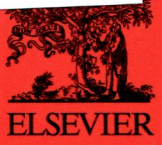


PH  
E58

Volume 176

May 2013

ISSN 0269-7491



# ENVIRONMENTAL POLLUTION

EDITOR-IN-CHIEF

**W.J. Manning**

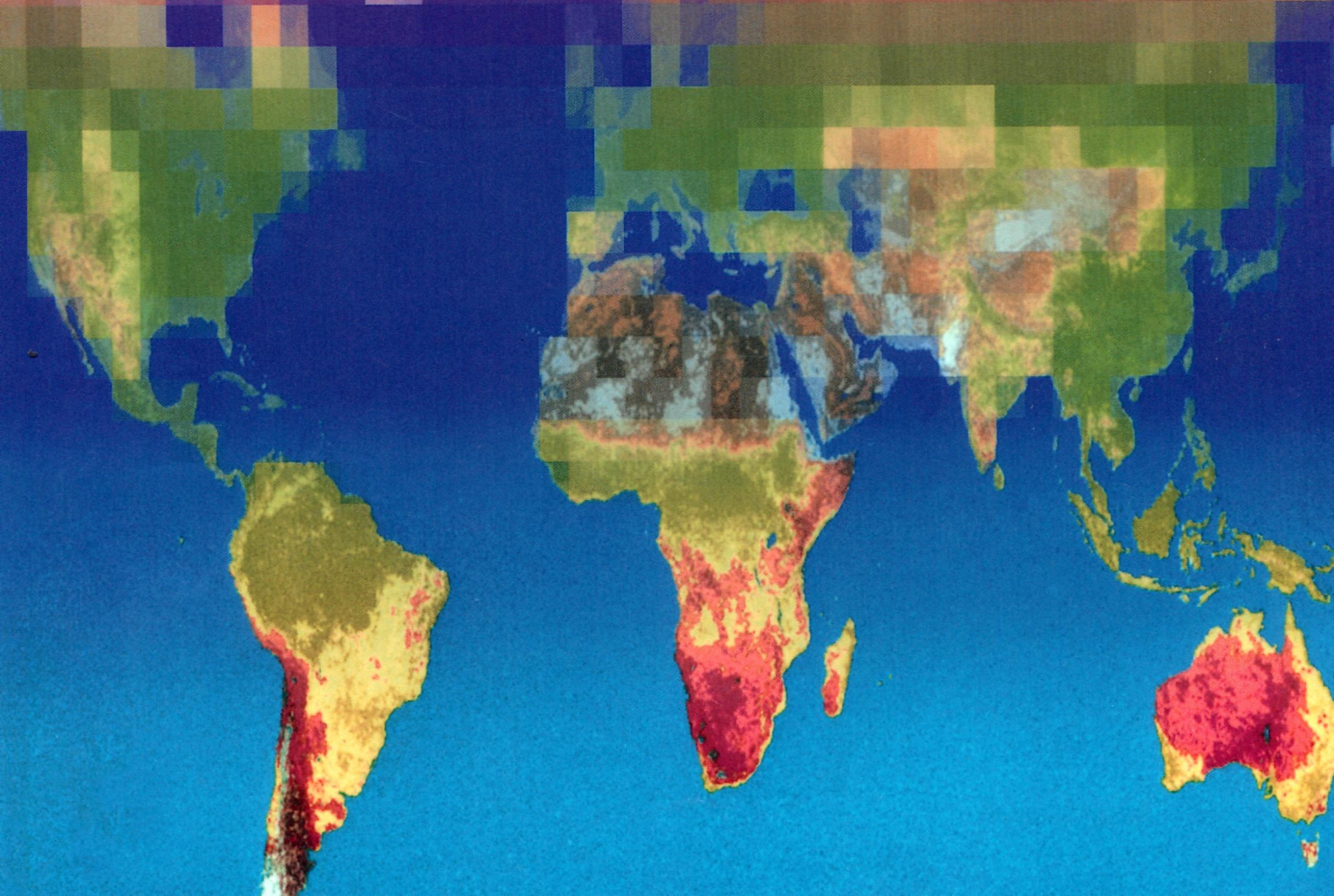
ASSOCIATE EDITORS

**J. Gan**

**B. Nowack**

**E. Paoletti**

**C. Wiegand**



## CONTENTS

Volume 176 May 2013

- 1 Quantitative determination of regional contributions to fine and coarse particle mass in urban receptor sites**  
I.G. Kavouras, M. Lianou, M.-C. Chalbot, I.C. Vei, A. Kotronarou, G. Hoek, K. Hameri, R.M. Harrison  
*Regional transport is an important determinant of fine and coarse particulate matter in urban receptor sites.*
- 10 Distribution and fate of perfluoroalkyl substances in municipal wastewater treatment plants in economically developed areas of China**  
W. Zhang, Y. Zhang, S. Taniyasu, L.W.Y. Yeung, P.K.S. Lam, J. Wang, X. Li, N. Yamashita, J. Dai  
*Distribution and fate of PFAAs in WWTPs of China reveal some cities have made substitutive measures in relation to long- and short-chain PFAAs.*
- 18 Mercury and methylmercury bioaccumulation by polychaete worms is governed by both feeding ecology and mercury bioavailability in coastal mudflats**  
T. Sizmur, J. Canário, T.G. Gerwing, M.L. Mallory, N.J. O'Driscoll  
*Predatory worms that feed on surface sediments contain less Hg and MeHg than deep burrowing, deposit-feeding species.*
- 26 A mineralogical and geochemical investigation of street sediment near a coal-fired power plant in Hamilton, Ohio: An example of complex pollution and cause for community health concerns**  
E. LeGalley, M.P.S. Krekeler  
*This investigation shows a new level of complexity in pollution in urban street sediment using integrated techniques and suggests street sediment is of some human health risk.*
- 36 Application of compound-specific stable carbon isotope analysis for the biotransformation and trophic dynamics of PBDEs in a feeding study with fish**  
X.-J. Luo, Y.-H. Zeng, H.-S. Chen, J.-P. Wu, S.-J. Chen, B.-X. Mai  
*Species-specific debromination was found in a laboratory experiment and CSIA can be used to trace this process.*
- 42 CO<sub>2</sub> and O<sub>2</sub> respiration kinetics in hydrocarbon contaminated soils amended with organic carbon sources used to determine catabolic diversity**  
