Southern Poland, (W. Rogula-Kozlowska et al.), *International Journal of Environmental Research,* **2014,** 8, 3, p. 751 - 764

Instruments: Metrohm IC system
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Carbonaceous aerosols on the south edge of the Tibetan Plateau: concentrations, seasonality and sources, (Z. Cong et al.), *Atmospheric Chemistry and Physics Discussions,* **2014,** 14, p. 25051 - 25082

Instruments: Metrohm 761 Compact IC, Metrosep C 2 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Consolidation of deteriorated carbonate stones with $Ca(OH)_2$ nanoparticles, (A. Zornoza-Indart et al.), *12th International Congress on the Deterioration and Conservation of Stone Columbia University, New York, 2012,* **2014**, 14, 12, p. 1143 - 1151

Instruments: Metrohm 761 Compact IC
Analytes: Fluoride, chloride, nitrite, nitrate, sulfate

Chemical characteristics of ambient aerosols contributed by cooking process at Noorpur village near New Delhi, (S. Singh), *40th COSPAR Scientific Assembly. Held 2-10 August 2014, in Moscow, Russia, Abstract A1.1-153-14,* **2014**

Instruments: Metrohm 883 Compact IC pro
Analytes: Fluoride, chloride, nitrate, sulfate

Hygroscopic behavior of water soluble matter extracted from biomass-burning aerosols collected at a rural site in Tanzania, East Africa, (S.K.R. Boreddy et al.), *Journal of Geophysical Research: Atmospheres,* **2014,** 119, 21, p. 12233 - 12245

Instruments: Metrohm 761 Compact IC, Metrosep C 2 - 150/4.0
Analytes: Anions, cations

Effect of biomass burning over the western North Pacific Rim: wintertime maxima of anhydrosugars in ambient aerosols from Okinawa, (C. Zhu et al.), *Atmospheric Chemistry and Physics Discussions,* **2014,** 14, p. 25581 - 25616

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, potassium, calcium, magnesium

Composition comparison of PM_{10} and $PM_{2.5}$ fine particulate matter for Asian dust and haze events of 2010-2011 at Gosan site in Jeju Island, (K. J. Kim et al.), *Analytical Science & Technology,* **2014**, 27, 1, p. 1 - 10

Instruments: Metrohm Advanced Modular IC, Metrosep A Supp 5, Metrosep C 4 - 150/4.0
Analytes: Acetate, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Accelerated release of persistent organic pollutants from alpine glaciers, (P. Pavlova), *Thesis, University of Bern, Switzerland,* **2014**

Instruments: Metrohm 850 Professional IC, 858 Professional Sample Center
Analytes: Anions, cations

Fossil vs. non-fossil sources of fine carbonaceous aerosols in four Chinese cities during the extreme winter haze episode in 2013, (J.L. Zhang et al.), *Atmospheric Chemistry and Physics Discussions,* **2014,** 14, p. 26257 - 26296

Instruments: Metrohm 850 Professional IC
Analytes: Potassium

Determination of alkylamines in atmospheric aerosol particles: a comparison of gas chromatography-mass spectrometry and ion chromatography approaches, (R. J. Huang et al.), *Atmospheric Measurement Techniques,* **2014,** 7, 7, p. 2027 - 2035

Instruments: Metrohm 861 Advanced Compact IC, Metrosep C 4 - 150/4.0
Analytes: Methylamine, dimethylamine, ethylamine, diethylamine, butylamine, propylamine

Water-soluble inorganic ions in urban aerosols of the continental part of Balkans (Belgrade) during the summer – autumn (2008), (A. Mihajlidi-Zelic et al.), *Open Chemistry,* **2014**, 13, 1

Instruments: Metrohm Compact IC
Analytes: Chloride, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Chemical characterization of aerosol in Delhi: identification and quantification of sources using positive factorization, (G. Habib et al.), *Presentation,* **2014,** 13, 3, p. 1045 - 1059

Instruments: Metrohm IC system

Spatial distribution of summertime particulate matter and its composition in Greece, (M. Tsiflikiotou), *Thesis, University of Patras, Greece,* **2014**

Instruments: Metrohm Compact IC Metrosep A Supp 5, Metrosep C 4
Analytes: Chloride, nitrate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

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Compositions of haze aerosols and their variation by inflow pathway of air mass at Gosan site in Jeju Island during 2012-2013, (D. R. Hyeon et al.), *Analytical Science & Technology,* **2014,** 27, 4, p. 213 - 222

Instruments: Metrohm Advanced Modular IC, Metrosep A Supp 5,
Metrosep C 4 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

[Cuantificacion de material particulado PM_{10} y su efecto toxicologico - ambiental, en la ciudad de Azogues], (E. F. V. Martinez), *Thesis, Universidad de Cuenca, Cuenca, Equador,* **2014**

Instruments: Metrohm 861 Advanced Compact IC, Metrosep A Supp 5
Analytes: Anions

[PM_{10} characteristics of a receptor site: a study at a rural institutional area of Assam], (P. Deka), *Thesis, Tezpur University, India,* **2014**

Instruments: Metrohm 882 Compact IC plus, Metrosep A Supp 5 - 250/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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[Physicochemical characterization and size-resolved source apportionment of airborne particles in Himeji City, Japan], (K. Saitoh), *International Journal of PIXE,* **2014,** 24, 1

Instruments: Metrohm 850 Professional IC, 761 Compact IC 790 Personal IC
Analytes: Anions, cations

Citations 2013

Ambient Air Quality during Diwali Festival over Kolkata – A Mega-City in India, (A. Chatterjee et al.), *Aerosol and Air Quality Research,* **2013**, 13, p. 1133 - 1144

Instruments: Metrohm 861 Advanced Compact IC, Metrosep A Supp 5 - 250/4.0, Metrosep C 2 - 250/4.0
Analytes: Chloride, nitrate, sulfate, potassium, calcium, magnesium

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Concentrations and chemical composition of ambient dust at a traffic site in southern Poland: A one-year study, (W. Rogula-Kozlowska et al.), *Environmental Engineering IV, (Eds.: Artur Pawlowski, Marzenna R. Dudzinska, Lucjan Pawlowski), Chapter 41,* **2013**

Instruments: Metrohm IC system
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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$PM_{2.5}$ in the central part of Upper Silesia, Poland: concentrations, elemental composition, and mobility of components, (W. Rogula-Kozlowska et al.), *Environmental Monitoring and Assessment,* **2013,** 185, 1, p. 581 - 601

Instruments: Metrohm IC system
Analytes: Chloride, sulfate

Observation of new particle formation over a mid-latitude forest facing the North Pacific, (Y. Han et al.), *Atmospheric Environment,* **2013,** 64, p. 77 - 84

Instruments: Metrohm 761 Compact IC
Analytes: Methanesulfonate, chloride, nitrite, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Submicrometer Aerosol in Rural and Urban Backgrounds in Southern Poland: Primary and Secondary Components of PM_1, (W. Rogula-Kozlowska et al.), *Bulletin of Environmental Contamination and Toxicology,* **2013,** 90, 1, p. 103 - 109

Instruments: Metrohm IC system
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Effects of ozone and fine particulate matter ($PM_{2.5}$) on rat system inflammation and cardiac function, (G. Wang et al.), *Toxicology Letters,* **2013,** 217, 1, p. 23 - 33

Instruments: Metrohm IC system

Composition and Mass Closure of $PM_{2.5}$ in Urban Environment (Athens, Greece), (E. Remoundaki et al.), *Aerosol and Air Quality Research,* **2013,** 13, p. 72 - 82

Instruments: Metrohm Modular IC system, Metrosep Dual 2 - 75/4.6, Metrosep C 4 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

PM$_{10}$ Source Apportionment in Ahvaz, Iran, Using Positive Matrix Factorization, (M. H. Sowlat et al.), *CLEAN – Soil, Air, Water,* **2013**, 14, 12, p. 1143 - 1151

Instruments: Metrohm 850 Professional IC
Analytes: Chloride, nitrate, sulfate, ammonium

