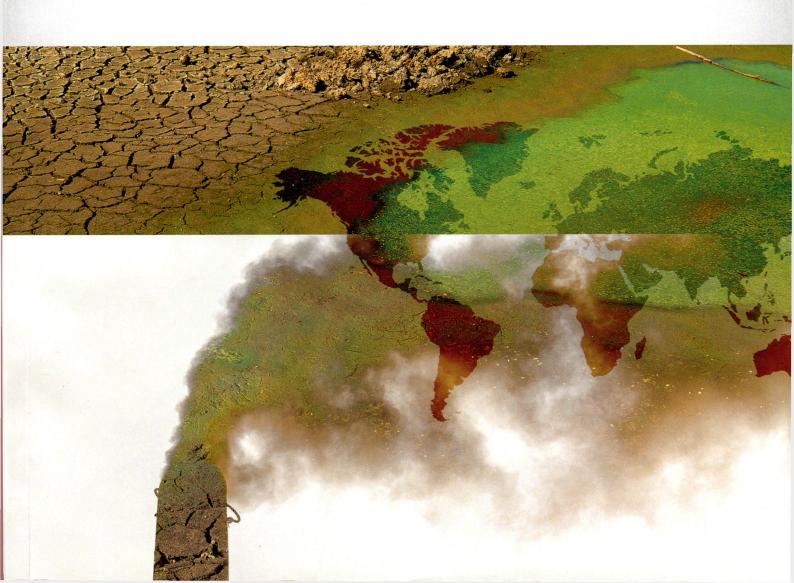


ENVIRONMENTAL POLLUTION

EDITOR-IN-CHIEF

W.J. Manning



ENVIRONMENTAL POLLUTION

www.elsevier.com/locate/envpol

CONTENTS

Volume 184 January 2014

SPECIAL ISSUE SECTION: Biological reactions of forests to air pollution and climate change

1 Is Erica tetralix abundance on wet heathlands controlled by nitrogen deposition or soil acidification? C. Damgaard, M. Strandberg, S.M. Kristiansen, K.E. Nielsen, J.L. Bak

N deposition and soil acidity had a negative effect on the cover of Erica tetralix. There were no major indirect effects of N deposition on the cover of **E. tetralix** mediated by soil acidification.

9 Applications in environmental risk assessment of leucocyte apoptosis, necrosis and respiratory burst analysis on the European bullhead, Cottus sp.

A. Bado-Nilles, S. Jolly, J.-M. Porcher, O. Palluel, A. Geffard, B. Gagnaire, S. Betoulle, W. Sanchez

Attractive use of freshwater fish leucocyte non-specific immune function in environmental risk assessment according to international recommendations.

18 Field measurement on the emissions of PM, OC, EC and PAHs from indoor crop straw burning in rural China S. Wei, G. Shen, Y. Zhang, M. Xue, H. Xie, P. Lin, Y. Chen, X. Wang, S. Tao

Emissions of incomplete combustion pollutants strongly affected by the fuel type and stove usage.

25 Identification of novel micropollutants in wastewater by a combination of suspect and nontarget screening C. Hug, N. Ulrich, T. Schulze, W. Brack, M. Krauss

A screening procedure based on liquid chromatography-high resolution mass spectrometry (LC-HRMS) with a systematic data evaluation was established, which allowed detecting suspected and formerly unknown contaminants in wastewater.

33 Metal and nutrient dynamics on an aged intensive green roof A.F. Speak, J.J. Rothwell, S.J. Lindley, C.L. Smith

Aged green roofs may act as a store of legacy lead pollution.

44 Role of particle size and composition in metal adsorption by solids deposited on urban road surfaces C. Gunawardana, P. Egodawatta, A. Goonetilleke

The mineralogical composition of solids is the governing factor influencing metal adsorption to solids in pollutant build-up on urban surfaces.

54 Fate modeling of mercury species and fluxes estimation in an urban river Y. Tong, W. Zhang, C. Chen, L. Chen, W. Wang, X. Hu, H. Wang, D. Hu, L. Ou, X. Wang, Q. Wang

Quantitative Water-Air-Sediment Interaction model was used to quantify the transfer and fate of mercury in an urban river.