S. Pietravallo, T.J. Aspray  
*CO<sub>2</sub> and O<sub>2</sub> respiration kinetic study on hydrocarbon contaminated soils following carbon source addition provide strong evidence of abiotic decomposition.*
- 48 Supercritical fluid extraction of persistent organic pollutants from natural and artificial soils and comparison with bioaccumulation in earthworms**  
L. Bielská, K. Šmídová, J. Hofman  
*The use of SFE for prediction of bioaccumulation or for extrapolation of compound behavior from artificial to natural soils seems to be limited.*
- 55 Status of metal accumulation in farmland soils across China: From distribution to risk assessment**  
L. Niu, F. Yang, C. Xu, H. Yang, W. Liu  
*Distribution, potential risk and sources of 11 metals in farmland soils have been investigated across Mainland China.*
- 63 Effects of nano-TiO<sub>2</sub> on photosynthetic characteristics of *Ulmus elongata* seedlings**  
J. Gao, G. Xu, H. Qian, P. Liu, P. Zhao, Y. Hu  
*Photosynthetic active radiation plays an important role in determining the toxic effects of nano-TiO<sub>2</sub> on *Ulmus elongata* seedlings, and the lowered photosynthesis is regulated by non-stomatal factors.*
- 71 Biomass burning in eastern Europe during spring 2006 caused high deposition of ammonium in northern Fennoscandia**  
P.E. Karlsson, M. Ferm, H. Tømmervik, L.R. Hole, G. Pihl Karlsson, T. Ruoho-Airola, W. Aas, S. Hellsten, C. Akselsson, T.N. Mikkelsen, B. Nihlgård  
*Polluted air from biomass burning in eastern Europe caused episodic high ammonium dry deposition in northern Fennoscandia.*

Continued on inside back cover

(Abstracted/indexed in: AGRICOLA database; Air Pollution Control Association Journal; Biological and Agricultural Index; CAB ABSTRACTS database; Elsevier BIOBASE/Current Awareness in Biological Sciences; Cambridge Scientific Abstracts; Chemical Abstracts; Current Contents/Agriculture, Biology & Environmental Sciences; Environment Abstracts; Environmental Periodicals Bibliography; Energy Information-Abstracts; EMBASE/Excerpta Medica; Geo Abstracts; GEOBASE; Index Medicus/MEDLINE/PubMed; Thomson Scientific GeoSciTech; Science Citation Index; SciSearch). Also covered in the abstract and citation database SciVerse Scopus®. Full text available on SciVerse ScienceDirect®.



