

174

AGO/e



ELSEVIER

Volume 94

September 2014

ISSN 1352-2310

ATMOSPHERIC ENVIRONMENT

Air Pollution: Air Quality • Emissions • Transport and Transformations • Atmospheric Composition • Deposition and Fate • Pollution and Climate Change • Environmental Policy
• Special Themes



ATMOSPHERIC ENVIRONMENT

<http://www.elsevier.com/locate/atmosenv>

Volume 94

2014

CONTENTS

Announcement

- P. Brimblecombe, C.K. Chan, H.B. Singh,
A. Wiedensohler and B. Keall

Reviews

- | | | |
|---|-----|--|
| P. Sanderson, J.M. Delgado-Saborit and
R.M. Harrison | 353 | A review of chemical and physical characterisation of atmospheric metallic nanoparticles |
| X. Song, C. Peng, Z. Zhao, Z. Zhang, B. Guo,
W. Wang, H. Jiang and Q. Zhu | 546 | Quantification of soil respiration in forest ecosystems across China |
| B.N. Duncan, A.I. Prados, L.N. Lamsal, Y. Liu,
D.G. Streets, P. Gupta, E. Hilsenrath, R.A. Kahn,
J.E. Nielsen, A.J. Beyersdorf, S.P. Burton,
A.M. Fiore, J. Fishman, D.K. Henze, C.A. Hostetler,
N.A. Krotkov, P. Lee, M. Lin, S. Pawson, G. Pfister,
K.E. Pickering, R.B. Pierce, Y. Yoshida and
L.D. Ziemba | 647 | Satellite data of atmospheric pollution for U.S. air quality applications:
Examples of applications, summary of data end-user resources, answers to
FAQs, and common mistakes to avoid |

Regular papers

- | | | |
|---|----|--|
| K.-H. Kim | 1 | Present and long-term pollution status of airborne copper in major urban environments |
| M. Elbayoumi, N.A. Ramli, N.F.F. Md Yusof, A.S.B. Yahaya, W. Al Madhoun and A.Z. Ul-Saufie | 11 | Multivariate methods for indoor PM ₁₀ and PM _{2.5} modelling in naturally ventilated schools buildings |
| R. Laiman, C. He, M. Mazaheri, S. Clifford, F. Salimi, L.R. Crilley, M.A. Megat Mokhtar and L. Morawska | 28 | Characteristics of ultrafine particle sources and deposition rates in primary school classrooms |
| H.B. Møller, V. Moset, M. Brask, M.R. Weisbjerg and P. Lund | 36 | Feces composition and manure derived methane yield from dairy cows: Influence of diet with focus on fat supplement and roughage type |
| T. Szigeti, Z. Kertész, C. Dunster, F.J. Kelly, G. Záray and V.G. Mihucz | 44 | Exposure to PM _{2.5} in modern office buildings through elemental characterization and oxidative potential |

Continued on inside back cover

Abstracted/indexed in: Acid Precipitation Digest, Air Pollution Titles, Analytical Abstracts, Applied Science & Technology Abstracts, Applied Science and Technology Index, Aqualine Abstracts, BIOSIS, Cambridge Scientific Abstracts, Chemical Abstracts, Current Contents / Physics / Chemistry & Earth Science, Current Contents/Agriculture, Biology & Environmental Sciences, EMBASE, Elsevier BIOBASE Environmental Periodicals Bibliography, FLUIDEX, GEOBASE, Geographical Abstracts: Physical Geography, Geological Abstracts, INSPEC, Meteorological and, Geoastrophysical Abstracts, PASCAL/CNRS, Research Alert, SCISEARCH, Science Citation Index, Scopus, Theoretical Chemical Engineering Abstracts Also covered in the abstract and citation database Scopus. Full text available on ScienceDirect®.