Dust and Gas Emissions from Small-Scale Peat Combustion, (M. Othman et al.), *Aerosol and Air Quality Research,* **2013,** 13, 3, p. 1045 - 1059

Instruments: Metrohm 850 Professional IC
Analytes: Chloride, nitrate, sulfate

Composition and source apportionment of surfactants in atmospheric aerosols of urban and semi-urban areas in Malaysia, (N. B. A. W. Wahid et al.), *Chemosphere,* **2013,** 91, 11, p. 1508 - 1516

Instruments: Metrohm 881 Compact IC pro, Metrosep A Supp 5 - 150/4.0
Analytes: Fluoride, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Resolving sources of water-soluble organic carbon in fine particulate matter measured at an urban site during winter, (S. Y. Cho et al.), *Environmental Science: Processes & Impacts,* **2013,** 15, 2, p. 524 - 534

Instruments: Metrohm 861 Advanced Compact IC
Analytes: Chloride, nitrate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

Organic molecular composition of marine aerosols over the Arctic Ocean in summer: contributions of primary emission and secondary aerosol formation, (P. Q. Fu et al.), *Biogeosciences,* **2013,** 10, p. 653 - 667

Instruments: Metrohm 761 Compact IC
Analytes: Nitrate, sulfate

Sources of anions in aerosols in northeast Greenland during late winter, (M. Fenger et al.), *Atmospheric Chemistry and Physics,* **2013,** 13, p. 1569 - 1578

Instruments: Metrohm IC system, Metrosep A Supp 5 - 250/4.0
Analytes: Chloride, nitrate, sulfate

Characteristics of $PM_{2.5}$ Haze Episodes Revealed by Highly Time-Resolved Measurements at an Air Pollution Monitoring Supersite in Korea, (S. S. Park et al.), *Aerosol and Air Quality Research,* **2013,** 13, 3, p. 957 - 976

Instruments: Metrohm Advanced Modular IC system, Metrosep A Supp 5 - 150/4.0, Metrohm C 4 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Sources of submicron aerosol during fog-dominated wintertime at Kanpur, (T. Gupta et al.), *Environmental Science and Pollution Research,* **2013,** 20, 8, p. 5612 - 5629

Instruments: Metrohm 761 Compact IC
Analytes: Fluoride, chloride, nitrate, sulfate, ammonium

[Characterization of Organic Aerosol Particles Observed during Asian Dust Events in Spring 2010], (S. S. Park et al.), *Aerosol and Air Quality Research,* **2013**, 13, p. 1019 - 1033

Instruments: Metrohm 861 Advanced Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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[Year-round observations of water-soluble ionic species and trace metals in Sapporo aerosols: implication for significant contributions from terrestrial biological sources in Northeast Asia], (C. M. Pavuluri et al.), *Atmospheric Chemistry and Physics Discussions,* **2013,** 13, p. 6589 - 6629

Instruments: Metrohm 761 Compact IC, Metrosep C 2 - 150/4.0
Analytes: Anions, cations

[Multivariate study of trace element distribution in the geological record of Roñanzas Peat Bog (Asturias, N. Spain). Paleoenvironmental evolution and human activities over the last 8000 cal yr BP], (J. L. R. Gallego et al.), *Science of The Total Environment,* **2013,** 454-455, p. 16 - 19

Instruments: Metrohm 883 Basic IC plus
Analytes: Anions, cations

[Study of the chemical composition of particulate matter from the Rio de Janeiro metropolitan region, Brazil, by inductively coupled plasma-mass spectrometry and optical emission spectrometry], (V. L. Mateus et al.), *Spectrochimica Acta Part B: Atomic Spectroscopy,* **2013,** 86, p. 131 - 136

Instruments: Metrohm IC system, Metrosep A Supp 5
Analytes: Chloride, nitrate, sulfate

Size distribution of water-soluble components in particulate matter emitted from biomass burning, (S. S. Park et al.), *Atmospheric Environment,* **2013,** 73, p. 62 - 72

Instruments: Metrohm 861 Advanced Compact IC
Analytes: Chloride, nitrate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

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Factors determining the fluctuation of fluoride, concentrations in PM_{10}-aerosols in the urbanized coastal area of the Baltic Sea (Gdynia, Poland), (A. Lewandowska et al.), *Environmental Science and Pollution Research,* **2013,** 20, 9, p. 6109 - 6118

Instruments: Metrohm 850 Professional IC, Metrosep A Supp 7 - 250/4.0
Analytes: Fluoride

Evaluation of the nanoparticles contribution to elemental concentration in airborne particulate matter, (S. Canepari et al.), *E3S Web of Conferences,* **2013,** 1, 07004

Instruments: Metrohm 761 Compact IC, IC-ICP/MS

Chemical characteristics of ambient aerosols contributed by cooking process at Noorpur village near Delhi (India), (S. Singh et al.), *AIP Conference Proceedings / TROPOSPHERIC AND STRATOSPHERIC AEROSOLS,* **2013,** 1527, 527

Instruments: Metrohm 883 Basic IC plus
Analytes: Fluoride, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Size-Resolved Water-Soluble Ionic Composition of Ambient Particles in an Urban Area in Southern Poland, (W. Rogula-Kozlowska et al.), *Journal of Environmental Protection,* **2013**, 4, p. 371 - 379

Instruments: Metrohm Advanced Modular IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Development of Particulate Matter Speciation Profiles for Major Sources in Six Cities in India, (R. S. Patil et al.), *Atmospheric Research,* **2013,** 131-132, p. 1 - 11

Instruments: Metrohm Basic IC
Analytes: Anions, cations

Sources and their contribution to two water-soluble organic carbon fractions at a roadway site, (S. S. Park et al.), *Atmospheric Environment,* **2013,** 77, p. 348 - 357

Instruments: Metrohm 861 Advanced Compact IC
Analytes: Chloride, nitrate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

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Impact of a dust storm on characteristics of particle matter (PM) in Guangzhou, China, (Q. Fan et al.), *Asia-Pacific Journal of Atmospheric Sciences,* **2013,** 49, 1, p. 121 - 131

Instruments: Metrohm 761 Compact IC
Analytes: Nitrate, sulfate, ammonium

Size-segregated chemical characteristics of aerosol during haze in an urban area of the Pearl River Delta region, China, (G. Zhang et al.), *Urban Climate,* **2013,** 4, p. 74 - 84

Instruments: Metrohm IC system
Analytes: Chloride, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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CCN Closure Results From Indian Continental Tropical Convergence Zone (CTCZ) Aircraft Experiment, (M. Srivastava et al.), *Atmospheric Research,* **2013,** 132-133, p. 322 - 331

Instruments: Metrohm 761 Compact IC
Analytes: Sulfate, ammonium

A new monitoring-simulation-source apportionment approach for investigating the vehicular emission contribution to the $PM_{2.5}$ pollution in Beijing, China, (S. Cheng et al.), *Atmospheric Environment,* **2013,** 79, p. 308 - 316

Instruments: Metrohm 861 Advanced Compact IC
Analytes: Fluoride, chloride, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Determination of PM_{10} and its ion composition emitted from biomass burning in the chamber for estimation of open burning emissions, (S. Sillapapiromsuk et al.), *Chemosphere,* **2013,** 93, 3, p. 1912 - 1919

Instruments: Metrohm 882 Compact IC plus, Metrosep A Supp 5 - 250/4.0, Metrosep C 4 - 100/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium

[Extraction method for manipulation of water- and organic-soluble extracts of $PM_{2.5}$ in Korean winter season and its chemical composition](), ** (C. Y. Shin et al.), *Toxicology and Environmental Health Sciences,* **2013, 5, 2, p. 55 - 64

Instruments: Metrohm IC system, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 150/4.0
Analytes: Chloride, nitrate, sulfate

Contribution of wood burning to the exceedance of PM_{10} limit values in North Rhine-Westphalia, (U. Pfeffer et al.), *Gefahrstoffe - Reinhaltung der Luft,* **2013,** 73, 6, p. 239 - 245