# ENVIRONMENTAL POLLUTION

## CONTENTS—Continued from outside back cover

- 80 Dechlorane Plus flame retardant in terrestrial raptors from northern China**  
D. Chen, Y. Wang, L. Yu, X. Luo, B. Mai, S. Li  
*Unusual exposure and tissue-specific accumulation of DP isomers were observed in Chinese terrestrial raptors collected from a major metropolitan region.*
- 87 Characterising metal build-up on urban road surfaces**  
P. Egodawatta, A.M. Ziyath, A. Goonetilleke  
*The build-up process for metals originating from anthropogenic and geogenic sources is notably different.*
- 92 Improving estimates of air pollution exposure through ubiquitous sensing technologies**  
A. de Nazelle, E. Seto, D. Donaire-Gonzalez, M. Mendez, J. Matamala, M.J. Nieuwenhuijsen, M. Jerrett  
*Great potential for exposure assessment is found in Smartphone technology integrating GPS and accelerometry, and more sensors in the future; we illustrate with an application in air pollution.*
- 100 Levels and distribution of methoxylated and hydroxylated polybrominated diphenyl ethers in plant and soil samples surrounding a seafood processing factory and a seafood market**  
J. Sun, J. Liu, Y. Liu, G. Jiang  
*MeO-PBDEs and OH-PBDEs were measured and found in plant samples surrounding a seafood processing factory and a seafood market for the first time.*
- 106 Direct and indirect effects of roads and road vehicles on the plant community composition of calcareous grasslands**  
M.A. Lee, S.A. Power  
*Calcareous grassland plant community composition is modified by roads and traffic.*
- 114 Arsenic mobility controlled by solid calcium arsenates: A case study in Mexico showcasing a potentially widespread environmental problem**  
N. Martínez-Villegas, R. Briones-Gallardo, J.A. Ramos-Leal, M. Avalos-Borja, A.D. Castañón-Sandoval, E. Razo-Flores, M. Villalobos  
*We showcase an environmental problem of high arsenic mobilization likely widespread from arsenic-waste stabilization using calcium amendments.*
- 123 Modeling of air pollutant removal by dry deposition to urban trees using a WRF/CMAQ/i-Tree Eco coupled system**  
M.T.I. Cabaraban, C.N. Kroll, S. Hirabayashi, D.J. Nowak  
*The WRF/CMAQ/i-Tree Eco coupled system used in this study helped to assess assumptions necessary to estimate dry deposition in the distributed i-Tree Eco prototype model.*
- 134 The importance of edaphic niches and pioneer plant species succession for the phytomanagement of mine tailings**  
I. Parraga-Aguado, M.N. Gonzalez-Alcaraz, J. Alvarez-Rogel, F.J. Jimenez-Carceles, H.M. Conesa  
*Distribution of pioneer plant species at metal(loid) enriched tailings was driven mainly by salinity while metal(loid)s concentrations played a minor role.*
- 144 Altered behavior of neonatal northern watersnakes (*Nerodia sipedon*) exposed to maternally transferred mercury**  
S.Y. Chin, J.D. Willson, D.A. Cristol, D.V.V. Drewett, W.A. Hopkins  
*This is the first study to document sublethal behavioral effects of maternally transferred contaminants in snakes.*
- 151 Determination and occurrence of secondary alkane sulfonates (SAS) in aquatic environments**  
R.M. Baena-Nogueras, E. González-Mazo, P.A. Lara-Martín  
*Analysis and distribution of SAS in the aquatic environment, including both aqueous and solid phases, is reported for the first time.*
- 158 Toxic effects of copper ion in zebrafish in the joint presence of CdTe QDs**  
W. Zhang, Y. Miao, K. Lin, L. Chen, Q. Dong, C. Huang  
*This study demonstrates the utility of zebrafish for assessing the potential risks of copper ion in the joint presence of CdTe QDs for the first time.*
- 165 Biomarker responses reveal that food quality affects cadmium exposure in the soil collembolan *Folsomia candida***  
T. Nakamori, N. Kaneko  
*Food quality can alter cadmium exposure by altering food consumption rates in soil animals.*
- 171 A stable isotope dilution method for measuring bioavailability of organic contaminants**  
L. Delgado-Moreno, J. Gan  
*An isotope dilution method has been developed to measure the exchangeable fraction of pyrene and bifenthrin as a reliable approximation of their bioavailable pool.*
- 178 Extreme precipitation appears a key driver of mercury transport from the watershed to Cottage Grove Reservoir, Oregon**  
L.R. Curtis, D.L. Morgans, B. Thoms, D. Villeneuve  
*Extreme precipitation increases transport of watershed mercury to aquatic ecosystems.*
- 185 Modelling metal–metal interactions and metal toxicity to lettuce *Lactuca sativa* following mixture exposure ( $\text{Cu}^{2+}$ – $\text{Zn}^{2+}$  and  $\text{Cu}^{2+}$ – $\text{Ag}^+$ )**  
T.T.Y. Le, M.G. Vijver, T.B. Kinraide, W.J.G.M. Peijnenburg, A.J. Hendriks  
*The present study demonstrates a potential approach for incorporating metal–metal interactions in modelling metal toxicity.*