1353-3310(301408)8:1-5

Printed by Henry Ling Ltd, The Dorset Press, Dorchester, UK



ELSEVIER

ISSN 1352-2310
94 (2014) 1–818

D.H. Do, H. Van Langenhove, S.I. Chigbo, A.N. Amare, K. Demeestere and C. Walgraeve	53	Exposure to volatile organic compounds: Comparison among different transportation modes
J. Li, H. Cao, D. Han, M. Li, X. Li, M. He and S. Ma	63	Computational study on the mechanism and kinetics of Cl-initiated oxidation of vinyl acetate
J.T. Steffens, D.K. Heist, S.G. Perry, V. Isakov, R.W. Baldauf and K.M. Zhang	74	Effects of roadway configurations on near-road air quality and the implications on roadway designs
N. Copeland, J.N. Cape, E. Nemitz and M.R. Heal	86	Volatile organic compound speciation above and within a Douglas fir forest
U.C. Dumka and D.G. Kaskaoutis	96	In-situ measurements of aerosol properties and estimates of radiative forcing efficiency over Gangetic-Himalayan region during the GVAX field campaign
M.A. Elangasinghe, N. Singhal, K.N. Dirks, J.A. Salmond and S. Samarasinghe	106	Complex time series analysis of PM ₁₀ and PM _{2.5} for a coastal site using artificial neural network modelling and k-means clustering
N.C. Bouvier-Brown, E. Carrasco, J. Karz, K. Chang, T. Nguyen, D. Ruiz, V. Okonta, J.B. Gilman, W.C. Kuster and J.A. de Gouw	126	A portable and inexpensive method for quantifying ambient intermediate volatility organic compounds
S.-S. Park and J.-H. Kim	134	Possible sources of two size-resolved water-soluble organic carbon fractions at a roadway site during fall season
S. Ozgen, S. Caserini, S. Galante, M. Giugliano, E. Angelino, A. Marongiu, F. Hugony, G. Migliavacca and C. Morreale	144	Emission factors from small scale appliances burning wood and pellets
E. Mantas, E. Remoundaki, I. Halari, P. Kassomenos, C. Theodosi, A. Hatzikioseyan and N. Mihalopoulos	154	Mass closure and source apportionment of PM _{2.5} by Positive Matrix Factorization analysis in urban Mediterranean environment
S.L. Grant, M. Kim, P. Lin, K.C. Crist, S. Ghosh and V.R. Kotamarthi	164	A simulation study of atmospheric mercury and its deposition in the Great Lakes
T.A. Cahill, D.E. Barnes and N.J. Spada	173	Seasonal variability of ultra-fine metals downwind of a heavily traveled secondary road
S.D. Plachinski, T. Holloway, P.J. Meier, G.F. Nemet, A. Rrushaj, J.T. Oberman, P.L. Duran and C.L. Voigt	180	Quantifying the emissions and air quality co-benefits of lower-carbon electricity production
H. Hellén, A.-J. Kieloaho and H. Hakola	192	Gas-phase alkyl amines in urban air; comparison with a boreal forest site and importance for local atmospheric chemistry
Z. Yao, X. Cao, X. Shen, Y. Zhang, X. Wang and K. He	198	On-road emission characteristics of CNG-fueled bi-fuel taxis
M.A. Alghamdi, M. Khoder, R.M. Harrison, A.-P. Hyvärinen, T. Hussein, H. Al-Jeelani, A.S. Abdelmaksoud, M.H. Goknil, I.I. Shabbaj, F.M. Almehmadi, H. Lihavainen, M. Kulmala and K. Hämeri	205	Temporal variations of O ₃ and NO _x in the urban background atmosphere of the coastal city Jeddah, Saudi Arabia
Y. Chen, S. Xie, B. Luo and C. Zhai	215	Characteristics and origins of carbonaceous aerosol in the Sichuan Basin, China