Instruments: Metrohm IC system, PAD
Analytes: Levoglucosan

Characterization of the Origin of Fine Particulate Matter in a Medium Size Urban Area in the Mediterranean, (M. Pikridas et al.), *Atmospheric Environment,* **2013,** 80, p. 264 - 274

Instruments: Metrohm IC system, Metrosep A Supp 5, Metrosep C 4
Analytes: Anions, cations

Chemical characteristics of water-soluble components of aerosol particles at different altitudes of the Mount Huang in the summer, (B. Wen et al.), *Huan Jing Ke Xue,* **2013,** 34, 5, p. 1973 - 1981

Instruments: Metrohm IC system
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Long-Term Trends in Cloud and Rain Chemistry on Mount Washington, New Hampshire, (G. L. D. Murray et al.), *Water, Air, & Soil Pollution,* **2013,** 224, 1653

Instruments: Metrohm 761 Compact IC
Analytes: Anions

Observational Insights into Aerosol Formation from Isoprene, (D. R. Worton et al.), *Environmental Science & Technology,* **2013,** 47, 20, p. 11403 - 11413

Instruments: Metrohm IC system, Metrosep A Supp 5
Analytes: Chloride, nitrate, sulfate

Source apportionment of PM_{10} in a North-Western Europe regional urban background site (Lens, France) using Positive Matrix Factorization and including primary biogenic emissions, (A. Waked et al.), *Atmospheric Chemistry and Physics Discussions,* **2013,** 12, p. 25325 - 25385

Instruments: Metrohm IC system, PAD, Metrosep A Supp 15
Analytes: Levoglucosan, mannosan, galactosan, arabitol, sorbitol, mannitol

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Elemental Concentration in Atmospheric Particulate Matter: Estimation of Nanoparticle Contribution, (S. Canepari et al.), *Aerosol and Air Quality Research,* **2013,** 13, p. 1619 - 1629

Instruments: Metrohm 761 Compact IC

Contributions of biomass/biofuel burning to organic aerosols and particulate matter in Tanzania, East Africa, based on analyses of ionic species, organic and elemental carbon, levoglucosan and mannosan, (S. L. Mkoma et al.), *Atmospheric Chemistry and Physics,* **2013**, 12, p. 10325 - 10338

Instruments: Metrohm 761 Compact IC, Metrosep C 2 - 150/4.0
Analytes: Methanesulfonate, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Misurazione degli effetti del traffico portuale sulla qualita dell'aria per la citta di Venezia, (A. Gambaro et al.), *Report, Contratto Autorità Portuale di Venezia con IDPA-CNR di Venezia, Italy,* **2013**

Instruments: Metrohm 761 Compact IC

Influence of hydrophilic and hydrophobic water-soluble organic carbon fractions on light extinction at an urban site, (S. S. Park et al.), *Journal of the Korean Physical Society,* **2013,** 63, 10, p. 2047 - 2053

Instruments: Metrohm 861 Advanced Compact IC, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 150/4.0
Analytes: Anions, cations

Fluoride in aerosols of the coastal zone, (A. Lewandowska et al.), *Air quality: environmental impact,* **2013,** p. 112 - 119

Instruments: Metrohm 850 Professional IC, Metrosep A Supp 7 - 250/4.0
Analytes: Fluoride

Identification of Nature and Sources of Dustfall at Mukteshwer in Kumaon Region of Central Himalaya, India, (B. Kumar et al.), *International Journal of Chemistry and Chemical Engineering,* **2013,** 3, 3, p. 149 - 154

Instruments: Metrohm 883 Basic IC plus, Metrosep A Supp 4 - 250/4.0, Metrosep C 4 - 100/4.0
Analytes: Fluoride, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Statistical analysis of aerosol species, trace gasses, and meteorology in Chicago, (K. Binaku et al.), *Environmental Monitoring and Assessment,* **2013,** 185, 9, p. 7295 - 7308

Instruments: Metrohm 761 Compact IC

Citations 2012

Vehicle emissions and $PM_{2.5}$ mass concentrations in six Brazilian cities, (M. F. Andrade et al.), *Journal of Applied Sciences,* **2012**, 5, 1, p. 79 - 88

Instruments: Metrohm 761 Compact IC, Metrosep A Supp 5 - 150/4.0, Metrosep C 2 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Particle emission from heavy-duty engine fuelled with blended diesel and biodiesel, (L. Droprinchinski Martins et al.), *Environmental Microbiology,* **2012,** 184, 5, p. 3663 - 3676

Instruments: Metrohm IC system, Metrosep A Supp 5 - 250/4.0, Metrosep C 2 - 150/4.0, Metrosep Organic acids - 250/7.8
Analytes: Fluoride, chloride, nitrite, nitrate, phosphate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

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An integrated WRF/HYSPLIT modeling approach for the assessment of $PM_{2.5}$ source regions over the Mississippi Gulf Coast region, (A. Yerramilli et al.), *Air Quality, Atmosphere & Health,* **2012,** 5, 4, p. 401 - 412

Instruments: Metrohm 790 Personal IC

Urban air pollution: a representative survey of $PM_{2.5}$ mass concentrations in six Brazilian cities, (R. M. de Miranda et al.), *Air Quality, Atmosphere & Health,* **2012,** 5, 1, p. 63 - 77

Instruments: Metrohm 761 Compact IC, Metrosep A Supp 5, Metrosep C 2 - 150/4.0
Analytes: Anions, cations

Size-segregated mass concentration and water soluble inorganic ions in an urban aerosol of the Central Balkans (Belgrade), (D. Dordevic et al.), *Atmospheric Environment,* **2012,** 46, p. 309 - 317

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Transformation of atmospheric ammonia and acid gases into components of $PM_{2.5}$: an environmental chamber study, (S. N. Behera et al.), *Environmental Science and Pollution Research International,* **2012,** 19, 4, p. 1187 - 1197

Instruments: Metrohm IC system

Abundance and sources of hydrophilic and hydrophobic water-soluble organic carbon at an urban site in Korea in summer, (S. S. Park et al.), *Journal of Environmental Monitoring,* **2012,** 14, 1, p. 224 - 232

Instruments: Metrohm 861 Advanced Compact IC, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Aerosol scattering coefficients and major chemical compositions of fine particles observed at a rural site in the central Pearl River Delta, South China, (X. Wang et al.), *Journal of Environmental Sciences,* **2012,** 24, 1, p. 72 - 77

Instruments: Metrohm 883 Basic IC plus
Analytes: Chloride, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Seasonal variations of stable carbon isotopic composition and biogenic tracer compounds of water-soluble organic aerosols in a deciduous forest, (Y. Miyazaki et al.), *Atmospheric Chemistry and Physics,* **2012**, 12, p. 1367 - 1376

Instruments: Metrohm 761 Compact IC
Analytes: Anions, cations

Source Apportionment of Total Suspended Particulates in an Arid Area in Southwestern Iran Using Positive Matrix Factorization, (M. H. Sowlat et al.), *Bulletin of Environmental Contamination and Toxicology,* **2012,** 88, 5, p. 735 - 740

Instruments: Metrohm 850 Professional IC

PM_{10} and Its Chemical Composition: A Case Study in Chiang Mai, Thailand, (S. Chantara), *cdn.intechopen.com,* **2012,** p. 205 - 230

Instruments: Metrohm IC system, Metrosep A Supp 4 - 250/4.0, Metrosep C 2 - 100/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Investigation of organic aerosol sources using fractionated water-soluble organic carbon measured at an urban site, (S. S. Park et al.), *Atmospheric Environment,* **2012,** 55, p. 64 - 72

Instruments: Metrohm 861 Advanced Compact IC Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Thermal stability of inorganic and organic compounds in atmospheric particulate matter, (C. Perrino et al.), *Atmospheric Environment,* **2012,** 54, p. 36 - 43

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, ammonium

Characterization of ionic composition of TSP and PM_{10} during the Middle Eastern Dust (MED) storms in Ahvaz, Iran, (A. Shahsavani et al.), *Environmental Monitoring and Assessment,* **2012,** 184, 11, p. 6683 - 6692