62 Spatial distribution of mercury in southeastern Alaskan streams influenced by glaciers, wetlands, and salmon S.A. Nagorski, D.R. Engstrom, J.P. Hudson, D.P. Krabbenhoft, E. Hood, J.F. DeWild, G.R. Aiken

This original survey of mercury concentration and form in southeastern Alaskan streamwater and biota shows substantial spatial variation linked to landscape factors and salmon influence.

73 Impacts of simulated drought on pore water chemistry of peatlands M. Juckers, S.A. Watmough

Simulated drought acidifies pore water of peatlands and increases Ni and Co but decreases DOC, Cu and Al concentration.

81 First measurements of source apportionment of organic aerosols in the Southern Hemisphere L.R. Crilley, G.A. Ayoko, L. Morawska

Source apportionment of organic aerosol (OA) in the Southern Hemisphere showed that they are generally more oxidized than those in the Northern Hemisphere.

89 Artificial sweeteners as potential tracers of municipal landfill leachate J.W. Roy, D.R. Van Stempvoort, G. Bickerton

Artificial sweeteners may be useful for tracing landfill leachate contamination and distinguishing it from wastewater impacts.

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 Scopus®. Full text available on ScienceDirect®.







ENVIRONMENTAL POLLUTION

CONTENTS-Continued from outside back cover

Occurrence, characteristics and leakage of polybrominated diphenyl ethers in leachate from municipal solid waste landfills in China

Y. Li, J. Li, C. Deng

This paper determined the levels and distribution of PBDEs in MSW landfill leachate and predicted the leakage of PBDEs from sanitary landfills into the underground environment across China.

Passive sampling: An effective method for monitoring seasonal and spatial variability of dissolved hydrophobic organic contaminants and metals in the Danube river

B. Vrana, V. Klučárová, E. Benická, N. Abou-Mrad, R. Amdany, S. Horáková, A. Draxler, F. Humer, O. Gans

The study demonstrates the applicability of passive samplers for effective monitoring of seasonal and spatial trends of free dissolved waterborne priority pollutants in a large European river.

Spatial distribution of PAH concentrations and stable isotope signatures (δ¹³C, δ¹⁵N) in mosses from three European areas - Characterization by multivariate analysis
L. Foan, S. Leblond, L. Thöni, C. Raynaud, J.M. Santamaría, M. Sebilo, V. Simon

PAH concentrations and N, C stable isotope ratios distribution in European mosses was explained by soil occupation, as well as environmental factors.

123 Synergistic role of different soil components in slow sorption kinetics of polar organic contaminants D. Zhang, L. Hou, D. Zhu, W. Chen

Slow sorption kinetics of polar organic contaminants is a result of synergistic contribution from different soil components.

131 Comparing black carbon types in sequestering polybrominated diphenyl ethers (PBDEs) in sediments F. Jia. J. Gan

Biochar, charcoal, and activated carbon have been compared for their efficacy in sequestering PBDEs in sediments by using a matrix-SPME method.

138 Polycyclic aromatic hydrocarbons in surface soil across the Tibetan Plateau: Spatial distribution, source and air-soil exchange

C. Wang, X. Wang, P. Gong, T. Yao

The Tibetan soil will likely remain as a sink for high molecular weight PAHs, but may become a potential "secondary source" for low molecular weight PAHs.

145 Phenanthrene binding by humic acid-protein complexes as studied by passive dosing technique J. Zhao, Z. Wang, S. Ghosh, B. Xing

Phenanthrene binding to HA-BSA complexes is much higher than the sum to individual HA and BSA while there was no binding enhancement to HA-pepsin or HA-lysozyme.

154 Integrative demographic modeling reveals population level impacts of PCB toxicity to juvenile snapping turtles C.J. Salice, C.L. Rowe, K.M. Eisenreich

A demographic model was used to show that PCB induced effects on young snapping turtles can result in adverse effects at the population level.

A new analytical approach for monitoring microplastics in marine sediments

M.-T. Nuelle, J.H. Dekiff, D. Remy, E. Fries

A two-step extraction technique enabled microplastics to be extracted from sediments at an affordable price by decreasing the sediment mass in the first step.

Microarray detection and qPCR screening of potential biomarkers of Folsomia candida (Collembola: Isotomidae) exposed to Bt proteins (Cry1Ab and Cry1Ac)

Y. Yuan, P.H. Krogh, X. Bai, D. Roelofs, F. Chen, K. Zhu-Salzman, Y. Liang, Y. Sun, F. Ge

Eleven potential molecular biomarkers of Folsomia candida to Cry1Ab and Cry1Ac were screened by microarray and qPCR analysis.