Continued on BM VI

Available online at www.sciencedirect.com**ScienceDirect**

ISSN 1352-2310

94 (2014) 1–818

M. Dall'Osto, D.C.S. Beddows, J.K. Gietl, O.A. Olatunbosun, X. Yang and R.M. Harrison	224	Characteristics of tyre dust in polluted air: Studies by single particle mass spectrometry (ATOFMS)
M. Levy, R. Zhang, J. Zheng, A.L. Zhang, W. Xu, M. Gomez-Hernandez, Y. Wang and E. Olaguer	231	Measurements of nitrous acid (HONO) using ion drift-chemical ionization mass spectrometry during the 2009 SHARP field campaign
E. Malmqvist, D. Olsson, A. Hagenbjörk-Gustafsson, B. Forsberg, K. Mattisson, E. Stroh, M. Strömgren, E. Swietlicki, L. Rylander, G. Hoek, H. Tinnerberg and L. Modig	241	Assessing ozone exposure for epidemiological studies in Malmö and Umeå, Sweden
R. Derwent, S. Beevers, C. Chemel, S. Cooke, X. Francis, A. Fraser, M.R. Heal, N. Kitwiroon, J. Lingard, A. Redington, R. Sokhi and M. Vieno	249	Analysis of UK and European NO _x and VOC emission scenarios in the Defra model intercomparison exercise
T.J. Wallington and P. Wiesen	258	N₂O emissions from global transportation
V.P. Kanawade, S. Shika, C. Pöhlker, D. Rose, M.N.S. Suman, H. Gadhami, A. Kumar, S.M.S. Nagendra, R. Ravikrishna, H. Yu, L.K. Sahu, A. Jayaraman, M.O. Andreae, U. Pöschl and S.S. Gunthe	264	Infrequent occurrence of new particle formation at a semi-rural location, Gadanki, in tropical Southern India
M.C. Bove, P. Brotto, F. Cassola, E. Cuccia, D. Massabò, A. Mazzino, A. Piazzalunga and P. Prati	274	An integrated PM _{2.5} source apportionment study: Positive Matrix Factorisation vs. the chemical transport model CAMx
M.D. Bell, J.O. Sickman, A. Bytnerowicz, P.E. Padgett and E.B. Allen	287	Variation in isotopologues of atmospheric nitric acid in passively collected samples along an air pollution gradient in southern California
S.H.L. Yim, J.C.H. Fung and E.Y.Y. Ng	297	An assessment indicator for air ventilation and pollutant dispersion potential in an urban canopy with complex natural terrain and significant wind variations
A.A. Zardini, S.M. Platt, M. Clairotte, I. El Haddad, B. Temime-Roussel, N. Marchand, I. Ježek, L. Drinovec, G. Močnik, J.G. Slowik, U. Manfredi, A.S.H. Prévôt, U. Baltensperger and C. Astorga	307	Effects of alkylate fuel on exhaust emissions and secondary aerosol formation of a 2-stroke and a 4-stroke scooter
S. Kundu and K. Kawamura	316	Seasonal variations of stable carbon isotopic composition of bulk aerosol carbon from Gosan site, Jeju Island in the East China Sea
L. Li, M. Li, Z. Huang, W. Gao, H. Nian, Z. Fu, J. Gao, F. Chai and Z. Zhou	323	Ambient particle characterization by single particle aerosol mass spectrometry in an urban area of Beijing
M.E. Jenkin	332	Investigation of an oxidant-based methodology for AOT40 exposure assessment in the UK
R. Hagemann, U. Corsmeier, C. Kottmeier, R. Rinke, A. Wieser and B. Vogel	341	Spatial variability of particle number concentrations and NO _x in the Karlsruhe (Germany) area obtained with the mobile laboratory 'AERO-TRAM'
S. Staudt, S. Kundu, H.-J. Lehmler, X. He, T. Cui, Y.-H. Lin, K. Kristensen, M. Glasius, X. Zhang, R.J. Weber, J.D. Surratt and E.A. Stone	366	Aromatic organosulfates in atmospheric aerosols: Synthesis, characterization, and abundance
D.G. Kaskaoutis, A. Rashki, E.E. Houssos, D. Goto and P.T. Nastos	374	Extremely high aerosol loading over Arabian Sea during June 2008: The specific role of the atmospheric dynamics and Sistan dust storms
B. Lin, S.D. Ross, A.J. Prussin II and D.G. Schmale III	385	Seasonal associations and atmospheric transport distances of fungi in the genus <i>Fusarium</i> collected with unmanned aerial vehicles and ground-based sampling devices
Y. Zhou, S. Cheng, D. Chen, J. Lang, B. Zhao and W. Wei	392	A new statistical approach for establishing high-resolution emission inventory of primary gaseous air pollutants
J.-J. Pu, H.-H. Xu, J. He, S.-X. Fang and L.-X. Zhou	402	Estimation of regional background concentration of CO ₂ at Lin'an Station in Yangtze River Delta, China