Instruments: Metrohm 850 Professional IC
Analytes: Fluoride, chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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A Study on the Seasonal Mass Closure of Ambient Fine and Coarse Dusts in Zabrze, Poland, (W. Rogula-Kozlowska et al.), *Bulletin of Environmental Contamination and Toxicology,* **2012,** 88, 5, p. 722 - 729

Instruments: Metrohm IC system
Analytes: Fluoride, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Estimation of the optimal heated inlet air temperature for the beta-ray absorption method: analysis of the PM_{10} concentration difference by different methods in coastal areas, (S. E. Shin et al.), *Advances in Environmental Research,* **2012,** 1, 1, p. 69 - 82

Instruments: Metrohm 861 Advanced Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

First Surface Measurement of Cloud Condensation Nuclei over Kanpur, IGP: Role of Long Range Transport, (V. Patidar et al.), *Aerosol Science and Technology,* **2012**, 46, 9, p. 973 - 982

Instruments: Metrohm 761 Compact IC

Application of positive matrix factorization in characterization of PM_{10} and $PM_{2.5}$ emission sources at urban roadside, (B. Srimuruganandam et al.), *Chemosphere,* **2012,** 88, 1, p. 120 - 130

Instruments: Metrohm 761 Compact IC

Ultrafine and Fine Particles in the Atmosphere – Sampling, Chemical Characterization and Sources, (K. Müller et al.), *Chemie Ingenieur Technik,* **2012,** 14, p. 25051 - 25082

Instruments: Metrohm 690 Ion Chromatograph
Analytes: Nitrate, sulfate, ammonium

Fine mode aerosol chemistry over a tropical urban atmosphere: characterization of ionic and carbonaceous species, (A. Chatterjee et. al.), *Journal of Atmospheric Chemistry* **2012,** 69, 2, p. 83 - 100

Instruments: Metrohm 792 Basic IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium,

Chemical and microphysical properties of the aerosol during foggy and nonfoggy episodes: a relationship between organic and inorganic content of the aerosol, (D. S. Kaul et. al.), *Atmospheric Chemistry and Physics Discussions,* **2012,** 12, p. 14483 - 14524

Instruments: Metrohm 882 Compact IC plus
Analytes: Fluoride, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Source characterization of PM_{10} and $PM_{2.5}$ mass using a chemical mass balance model at urban roadside, (B. Srimuruganandam et. al.), *Science of the Total Environment,* **2012,** 119, 21, p. 12233 - 12245

Instruments: Metrohm IC system
Analytes: Fluoride, chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Size distributions of aerosol and water-soluble ions in Nanjing during a crop residual burning event, (H. Wang et al.), *Journal of Environmental Sciences,* **2012**, 28, 8, p. 1457 - 1465

Instruments: Metrohm 850 Professional IC, 858 Professional Sample Processor
Analytes: Fluoride, chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Organic and inorganic markers and stable C-, N-isotopic compositions of tropical coastal aerosols from megacity Mumbai: sources of organic aerosols and atmospheric processing, (S. G. Aggarwal), *Atmospheric Chemistry and Physics Discussions,* **2012,** 12, p. 20593 - 20630

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Investigations of Atmospheric Wet and Dry Nutrient Deposition to Marine Surface in Western Part of the Black Sea, (V. Medinets et al.), *Turkish Journal of Fisheries and Aquatic Sciences,* **2012,** 12 p. 497 - 505

Instruments: Metrohm 790 Personal IC
Analytes: Nitrate, phosphate, ammonium

The chemical composition and sources of $PM_{2.5}$ during the 2009 Chinese New Year's holiday in Shanghai, (J. Feng et al.), *Atmospheric Research,* **2012,** 118, p. 435 - 444

Instruments: Metrohm IC system
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium

On-site application of air cleaner emitting plasma ion to reduce airborne contaminants in pig building, (M. S. Cho et al.), *Atmospheric Environment,* **2012,** 63, p. 276 - 281

Instruments: Metrohm 761 Compact IC

Year-round behaviour for inorganic composition of size-resolved airborne particles in Himeji city, Japan, (S. Katsumi et. al.), *International Journal of PIXE* **2012,** 22, 01n02, p. 179 - 184

Instruments: Metrohm 761 Compact IC
Analytes: Nitrate, sulfate

Carbonaceous components, levoglucosan and inorganic ions in tropical aerosols from Tanzania, East Africa: implication for biomass burning contribution to organic aerosols, (S. L. Mkoma et. al.), *Atmospheric Chemistry and Physics Discussions,* **2012,** 12, p. 28661 - 28703

Instruments: Metrohm 761 Compact IC
Analytes: Methanesulfonate, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Acidic Gases and nitrate, and sulfate, Particles in the Atmosphere in the City of Guadalajara, México, (H. Saldarriaga-Norena et. al.), *Bulletin of Environmental Contamination and Toxicology,* **2012,** 88, 5, p. 730 - 734

Instruments: Metrohm 861 Advanced Compact IC
Analytes: Nitrite, nitrate, sulfate

Parameters Influencing Sulfur Speciation in Environmental Samples Using Sulfur K-Edge X-Ray Absorption Near-Edge Structure, (S. Pongpaichan et al.), *Journal of Analytical Methods in Chemistry,* **2012**, 659585

Instruments: Metrohm Advanced Modular IC system,
Metrosep A Supp 16 - 250/4.0, Metrohm C 4 - 250/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium,

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Seasonal distribution of airborne trace elements and water-soluble ions in São Paulo Megacity, Brazil, (G. o. Da Rocha et al.), *Journal of the Brazilian Chemical Society,* **2012,** 23, 10, p. 1915 - 1924

Instruments: Metrosep A Supp 5 -250/4.0, Metrosep C 2 - 150/4.0,
Metrosep Organic Acids- 250/7.8
Analytes: Fluoride, chloride, nitrite, nitrate, phosphate, sulfate, oxalate,

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Spectral dependency of light scattering/absorption and hygroscopicity of pollution and dust aerosols in Northeast Asia, (S. Lee et al.), *Atmospheric Environment,* **2012,** 50, p. 246 - 254

Instruments: Metrohm IC system, Metrosep A Supp 4 - 250/4.0
Analytes: Nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Fractionation of secondary organic carbon in aerosol in relation to the trafficborne emission of semivolatile organic compounds, (Z, H. Shon et al.), *Atmospheric Environment,* **2012,** 50, p. 225 - 233

Instruments: Metrohm 850 professional IC

[Comparison of Chemical Compositions of Size-segregated Atmospheric Aerosols between Asian Dust and Non-Asian Dust Periods at Background Area of Korea](#), (W. H. Kim. et al.), *Bulletin of the Korean Chemical Society,* **2012,** 33, 1, p. 3651 - 3656

Instruments: Metrohm Modular IC system, Metrosep A Supp 4 - 250/4.0, Metrosep Cation 1-2
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Direct aqueous photochemistry of isoprene high-NOx secondary organic aerosol, (T. B. Nguyen et. al.), *Physical Chemistry Chemical Physics* **2012,** 14, 27, p. 9702 - 9714

Instruments: Metrohm IC system, Metrosep A Supp 5 - 150/4.0, Metrosep C 4 - 250/4.0
Analytes: Fluoride, chloride, nitrite, bromide, nitrate, phosphate, sulfate, lithium, sodium, ammonium, potassium, calcium, magnesium

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Organosulfates as Tracers for Secondary Organic Aerosol (SOA) Formation from 2-Methyl-3-Buten-2-ol (MBO) in the Atmosphere, (H. Zhang et. al.), *Environmental Science and Technology,* **2012,** 46, 17, p. 9437 - 9446

Instruments: Metrohm IC system, Metrosep A Supp 5, Metrosep C 4
Analytes: Nitrate, sulfate, ammonium

Chemical characteristics of aerosols and trace gas distribution over North and Central India, (K. Singh et. al.), *Environmental Monitoring and Assessment,* **2012,** 184, 7, p. 4553 - 4564