- 193 Transformation of four silver/silver chloride nanoparticles during anaerobic treatment of wastewater and post-processing of sewage sludge**  
E. Lombi, E. Donner, S. Taheri, E. Tavakkoli, Å.K. Järnting, S. McClure, R. Naidu, B.W. Miller, K.G. Scheckel, K. Vasilev  
*Silver sulfides are the dominant and stable species of Ag present in sewage sludge irrespective of the characteristics of silver nanoparticles added to waste water.*
- 198 Greenhouse gas emissions from a wheat–maize double cropping system with different nitrogen fertilization regimes**  
X.-K. Hu, F. Su, X.-T. Ju, B. Gao, O. Oenema, P. Christie, B.-X. Huang, R.-F. Jiang, F.-S. Zhang  
*Impacts of different nitrogen regimes on N<sub>2</sub>O emission and CH<sub>4</sub> uptake in a double cropping system were investigated in the field.*
- 208 Tracing the source of Beijing soil organic carbon: A carbon isotope approach**  
Q. Guo, H. Strauss, T.-B. Chen, G. Zhu, J. Yang, J. Yang, M. Lei, X. Zhou, M. Peters, Y. Xie, H. Zhang, R. Wei, C. Wang  
*Utilizing the carbon isotope to distinguish industrial from non-industrial soil.*
- 215 Particle size, chemical composition, seasons of the year and urban, rural or remote site origins as determinants of biological effects of particulate matter on pulmonary cells**  
M.G. Perrone, M. Gualtieri, V. Consonni, L. Ferrero, G. Sangiorgi, E. Longhin, D. Ballabio, E. Bolzacchini, M. Camatini  
*A multidisciplinary approach to provide new insights into fine PM atmospheric pollution and effects is described – results are presented for PMs collected at different sites in North Italy.*
- 228 Enhancement of water solubility and mobility of phenanthrene by natural soil nanoparticles**  
W. Li, X. Zhu, Y. He, B. Xing, J. Xu, P.C. Brooks  
*Enhancement of water solubility and mobility of phenanthrene in saturated sand columns by natural soil NPs.*
- 234 Modelling mercury concentrations in prey fish: Derivation of a national-scale common indicator of dietary mercury exposure for piscivorous fish and wildlife**  
D.C. Depew, N.M. Burgess, L.M. Campbell  
*Application of a statistical model to a national scale dataset of fish Hg concentrations to generate a common indicator for ecological risk assessment.*
- 244 An ecotoxicological screening tool to prioritise acid mine drainage impacted streams for future restoration**  
P.J. Oberholster, B. Genthe, P. Hobbs, P.H. Cheng, A.R. de Klerk, A.-M. Botha  
*An ecotoxicological screening tool combining physical and chemical variables and bioindicators was developed and employed to prioritise future remediation of streams impacted by AMD.*
- 254 Relating selenium concentrations in a planktivore to selenium speciation in lakewater**  
D.E. Ponton, L. Hare  
*Our field results suggest that larvae of the phantom-midge Chaoborus would be effective sentinels for monitoring selenium (Se) concentrations in lake planktonic food-webs.*
- 261 Occurrence of zebra mussel parasites: Modelling according to contamination in France and the USA**  
L. Minguez, S. Devin, D.P. Molloy, F. Guérol, L. Giambérini  
*We model zebra mussel microparasite occurrence according to pollution levels. Metals except Zn enhance parasitism; Rickettsiales-like organism infection was higher at higher Ni and Cr concentrations.*
- 267 Aluminum sulfate (alum) application interactions with coupled metal and nutrient cycling in a hypereutrophic lake ecosystem**  
G. Nogaro, A.J. Burgin, V.A. Schoepfer, M.J. Konkler, K.L. Bowman, C.R. Hammerschmidt  
*Alum addition increased dissolved aluminum and sulfate in a hypereutrophic lake ecosystem, which may feedback to alter benthic community dynamics.*
- 275 Discharge of landfill leachate to streambed sediments impacts the mineralization potential of phenoxy acid herbicides depending on the initial abundance of *tfdA* gene classes**  
M. Batioğlu-Pazarbaşı, N. Milosevic, F. Malaguerra, P.J. Binning, H.-J. Albrechtsen, P.L. Bjerg, J. Aamand  
*The herbicide mass discharge rates and kinetic models by considering degrader abundance can improve our understanding of phenoxy acid mineralization potentials.*
- 284 Molecular biomarkers for sources of organic matter in lacustrine sediments in a subtropical lake in China**  
Y.-H. Wang, H. Yang, X. Chen, J.-X. Zhang, J. Ou, B. Xie, C.-C. Huang  
*The anthropogenic activities enhanced organic matter transport in Yangtze watershed.*
- 292 A critical study: Assessment of the effect of silica particles from 15 to 500 nm on bacterial viability**  
J. Wehling, E. Volkman, T. Grieb, A. Rosenauer, M. Maas, L. Treccani, K. Rezwani  
*Bare SiO<sub>2</sub> particles do not reduce the viability of various bacterial strains independently from their particle size.*