Accumulation of total mercury and methylmercury in rice plants collected from different mining areas in China M. Meng, B. Li, J.-j. Shao, T. Wang, B. He, J.-b. Shi, Z.-h. Ye, G.-b. Jiang

The distribution patterns indicate different pathways of IHg and MeHg accumulation in rice plants.

187 Effects of arsenate, chromate, and sulfate on arsenic and chromium uptake and translocation by arsenic hyperaccumulator Pteris vittata L.

L.M. de Oliveira, L.Q. Ma, J.A.G. Santos, L.R.G. Guilherme, J.T. Lessl

Combined effects of arsenate, chromate and sulfate on As and Cr uptake and translocation by arsenic-hyperaccumulator Pteris vittata were presented.

Tetrabromobisphenol A and hexabromocyclododecane flame retardants in infant-mother paired serum samples, and their relationships with thyroid hormones and environmental factors U.-J. Kim, J.-E. Oh

TBBPA and HBCDs were analyzed in paired infant-mother serum samples and compared with PBDE concentrations, and the potential for them having harmful impacts on human thyroid function was assessed.

201 Environmental controls on ozone fluxes in a poplar plantation in Western Europe

D. Zona, B. Gioli, S. Fares, T. De Groote, K. Pilegaard, A. Ibrom, R. Ceulemans

Winter and autumn O_3 fluxes were of similar magnitude to rates observed during peak vegetation development. Wind speed explained 44% of the variability in the nighttime O_3 fluxes.

211 Possible causes of the recent rapid increase in the radial increment of silver fir in the Western Carpathians

M. Bošeľa, R. Petráš, Z. Sitková, T. Priwitzer, J. Pajtík, H. Hlavatá, R. Sedmák, B. Tobin

Reductions of SO₂ and NO₃ emission along with climate change are the major causes of the recent recovery of Silver fir radial growth.

222 Enriching for microbial reductive dechlorination of polychlorinated dibenzo-p-dioxins and dibenzofurans H. Liu, J.-W. Park, M.M. Häggblom

Polychlorinated dibenzo-p-dioxins and dibenzofurans are dechlorinated by indigenous microbes of Kymijoki River sediment.

231 Fe biogeochemistry in reclaimed acid mine drainage precipitates—Implications for phytoremediation C. Rojas, C.E. Martínez, M.A. Bruns

Rooting zones of reclaimed acid mine drainage precipitates had higher Fe(II) and organically bound Fe than precipitates at lower depths and in unreclaimed control areas.

238 Identification of lead sources in residential environments: Sydney Australia

M.A.S. Laidlaw, S. Zahran, N. Pingitore, J. Clague, G. Devlin, M.P. Taylor

Interior and exterior dust, soil and paint were analysed at five brick urban Sydney homes over 15 months to evaluate temporal variations and discriminate sources of lead (Pb) exposure.

247 Impact of reclaimed water irrigation on antibiotic resistance in public parks, Beijing, China

F.-H. Wang, M. Qiao, Z.-E. Lv, G.-X. Guo, Y. Jia, Y.-H. Su, Y.-G. Zhu

The release of residual antibiotics and ARGs from reclaimed water could result in the proliferation of ARGs in irrigated park soils.

254 Bioaccumulation and trophic transfer of perfluorinated compounds in a eutrophic freshwater food web J. Xu, C.-S. Guo, Y. Zhang, W. Meng

PFCs were found to be bioaccumulated and biomagnified in a food web from a eutrophic freshwater lake in subtropical area.

262 Occurrence of phthalic acid esters in source waters; a nationwide survey in China during the period of 2009–2012

X. Liu, J. Shi, T. Bo, H. Zhang, W. Wu, Q. Chen, X. Zhan

271 Predicting nitrogen and acidity effects on long-term dynamics of dissolved organic matter

E.C. Rowe, E. Tipping, M. Posch, F. Oulehle, D.M. Cooper, T.G. Jones, A. Burden, J. Hall, C.D. Evans

Effects of changes in sulphur and nitrogen pollution on dissolved organic carbon fluxes are predicted by simulating soil organic matter cycling, the release of potentially-dissolved carbon, and interactions with soil pH.