Instruments: Metrohm 761 Compact IC, Metrosep Dual 1
Analytes: Chloride, nitrate, sulfate

228 **Root cause analysis of fine dust loading. Use of ion chromatography,** (W. Frenzel et al.), *GIT Spezial Separation,* **2012**, 32, p. 25 - 28

Instruments: Metrohm IC system
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Influence of Saharan Dust Transport Events on $PM_{2.5}$ Concentrations and Composition over Athens, (E. Remoundaki et al.), *Water, Air, Soil Pollution,* **2012,** 224, 1373

Instruments: Metrohm Modular IC system, Metrosep Anion Dual 2 - 75/4.6

Identificação das fontes de Material Particulado Fino ($MP_{2.5}$) de Porto Alegre, (V. B Machado), *Thesis, Universidade de São Paulo, Brazil,* **2012**

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium

Citations 2011

Evidence of high $PM_{2.5}$ strong acidity in ammonia rich atmosphere of Guangzhou, China: Transition in pathways of ambient ammonia to form aerosol ammonium, at $\{NH_4^+\}/\{SO_4^{2-}\} = 1.5$, (Z, H. Shon et al.), *Atmospheric Research,* **2011,** 99, 3, p. 488 - 495

Instruments: Metrohm Modular IC System
Analytes: Chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Composition and Sources of Water-Soluble Ions in $PM_{2.5}$ from the E-Waste Dismantling Area of Taizhou, (J. Feng et al.), *Environmental Chemistry,* **2011,** 30, 3, p. 693 - 697

Instruments: Metrohm Modular IC System, Metrosep A Supp 5, Metrosep C 2
Analytes: Chloride, nitrate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

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Vertical Distribution of Airborne Particulate Matter in a Tropical Urban Environment: Changes in Physical and Chemical Characteristics, (M. Kalaiarasan et. al.), *Urban Airborne Particulate Matter, Part 3,* **2011,** p. 309 - 338

Instruments: Metrohm IC system
Analytes: Anions, cations

Characteristics, seasonality and sources of carbonaceous and ionic components in the tropical Indian aerosols, (C. M. Pavuluri et. al.), *Atmospheric Chemistry and Physics Discussions,* **2011,** 11, p. 3937 - 3976

Instruments: Metrohm 761 Compact IC
Analytes: Methanesulfonate, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Determination of Sb(III), Sb(V) and identification of Sb-containing nanoparticles in airborne particulate matter, (E. Marconi et. al.), *Procedia Environmental Sciences,* **2011,** 4, p. 209 - 217

Instruments: Metrohm 761 Compact IC, IC-ICP/MS, Metrosep A Supp 5 - 150/4.0
Analytes: Sb(III), Sb(V)

Characteristics of particulate matter and heterogeneous traffic in the urban area of India, (B. Srimuruganadam et al.), *Atmospheric Environment,* **2011**, 45, 8, p. 3091 - 3102

Instruments: Metrohm 761 Compact IC
Analytes: Fluoride, chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Diurnal variations of residential particulate wood burning emissions and their contribution to the concentration of Polycyclic Aromatic Hydrocarbons (PAHs), (L. Poulain et al.), *Atmospheric Chemistry and Physics Discussions,* **2011,** 11, p. 11579 - 11610

Instruments: Metrohm 690 ion Chromatograph
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Lead in PM_{10} and in Indoor Dust Around Schools and Preschools in Selangor, Malaysia, (M. T. Latif et al.), *Indoor and Built Environment,* **2011,** 2011, 20, 3, p. 346 - 353

Instruments: Metrohm Modular IC system
Analytes: Nitrate

Springtime carbon episodes at Gosan background site revealed by total carbon, stable carbon isotopic composition, and thermal characteristics of carbonaceous particles, (J. Jung et al.), *Atmospheric Chemistry and Physics Discussions,* **2011,** 11, p. 13867 - 13910

Instruments: Metrohm 761 Compact IC Metrosep C 2
Analytes: Sodium, calcium

Field performance evaluation of a newly developed $PM_{2.5}$ sampler at IIT Kanpur, (T. Gupta et al.), *Environmental Chemistry,* **2011,** 30, 3, p. 693 - 697

Instruments: Metrohm Modular IC System, Metrosep A Supp 5, Metrosep C 2
Analytes: Chloride, nitrate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

[Review of Atmospheric Particulate Mass and Soluble Ions Concentrations from Korea, China, Spain, Italy, and Japan During 2000–2010](), ** (C. C. Lin et al.), *Environmental Forensics,* **2011, 12, 2, p. 124 - 133

Instruments: Metrohm 761 Compact IC, 790 Personal IC
Analytes: Anions, cations

Characterization and Source Apportionment of Water-Soluble Organic Matter in Atmospheric Fine Particles ($PM_{2.5}$) with High-Resolution Aerosol Mass Spectrometry and GC–MS, (Y. Sun et al.), *Environmental Technology,* **2011,** 45, 11, p. 4854 - 4861

Instruments: Metrohm IC system, Metrosep A Supp 5 - 150/4.0
Analytes: Acetate, formate, chloride, nitrate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

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Latitudinal distributions of organic nitrogen and organic carbon in marine aerosols over the western North Pacific, (Y. Miyazaki et al.), *Atmospheric Chemistry and Physics,* **2011,** 11, p. 3037 - 3049

Instruments: Metrohm 761 Compact IC
Analytes: Methanesulfonate

Influence of natural and anthropogenic sources on PM_{10} air concentrations in Spain, (M. S. Callen et al.), *WIT Transactions on Ecology and the Environment,* **2011,** 147, p. 149 - 160

Instruments: Metrohm IC system, Metrosep A Supp 5
Analytes: Chloride, nitrate, phosphate, sulfate

Secondary Organic Aerosol: A Comparison between Foggy and Non-foggy Days, (D. S. Kaul et al.), *Environmental Science and Technology,* **2011,** 45, 17, p. 7307 - 7313

Instruments: Metrohm 882 Compact IC plus
Analytes: Potassium

Roadside and rooftop measurements of polycyclic aromatic hydro-carbons in $PM_{2.5}$ in urban Guangzhou: Evaluation of vehicular and regional combustion source contributions, (B. Gao et al.), *Atmospheric Environment,* **2011,** 45, 39, p. 7184 - 7191

Instruments: Metrohm 883 Basic IC plus
Analytes: Sulfate, potassium

Characteristics, seasonality and sources of carbonaceous and ionic components in the tropical aerosols from Indian region, (C. M. Pavuluri et al.), *Atmospheric Chemistry and Physics,* **2011,** 11, p. 8215 - 8230

Instruments: Metrohm 761 Compact IC
Analytes: Methanesulfonate, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Seasonal and diurnal variations of particulate nitrate, and organic matter in the Central European atmospheric aerosol, (L. Poulain et al.), *Atmospheric Chemistry and Physics Discussions,* **2011,** 11, p. 11611 - 11647

Instruments: Metrohm 690 Ion Chromatography
Analytes: Chloride, nitrate, sulfate, sodium, potassium, calcium, magnesium

Long-term characterization of major water-soluble inorganic ions in PM_{10} in coastal site on the Japan Sea, (Y. T. Guo et al.), *Journal of Atmospheric Chemistry,* **2011,** 68, 4, p. 299 - 316

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Seasonal and diurnal variations of particulate nitrate, and organic matter at the IfT research station Melpitz, (L. Poulain et al.), *Atmospheric Chemistry and Physics,* **2011,** 11, p. 12579 - 12599

Instruments: Metrohm 690 Ion Chromatography
Analytes: Chloride, nitrate, sulfate, sodium, potassium, calcium, magnesium

Citations 2010

[Insights into secondary organic aerosol formed via aqueous-phase reactions of phenolic compounds based on high resolution mass spectrometry](), (Y. Sun et al.), *Atmospheric Chemistry and Physics Discussions,* **2010,** 10

Instruments: Metrohm IC system, Metrosep A Supp 5 - 250/4.0
Analytes: Formate, acetate, oxalate, sulfate