B.C. Cho and G.I. Jang	409	Active and diverse rainwater bacteria collected at an inland site in spring and summer 2011
B.F. O'Leary and L.D. Lemke	417	Modeling spatiotemporal variability of intra-urban air pollutants in Detroit: A pragmatic approach
X. Guo, T. Nakayama, H. Yamada, S. Inomata, K. Tonokura and Y. Matsumi	428	Measurement of the light absorbing properties of diesel exhaust particles using a three-wavelength photoacoustic spectrometer
Q. Ying, I.V. Cureño, G. Chen, S. Ali, H. Zhang, M. Malloy, H.A. Bravo and R. Sosa	438	Impacts of Stabilized Criegee Intermediates, surface uptake processes and higher aromatic secondary organic aerosol yields on predicted PM _{2.5} concentrations in the Mexico City Metropolitan Zone
L. Yao, Y. Ma, L. Wang, J. Zheng, A. Khalizov, M. Chen, Y. Zhou, L. Qi and F. Cui	448	Role of stabilized Criegee Intermediate in secondary organic aerosol formation from the ozonolysis of α -cedrene
I.C. Rumsey, V.P. Aneja and W.A. Lonneman	458	Characterizing reduced sulfur compounds emissions from a swine concentrated animal feeding operation
A.A. Reda, J. Schnelle-Kreis, J. Orasche, G. Abbaszade, J. Lintelmann, J.M. Arteaga-Salas, B. Stengel, R. Rabe, H. Harndorf, O. Sippula, T. Streibel and R. Zimmermann	467	Gas phase carbonyl compounds in ship emissions: Differences between diesel fuel and heavy fuel oil operation
E. Aruffo, P. Di Carlo, C. Dari-Salisburgo, F. Biancofiore, F. Giannmaria, M. Busilacchio, J. Lee, S. Moller, J. Hopkins, S. Punjabi, S. Bauguitte, D. O'Sullivan, C. Percival, M. Le Breton, J. Muller, R. Jones, G. Forster, C. Reeves, D. Heard, H. Walker, T. Ingham, S. Vaughan and D. Stone	479	Aircraft observations of the lower troposphere above a megacity: Alkyl nitrate and ozone chemistry
C.M. Tovar and M.A. Teruel	489	Gas-phase kinetics of OH radicals reaction with a series of fluorinated acrylates and methacrylates at atmospheric pressure and 298 K
A. Ares, J.A. Fernández, A. Carballeira and J.R. Aboal	496	Towards the methodological optimization of the moss bag technique in terms of contaminants concentrations and replicability values
I.A. Girach, V.S. Nair, S.S. Babu and P.R. Nair	508	Black carbon and carbon monoxide over Bay of Bengal during W_ICARB: Source characteristics
S. Batterman, S. Chambliss and V. Isakov	518	Spatial resolution requirements for traffic-related air pollutant exposure evaluations
N.A. Martin, J.J. Helmore, S. White, I.L. Barker Snook, A. Parish and L.S. Gates	529	Measurement of nitrogen dioxide diffusive sampling rates for Palms diffusion tubes using a controlled atmosphere test facility (CATFAC)
W. Zhou, S. Wu, W. Huo, X. Xiong, P. Cheng, X. Lu and Z. Niu	538	Tracing fossil fuel CO ₂ using $\Delta^{14}\text{C}$ in Xi'an City, China
M. Trail, A.P. Tsimpidi, P. Liu, K. Tsigaridis, J. Rudokas, P. Miller, A. Nenes, Y. Hu and A.G. Russell	552	Sensitivity of air quality to potential future climate change and emissions in the United States and major cities
R.G. Gibilisco, I. Bejan, I. Barnes, P. Wiesen and M.A. Teruel	564	Rate coefficients at 298 K and 1 atm for the tropospheric degradation of a series of C ₆ , C ₇ and C ₈ biogenic unsaturated alcohols initiated by Cl atoms
S.-S. Chang, W.-J. Lee, T.M. Holsen, H.-W. Li, L.-C. Wang and G.-P. Chang-Chien	573	Emissions of polychlorinated- <i>p</i> -dibenzo dioxin, dibenzofurans (PCDD/Fs) and polybrominated diphenyl ethers (PBDEs) from rice straw biomass burning
Q. Ying, L. Wu and H. Zhang	582	Local and inter-regional contributions to PM _{2.5} nitrate and sulfate in China
C.-W. Huang, S. Launiainen, T. Grönholm and G.G. Katul	593	Particle deposition to forests: An alternative to K-theory
P.R.C. Rahul, S.M. Sonbawne and P.C.S. Devara	606	Unusual high values of aerosol optical depth evidenced in the Arctic during summer 2011