First systematic nationwide survey of occurrence of PAEs in source water was conducted across different geographical zones and major

283 Cadmium contamination of agricultural soils and crops resulting from sphalerite weathering

T.C. Robson, C.B. Braungardt, J. Rieuwerts, P. Worsfold

Sphalerite dissolves steadily in oxic agricultural soils and can release highly bioavailable Cd, which may contaminate food crops destined for human consumption.

290 PCDD/F and dioxin-like PCB bioaccumulation by Manila clam from polluted areas of Venice Iagoon (Italy)

A. Sfriso, C. Facca, S. Raccanelli

river basins in China.

Clam bioaccumulation pathways in polluted areas.

298 Analysis of petroleum-contaminated soils by diffuse reflectance spectroscopy and sequential ultrasonic solvent extractiongas chromatography

R.N. Okparanma, F. Coulon, A.M. Mouazen

This approach may be used to collect large spatial data at reduced cost and time to assess the variability of polycyclic aromatic hydrocarbons in petroleum release sites.

306 Cucurbita spp. and Cucumis sativus enhance the dissipation of polychlorinated biphenyl congeners by stimulating soil microbial community development

H. Qin, P.C. Brookes, J. Xu

Cucurbita associated fungi and G- bacteria have important influence on soil PCB dissipation rate and congener profile.

313 Wading bird guano contributes to Hg accumulation in tree island soils in the Florida Everglades Y. Zhu, B. Gu, D.L. Irick, S. Ewe, Y. Li, M.S. Ross, L.Q. Ma

The annual Hg deposition by bird guano to tree island soils in the Everglades was ~8 times the atmospheric deposition.

320 Assessing the impact of the urbanization process on net primary productivity in China in 1989–2000 G. Tian, Z. Qiao

The loss of NPP due to urban expansion was calculated as 0.95 Tg C in China in 1989–2000, which accounted for 0.03% of the national NPP of 1989.

327 Serum biomarkers of polyfluoroalkyl compound exposure in young girls in Greater Cincinnati and the San Francisco Bay Area, USA

S.M. Pinney, F.M. Biro, G.C. Windham, R.L. Herrick, L. Yaghjyan, A.M. Calafat, P. Succop, H. Sucharew, K.M. Ball, K. Kato, L.H. Kushi, R. Bornschein

Serum concentrations of PFCs in young girls were higher in girls who had been breast fed longer, and lower in girls in areas with granular activated carbon municipal water treatment.

335 Detection and differentiation of pollution in urban surface soils using magnetic properties in arid and semi-arid regions of northwestern China

B. Wang, D. Xia, Y. Yu, J. Jia, S. Xu

Use of magnetic approach to estimate and contrast soil pollution in northwestern China, and discriminate the contributions of different pollution sources.

347 Sensitivity of methanotrophic community structure, abundance, and gene expression to CH₄ and O₂ in simulated landfill biocover soil

H. Li, Z. Chi, W. Lu, H. Wang

The present paper is the first to take account of both CH_4 and O_2 as substrates of methanotrophs and further investigated methanotrophic community in landfill covers.

354 Concentrations of prioritized pharmaceuticals in effluents from 50 large wastewater treatment plants in the US and implications for risk estimation

M.S. Kostich, A.L. Batt, J.M. Lazorchak

Measurements of pharmaceuticals in municipal effluent suggest risks of exposure to healthy human adults are low, but suggest the need for study of potential impacts on aquatic life.

360 Embryonic exposure of medaka (*Oryzias latipes*) to propylparaben: Effects on early development and post-hatching growth M. González-Doncel, J.E. García-Mauriño, L. San Segundo, E.M. Beltrán, S. Sastre, C. Fernández Torija

PrP resulted in low toxicity based on non-invasive biomarkers and histological tools to analyze pre- and post-hatch effects after medaka embryo exposure.

370 Physiological and molecular responses of springtails exposed to phenanthrene and drought

M. Holmstrup, S. Slotsbo, S.N. Schmidt, P. Mayer, C. Damgaard, J.G. Sørensen

Drought does not hamper detoxification of phenanthrene in the springtail Folsomia candida, and exposure to phenanthrene seemingly has no influence on physiological responses to drought.