Water-soluble SOA from Alkene ozonolysis: composition and droplet activation kinetics inferences from analysis of CCN activity, (A. Asa- Awuku et al.), *Atmospheric Chemistry and Physics,* **2010,** 10, p. 1585 - 1597

Instruments: DX IC system, Metrosep A Supp 5 - 100/4.0
Analytes: Chloride, nitrate, sulfate

Determination of methylamines and trimethylamine-N-oxide in particulate matter by non-suppressed ion chromatography, (M. E. Erupe et al.), *Journal of Chromatography,* **2010,** 1217, 13, p. 2070 - 2073

Instruments: Metrohm 761 Compact IC, Metrosep C 2 - 250/4.0
Analytes: Methylamine, trimethylamine-N-oxide

The Finokalia Aerosol Measurement Experiment – 2008 (FAME-08): an overview, (A. Pikridas et al.), *Atmospheric Chemistry and Physics Discussions,* **2010,** 10, p. 6641 - 6679

Instruments: Metrohm 761 Compact IC
Analytes: Anions, cations

Modelling the formation and atmospheric transport of secondary inorganic aerosols with special attention to regions with high ammonia emissions, (E. Renner et al.), *Atmospheric Environment,* **2010,** 44, 15, p. 1904 - 1912

Instruments: Metrohm IC system
Analytes: Chloride, nitrate, sulfate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Ionic species associated with $PM_{2.5}$ in the City of Guadalajara, México during 2007, (L. Hernandez-Mena et al.), *Environmental Monitoring and Assessment,* **2010,** 161, 1, p. 281 - 293

Instruments: Metrohm 861 Advanced Compact IC, Metrosep A Supp 5 - 150/4.0, Metrosep C 2 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Elevated nitrogen isotope ratios of tropical Indian aerosols from Chennai: Implication for the origins of aerosol nitrogen in South and Southeast Asia, (C. M. Pavuluri et al.), *Atmospheric Environment,* **2010,** 44, 29, p. 3597 - 3604

Instruments: Metrohm 761 Compact IC

Investigating the potential role of ammonia in ion chemistry of fine particulate matter formation for an urban environment, (S. N. Beherea et al.), *Science of the Total Environment,* **2010,** 408, 17, p. 3569 - 3575

Instruments: Metrohm 761
Analytes: Nitrate, sulfate, sodium, ammonium, potassium, calcium

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Organic nitrogen in $PM_{2.5}$ aerosol at a forest site in the Southeast US, (M. Lin et al.), *Atmospheric Chemistry and Physics,* **2010,** 10, p. 2145 - 2157

Instruments: Metrohm 761 Compact IC
Analytes: Fluoride, chloride, nitrate, sulfate, oxalate, lithium sodium, ammonium, potassium

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Particle characterization at the Cape Verde atmospheric observatory during the 2007 RHaMBLe intensive, (K. Müller et al.), *Atmospheric Chemistry and Physics,* **2010,** 10, p. 2709 - 2721

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, bromide, nitrate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

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Diurnal variations of water-soluble ions in $PM_{2.5}$ in Shanghai, (J. L. Feng et al.), *Journal of Shanghai University,* **2010,** 14, 4, p. 235 - 240

Instruments: Metrohm IC System, Metrosep A Supp 5, Metrosep C 2
Analytes: Chloride, nitrate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

Time-resolved measurements of water-soluble ions and elements in atmospheric particulate matter for the characterization of local and long-range transport events, (C. Perrino et al.), *Chemosphere,* **2010,** 80, 11, p. 1291 - 1300

Instruments: Metrohm 790 Personal IC, Metrosep A Supp 4 - 250/4

Aerodynamic gradient measurements of the NH_3-HNO_3-NH_4NO_3 triad using a wet chemical instrument: an analysis of precision requirements and flux errors, (V. Wolff et al.), *Atmospheric Measurement Techniques,* **2010,** 3, p. 187 - 208

Instruments: IC Metrohm Graegor
Analytes: Nitrate, ammonium

Relevance of Sb(III), Sb(V), and Sb-containing nano-particles in urban atmospheric particulate matter, (S. Canepari et al.), *Analytical and Bioanalytical Chemistry,* **2010,** 397, 6, p. 2533 - 2542

Instruments: Metrohm 761 Compact IC, Metrosep A Supp 5 - 150/4.0

Determination of anthropogenic and biogenic compounds on atmospheric aerosol collected in urban, biomass burning and forest areas in São Paulo, Brazil, (P. C. Vasconcellos et al.), *Science of the Total Environment,* **2010,** 108, 23, p. 5836 - 5844

Instruments: Metrohm IC System, Metrosep A Supp 5 - 250/4.0,
Metrosep C 2 - 150/4.0 Metrosep Organic Acids - 250/7.8
Analytes: Fluoride, chloride, nitrite, nitrate, phosphate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

Chemical Characterization and Source Apportionment of Submicron (PM_1) Aerosol in Kanpur Region, India, (A. Chakraborts et al.), *Aerosol and Air Quality Research,* **2010,** 10, p. 433 - 445

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, phosphate, sulfate

Composition, source, mass closure of $PM_{2.5}$ aerosols for four forests in eastern China, (L. Li et al.), *Journal of Environmental Sciences,* **2010,** 22, 3, p. 405 - 412

Instruments: Metrohm Modular IC System, Metrosep A Supp 5 - 250/4.0, Metrosep C 2 - 250/4.0
Analytes: fluoride, chloride, nitrate, sulfate, oxalate, sodium, ammonium, potassium, calcium, magnesium

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Size distributions of organic nitrogen and carbon in remote marine aerosols: Evidence of marine biological origin based on their isotopic ratios, (Y. Miyazaki et al.), *Geophysical Research Letters,* **2010,** 37, 6

Instruments: Metrohm 761 Compact IC
Analytes: Anions, cations, diethylamine

Water-soluble organic carbon, dicarboxylic acids, ketoacids, and alpha-dicarbonyls in the tropical Indian aerosols, (C. M. Pavuluri et al.), *Journal of Geophysical Research,* **2010,** 115, D11

Instruments: Metrohm 761 Compact IC

Effect of ozonation on particulate matter in broiler houses, (Q. Li et al.), *Poultry Science,* **2010,** 89, p. 2052 - 2062

Instruments: Metrohm 861 Advanced Compact IC, Metrosep C 2 - 100/4.0
Analytes: Ammonium

PM_1 and $PM_{2.5}$ ionic composition and VOCs measurements in two typical apartments in Athens, Greece: investigation of smoking contribution to indoor air concentrations, (D. E. Saraga et al.), *Environmental Monitoring and Assessment,* **2010,** 167, 1, p. 321 - 331

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate

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Instruments: Metrohm 761 Compact IC
Analytes: Anions

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Instruments: Metrohm 792 Basic IC, Metrosep A Supp 5 - 250/4.0, Metrosep C 2 - 250/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Seasonal variation of the concentrations of nitrogenous species and their nitrogen isotopic ratios in aerosols at Gosan, Jeju Island: Implications for atmospheric processing and source changes of aerosols, (S. Kundu et al.), *Journal of Geophysical Research,* **2010,** 115, D20

Instruments: Metrohm 761 Compact IC
Analytes: Nitrate, ammonium

Latitudinal distributions of organic nitrogen and organic carbon in marine aerosols over the western North Pacific, (Y. Miyazaki et al.), *Atmospheric Chemistry and Physics Discussion,* **2010,** 10, p. 28721 - 28753

Instruments: Metrohm 761 Compact IC
Analytes: Methanesulfonate, anions, cations

Determination of saccharide markers in atmospheric aerosols. IC with connected pulsed amperometric detection, (A. Wille et al.), *GIT Labor- und Fachzeitschrift,* **2010,** 54, 11, p. 840 - 844

Instruments: Metrohm IC system with PAD
Analytes: Levoglucosan, mannosan, galactosan, arabitol, mannitol

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Chemical composition and aerosol size distribution of the middle mountain range in the Nepal Himalayas during the 2009 pre-monsoon season, (A. Shrestha et al.), *Atmospheric Chemistry and Physics,* **2010,** 10, p. 11605 - 11621