V. Grewe, T. Champougny, S. Matthes, C. Frömming, S. Brinkop, O.A. Søvde, E.A. Irvine and L. Halscheidt	616	Reduction of the air traffic's contribution to climate change: A REACT4C case study
W. Li, J. Chi, Z. Shi, X. Wang, B. Chen, Y. Wang, T. Li, J. Chen, D. Zhang, Z. Wang, C. Shi, L. Liu and W. Wang	626	Composition and hygroscopicity of aerosol particles at Mt. Lu in South China: Implications for acid precipitation
D. Ma, S. Wang and Z. Zhang	637	Hybrid algorithm of minimum relative entropy-particle swarm optimization with adjustment parameters for gas source term identification in atmosphere
N. Canha, S.M. Almeida, M.C. Freitas, H.T. Wolterbeek, J. Cardoso, C. Pio and A. Caseiro	663	Impact of wood burning on indoor PM _{2.5} in a primary school in rural Portugal
J.L. Hand, B.A. Schichtel, W.C. Malm, S. Copeland, J.V. Molenar, N. Frank and M. Pitchford	671	Widespread reductions in haze across the United States from the early 1990s through 2011
K.B. Mao, Y. Ma, L. Xia, W.Y. Chen, X.Y. Shen, T.J. He and T.R. Xu	680	Global aerosol change in the last decade: An analysis based on MODIS data
M. Bai, H. Suter, S.K. Lam, J. Sun and D. Chen	687	Use of open-path FTIR and inverse dispersion technique to quantify gaseous nitrogen loss from an intensive vegetable production site
F. Barraza, H. Jorquera, G. Valdivia and L.D. Montoya	692	Indoor PM _{2.5} in Santiago, Chile, spring 2012: Source apportionment and outdoor contributions
C.H. Yu, L. Huang, J.Y. Shin, F. Artigas and Z.-h.T. Fan	701	Characterization of concentration, particle size distribution, and contributing factors to ambient hexavalent chromium in an area with multiple emission sources
G.A. Marzo	709	Atmospheric transport and deposition of radionuclides released after the Fukushima Dai-chi accident and resulting effective dose
J. Pražníkář, F. Cepák and J. Žíbert	723	Long-term analysis of elemental content in airborne particulate matter by PIXE and positive matrix factorization: Annual trends and seasonal variability during 2003 and 2008
X. Hou, B. Zhu, H. Kang and J. Gao	734	Analysis of seasonal ozone budget and spring ozone latitudinal gradient variation in the boundary layer of the Asia-Pacific region
C.D. Whiteman, S.W. Hoch, J.D. Horel and A. Charland	742	Relationship between particulate air pollution and meteorological variables in Utah's Salt Lake Valley
Y.-J. Han, J.-E. Kim, P.-R. Kim, W.-J. Kim, S.-M. Yi, Y.-S. Seo and S.-H. Kim	754	General trends of atmospheric mercury concentrations in urban and rural areas in Korea and characteristics of high-concentration events
J. Sanz, I. González-Fernández, H. Calvete-Sogo, J.S. Lin, R. Alonso, R. Muntifering and V. Bermejo	765	Ozone and nitrogen effects on yield and nutritive quality of the annual legume <i>Trifolium cherleri</i>
Y. Zhao, S.S. Cliff, A.S. Wexler, W. Javed, K. Perry, Y. Pan and F.M. Mitloehner	773	Measurements of size- and time-resolved elemental concentrations at a California dairy farm
W. Pattinson, I. Longley and S. Kingham	782	Using mobile monitoring to visualise diurnal variation of traffic pollutants across two near-highway neighbourhoods
J. Kearney, L. Wallace, M. MacNeill, M.-E. Héroux, W. Kindzierski and A. Wheeler	793	Residential infiltration of fine and ultrafine particles in Edmonton
N.T. Huong Giang and N.T. Kim Oanh	806	Roadside levels and traffic emission rates of PM _{2.5} and BTEX in Ho Chi Minh City, Vietnam
Short communication		
T. Olszowski and M. Bożym	22	Pilot study on using an alternative method of estimating emission of heavy metals from wood combustion
Technical note		
I. Lusini, E. Pallozzi, P. Corona, P. Ciccioli and C. Calfapietra	117	Novel application of a combustion chamber for experimental assessment of biomass burning emission
Corrigendum		
C. Varotsos, J. Ondov, C. Tzanis, F. Öztürk, M. Nelson, H. Ke and J. Christodoulakis	817	Corrigendum to "An observational study of the atmospheric ultra-fine particle dynamics" [Atmos. Environ. 59 (2012) 312–319]