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Instruments: Metrohm 761 Compact IC, Metrosep C 2 -150/4.0
Analytes: Anions, cations

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Instruments: Metrohm 761 Compact IC
Analytes: Anions, cations

In-cloud and below-cloud scavenging of aerosol ionic species over a tropical rural atmosphere in India, (A. Chatterjee et al.), *Journal of Atmospheric Chemistry,* **2010,** 66, 1-2, p. 27 - 40

Instruments: Metrohm 861 Advanced Compact IC, Metrosep A Supp 5, Metrosep C 2 - 250/4.0
Analytes: Nitrate, sulfate, sodium, calcium, magnesium

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Instruments: Metrohm 690 Ion Chromatograph

Seasonal characteristics of tropical marine boundary layer air measured at the Cape Verde Atmospheric Observatory, (L. J. Carpenter et al.), *Journal of Atmospheric Chemistry,* **2010,** 67, 2-3, p. 87 - 140

Instruments: Metrohm IC system

Presence of the Most Abundant Ionic Species and Their Contribution to $PM_{2.5}$ Mass, in the City of Guadalajara, Jalisco (Mexico),
(L. Hernandez-Mena et al.), *Bulletin of Environmental Contamination and Toxicology,* **2010,** 85, 6, p. 632 - 637

Instruments: Metrohm 861 Advanced Compact IC
Analytes: chloride, nitrate, sulfate

Citations 2009

Investigation of the positive artifact formation during sampling semi-volatile aerosol using wet denuders, (A. Khlystov et al.), *Atmospheric Environment,* **2009,** 43, 2, p. 364 - 370

Instruments: Metrohm 861 Advanced Compact IC
Analytes: Nitrate

An Automated Analyzer to Measure Surface-Atmosphere Exchange Fluxes of Water Soluble Inorganic Aerosol Compounds and Reactive Trace Gases, (R. M. Thomas et al.), *Environmental Science and Technology,* **2009,** 2010, 68, p. 89 - 100

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, ammonium

Evidence of Long-Range Transport of Pollutants from the Size-Fractionated Ionic Composition of Aerosols in the Jeju Island of Korea, (H. T. Nguyen et al.), *Water, Air, & Soil Pollution,* **2009,** 196, 1 p. 225 - 243

Instruments: Metrohm IC system, Metrosep A Supp 4-250/4.0,
Metrosep Cation 1-2/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Spatial variability of sulfur dioxide and sulfate, over complex terrain in East Tennessee, USA, (M. Latoya et al.), *Atmospheric Environment,* **2009,** 67, 1, p. 1 - 28

Instruments: Metrohm 790 Personal IC, Metrosep A Supp 5
Analytes: Sulfate

Hygroscopic growth of urban aerosol particles in Beijing (China) during wintertime: a comparison of three experimental methods, (J. Meier et al.), *Atmospheric Chemistry and Physics Discussions,* **2009,** 9, p. 6889 - 6927

Instruments: Metrohm IC system

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Instruments: Metrohm IC system

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Instruments: Metrohm 761 Compact IC
Analytes: Sodium

Seasonal variation of aliphatic amines in marine sub-micrometer particles at the Cape Verde islands, (C. Müller et al.), *Atmospheric Chemistry and Physics Discussions,* **2009,** 9, p. 14825 - 14855

Instruments: Metrohm 690 Ion Chromatograph
Analytes: Cations

Size segregated water uptake of the urban submicrometer aerosol in Beijing, (A. Massling et al.), *Atmospheric Environment,* **2009,** 43, 8, p. 1578 - 1589

Instruments: Metrohm IC system
Analytes: Sodium, ammonium, potassium, calcium, magnesium

Real-time wet scavenging of major chemical constituents of aerosols and role of rain intensity in Indian region, (U. C. Kulshrestha et al.), *Atmospheric Environment,* **2009,** 43, 32, p. 5123 - 5127

Instruments: Metrohm 792 Basic IC
Analytes: Anions, cations

Particle characterization at the Cape Verde atmospheric observatory during the 2007 RHaMBLe intensive, (K. Müller et al.), *Atmospheric Chemistry and Physics Discussions,* **2009,** 9, p. 22739 - 22771

Instruments: Metrohm 761 Compact IC, Metrosep A Supp 5
Analytes: chloride, bromide, nitrate, sulfate, oxalate

Variability of submicron aerosol observed at a rural site in Beijing in the summer of 2006, (N. Takegawa et al.), *Journal of GeophysicalResearch,* **2009,** 114, D2

Instruments: Metrohm 690 Ion Chromatograph

Chemical Analysis of Airborne Particulates for Air Pollutants in Chiang Mai and Lamphun Provinces, Thailand, (S. Chantara et al.), *Chiang Mai Journal of Science,* **2009,** 36, 2, p. 123 - 135

Instruments: Metrohm IC system, Metrosep A Supp 4 - 250/4.0, Metrosep C 2 - 100/4.0
Analytes: chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Environmental effects of ashfall in Argentina from the 2008 Chaitén volcanic eruption, (R. S. Martin et al.), *Journal of Volcanology and Geothermal Research,* **2009,** 184, 3, p. 462 - 472

Instruments: Metrohm 861 Advanced Compact IC
Analytes: Anions

Chemical Characterization of Submicron Aerosol in Kanpur Region: a Source Apportionment Study, (A. Chakraborty et al.), *Proc. of Int. Conf. On Energy and Environment,* **2009,** p. 60 - 63

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, phosphate, sulfate

Particulate Matter ($PM_{2.5}$) Concentration and Source Apportionment in Lahore, (A. Lodhi et al.), *Journal of the Brazilian Chemical Society,* **2009,** 20, 10, p. 1811 - 1820

Instruments: Metrohm IC system

Design and testing of a semi-continuous measurement system for ionic species in $PM_{2.5}$, (S. B. Hong et al.), *Particle & Particle Systems Characterization,* **2009,** 25, 5-6, p. 444 - 453

Instruments: Metrohm IC system, Metrosep C 2 - 150/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Citations 2008

Characterization of urban aerosol in Campinas, Sao Paulo, Brazil, (R. Miranda et al.), *Atmospheric Research,* **2008,** 82, 2, p. 147 - 157

Instruments: Metrohm 761 Compact IC
Analytes: Sodium, ammonium, potassium, calcium, magnesium

Investigation of molar volume and surfactant characteristics of water-soluble organic compounds in biomass burning aerosol, (A. Asa-Awuku et al.), *Atmospheric Chemistry and Physics,* **2008,** 8, p. 799 - 812

Instruments: Metrohm IC system, Metrosep A Supp 5 - 100/4.0
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Characterization of atmospheric aerosol particles in a mountainous region in northern Japan, (K. Saitoh et al.), *Atmospheric Research,* **2008,** 89, 4, p. 324 - 329

Instruments: Metrohm 761 Compact IC, 790 Personal IC
Analytes: Fluoride, chloride, nitrite, bromide, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Secondary Organic Aerosols Formed from Photooxidation of Biogenic Volatile Organic Compounds in Forests, (W. Wang et al.), *The 2nd International Conference on Bioinformatics and Biomedical Engineering,* **2008,** p. 3802 - 3804

Instruments: Metrohm IC system, Metrosep A Supp 5 - 250/4.0, Metrosep C 2 - 250/4.0
Analytes: Nitrate, sulfate, oxalate

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Instruments: Metrohm 761 Compact IC
Analytes: Fluoride, chloride, nitrate, sulfate, ammonium

Ions species size distribution in particulate matter associated with VOCs and meteorological conditions over an urban region, (S. Pateraki et al.), *Chemosphere, 2008. ICBBE,* **2008,** 72, 3, p. 496 - 503

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate

LACIS-measurements and parameterization of sea-salt particle hygroscopic growth and activation, (D. Niedermeier et al.), *Atmospheric Chemistry and Physics,* **2008,** 8, p. 579 - 590

Instruments: Metrohm IC system

Chemical characteristics of PM_{10} aerosols and airmass trajectories over Bay of Bengal and Arabian Sea during ICARB, (L. A. K. Reddy et al.), *Journal of Earth System Science,* **2008,** 117, S1, p. 345 - 352

Instruments: Metrosep A Supp 5 - 100/4.0, Metrosep C 2 - 250/4.0
Analytes: Chloride, bromide, sulfate, sodium, ammonium, potassium, calcium, magnesium

Seasonal variation of water-soluble ion species in the atmospheric aerosols at the summit of Mt. Fuji, (I. Suzuki et al.), *Atmospheric Environment,* **2008,** 42, 34, p. 8027 - 8035

Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Instruments: Metrohm 761 Compact IC, Metrosep Dual 2 - 75/4.6

Properties of secondary organic aerosol in the ambient atmosphere: sources, formation, and partitioning, (C. J. Hennigan et al.), *Thesis, Georgia Tech, Atlanta, US,* **2008**

Instruments: Metrohm IC system, Metrosep A Supp 5 - 150/4.0,
Metrosep Cation 1-2/4.0
Analytes: Anions, cations

A three-year study of size-segregated characterization of particles depending on air mass origin at Melpitz, (G. Spindler et al.), *Biennial Report, Leibniz Institute for Tropospheric Research, Leipzig, DE,* **2008,** p. 51 - 59

Instruments: Metrohm IC system

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Instruments: Metrohm 761 Compact IC

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Instruments: Metrohm Modular system, Metrosep A Supp 5 - 150/4.0,
Metrosep C 2 - 250/4.0
Analytes: Sulfate, oxalate

Citations 2007

Investigation of molar volume and surfactant characteristics of water-soluble organic compounds in biomass burning, (A. Asa-Awuku et al.), *Atmospheric Chemistry and Physics Discussions,* **2007,** 7, p. 8983 - 9011

Instruments: Metrosep A Supp 5 - 100/4.0
Analytes: Chloride, nitrate, sulfate

Determination of Water-soluble Atmospheric Aerosols Using Ion Chromatography, (T. Fosco et al.), *Environmental Monitoring and Assessment,* **2007,** 130, 1, p. 187 - 199

Instruments: 761, Metrosep A Supp 5
Analytes: Fluoride, acetate, formate, chloride, nitrite, bromide, nitrate, sulfate, phosphate, benzoate, succinate, oxalate

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Instruments: Metrohm IC system

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Instruments: Modular IC system
Analysis: Fluoride, chloride, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Role of atmospheric ammonia in the formation of inorganic secondary particulate matter: A study at Kanpur, India, (M. F. Flues et al.), *Journal of Atmospheric Chemistry,* **2007,** 58, p. 1 - 17

Instruments: Metrohm 761 Compact IC
Analytes: chloride, nitrate, sulfate

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Instruments: Metrohm 761 Compact IC
Analytes: Anions

Characteristics of Indoor Aerosols in Residential Homes in Urban Locations: A Case Study in Singapore, (R. Balasubramanian et al.), *Journal of the Air & Waste Management Association,* **2007,** 58, 8, p. 981 - 990

Instruments: Metrohm IC System
Analytes: Cations

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Instruments: Metrohm modular IC system, Metrosep A Supp 4 - 250/4.0
Analysis: chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

Source characterization of biomass burning particles: The combustion of selected European conifers, African hardwood, savanna grass, and German and Indonesian peat, (Y. Iinuma et al.), *Journal of Geophysical Research: Atmospheres,* **2007,** 112, D8, p. 1984 - 2012

Instruments: Metrohm 690 Ion Chromatograph
Analytes: Cations

Evolucao das Distribuicoes de Tamanho em Massa e Numero do Aerossol Atmosferico em Sao Paulo, (M. G. Lopes Oliveira), *Thesis, Universidade de Sao Paulo, BR,* **2007,** 130, 1, p. 187 - 199

Instruments: Metrohm 761 Compact IC, Metrosep A Supp 5 - 250/4.0, Metrosep C 2 - 150/4.0
Analytes: Fluoride, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Alkene ozonolysis SOA: inferences of composition and droplet growth kinetics from Köhler theory analysis, (A. Asa-Awuku et al.), *Atmospheric Chemistry and Physics Discussions,* **2007,** 7, p. 8983 - 9011

Instruments: Metrosep A Supp 5 - 100/4.0
Analytes: Chloride, nitrate, sulfate

Citations 2006

Determination of water-soluble inorganic and organic species in atmospheric fine particulate matter, (S. Karthikeyan et al.), *Microchemical Journal,* **2006,** 82, 1, p. 49 - 55

Instruments: Metrohm Modular IC, Metrosep Dual 2 - 75/4.6,
Metrosep C 2 - 100/4.0
Analytes: Fluoride, chloride, nitrite, nitrate, phosphate, sulfate, acetate, formate, pyruvate, malonate, oxalate, sodium, ammonium, potassium, calcium, magnesium

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Aerosol ion concentration dependence on atmospheric conditions in Chicago, (T. Fosco), *Atmospheric Environment*, **2006**, 2006, 40, 34, p. 6638 - 6649

Instruments: Metrohm 761 Compact IC, Metrosep A Supp 5
Analytes: Fluoride, acetate, formate, chloride, nitrite, bromide, nitrate, sulfate, oxalate

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Instruments: Metrohm Modular IC
Analytes: Fluoride, chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Instruments: Metrohm 761 Compact IC
Analysis: Inorganic ions

A source study of PM in Saxony by Size-Segregated Characterisation, (H. Hermann), *Journal of Atmospheric Chemistry,* **2006,** 55, 5, p. 103 - 130

Instruments: Metrohm IC system

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Instruments: Metrohm 761 Compact IC
Analytes: Chloride, nitrate, sulfate

The ionic compositions of fine and coarse particle fractions in the two urban areas of Korea, (K. H. Kim), *Journal of Environmental Management,* **2006,** 78, 2, p. 170 - 182

Instruments: Metrohm Modular system

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Instruments: Metrohm Basic IC, Metrosep A Supp 3 - 250/4.6, Metrosep Cation 1-2
Analytes: Chloride, nitrite, nitrate, phosphate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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Determination of the S Isotope Composition of Methanesulfonic Acid, (A. A. Sanusi), *Atmospheric Environment*, **2006**, 78, 14, p. 4964 - 4968

Instruments: Metrohm Metrosep A Supp 5
Analytes: Methanesulfonate, sulfate

Citations 2004

Simultaneous sampling of peroxyacetic acid and hydrogen peroxide in workplace atmospheres, (G. Hecht et al.), *Annals of Occupational Hygiene,* **2004,** 48(8), p. 715 - 721

Instruments: Metrohm Modular IC
Analytes: Acetate

A new method for atmospheric nitrogen dioxide measurements using the combination of a stripping coil and fluorescence detection, (X. Chen), *Analytical Sciences,* **2004,** 20, p. 1019 - 1023

Instruments: Metrohm 761 Compact IC
Analytes: Nitrite, nitrate

Ion chromatographic determination of ammonia in air using a sampling tube of porous carbon, (T. Asada), *Analytical Sciences,* **2004,** 20, p. 125 - 128

Instruments: Metrohm 792 Basic IC
Analytes: Ammonium

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Instruments: Metrohm 690 Ion Chromatograph
Analytes: Chloride, sulfate, potassium, calcium

Citations 1999

Wet and Dry Deposition of Sulphur at the Site Melpitz in East Germany. In memorium dedicated to Wolfgang Rolle, (E. Brueggemann et al.), *Water, Air & Soil Pollution,* **1999,** 109(01. Apr), p. 81 - 99

Instruments: Metrohm IC system
Analytes: Sulfate

Citations 1998

Changes of some components of precipitation in East Germany after the unification, (E. Brueggemann et al.), *Water, Air & Soil Pollution,* **1998,** 107(01. Apr), p. 1 - 23

Instruments: Metrohm 690
Analytes: Chloride, nitrate, sulfate, sodium, ammonium, potassium, calcium, magnesium

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