377 Assessing exposure risks for aquatic organisms posed by Tamiflu use under seasonal influenza and pandemic conditions W.-Y. Chen, C.-J. Lin, C.-M. Liao

A probabilistic framework can be used for assessing exposure risks posed by environmentally relevant concentrations of anti-influenza drug in aquatic ecosystems.

385 Microbial formation and degradation of oxygen-containing polycyclic aromatic hydrocarbons (OPAHs) in soil during short-term incubation

W. Wilcke, M. Kiesewetter, B.A. Musa Bandowe

In soil, low molecular weight PAHs and some OPAHs are formed microbially during incubation of four months.

391 Quantification of four artificial sweeteners in Finnish surface waters with isotope-dilution mass spectrometry N. Perkola, P. Sainio

High concentrations of artificial sweeteners were obtained, which indicates slow or negligible degradation of these compounds in boreal surface waters.

397 Discharge of perfluorinated compounds from rivers and their influence on the coastal seas of Hyogo prefecture, Japan S. Takemine, C. Matsumura, K. Yamamoto, M. Suzuki, M. Tsurukawa, H. Imaishi, T. Nakano, A. Kondo

Discharge of perfluorohexanoic acid from the Samondogawa River may have affected Osaka Bay.

405 Characterization of polybrominated diphenyl ethers (PBDEs) and hydroxylated and methoxylated PBDEs in soils and plants from an e-waste area, China

S. Wang, S. Zhang, H. Huang, Z. Niu, W. Han

The distribution profiles of PBDEs, OH-PBDEs and MeO-PBDEs in the soils and the plants were strongly related to the pollution sources and plant species, respectively.

414 Persistent organic pollutant concentrations in fledglings of two arctic seabird species

M.M. Guzzo, N.H. Eckbo, G.W. Gabrielsen, A.T. Fisk, K. Hylland, K. Borgå

Trophic level may not accurately predict differences in POP across all life-stages.

419 If you could turn back time: Understanding transgenerational latent effects of developmental exposure to contaminants D.A. Kimberly, C.J. Salice

Developmental exposures to cadmium cause transgenerational reductions in fitness-related endpoints and increase sensitivity to later stage exposures to novel stress.

426 Role of sectoral and multi-pollutant emission control strategies in improving atmospheric visibility in the Yangtze River Delta, China

K. Huang, J.S. Fu, Y. Gao, X. Dong, G. Zhuang, Y. Lin

Responses of visibility changes to various emission reduction scenarios are compared. The multi-pollutant control strategy is most efficient for improving visibility in YRD, China.

435 The effect of humic acids on biodegradation of polycyclic aromatic hydrocarbons depends on the exposure regime M.-C. Tejeda-Agredano, P. Mayer, J.-J. Ortega-Calvo

Humic acids cause opposite effects on biodegradation of PAHs depending on the exposure regime.

Plant growth responses to inorganic environmental contaminants are density-dependent: Experiments with copper sulfate, barley and lettuce

M. Hansi, J.D. Weidenhamer, A. Sinkkonen

Plant response to elemental contaminants depends on plant density in a predictable way which is fundamentally different from density-dependent plant responses to nutrients.

449 Application of congener based multi-matrix profiling techniques to identify potential PCDD/F sources in environmental samples from the Burrishoole Catchment in the West of Ireland

P. White, B. McHugh, R. Poole, E. McGovern, J. White, P. Behan, B. Foley, A. Covaci

Identification of elevated PCDD profiles in fish, sediment and passive sampleres from the Burrishoole suggest a historic pentachlorophenol source.

457 Seasonal ozone uptake by a warm-temperate mixed deciduous and evergreen broadleaf forest in western Japan estimated by the Penman-Monteith approach combined with a photosynthesis-dependent stomatal model M. Kitao, M. Komatsu, Y. Hoshika, K. Yazaki, K. Yoshimura, S. Fujii, T. Miyama, Y. Kominami

Estimation of seasonal O₃ uptake over a mixed-temperate forest compensated by a photosynthesis-dependent stomatal model.

464 Release and environmental impact of silver nanoparticles and conventional organic biocides from coated wooden façades T. Künniger, A.C. Gerecke, A. Ulrich, A. Huch, R. Vonbank, M. Heeb, A. Wichser, R. Haag, P. Kunz, M. Faller

The amount of released silver corresponded with the overall erosion of the coating. The silver in the runoff water was neither in ionic form nor could original Ag-NPs be detected.

472 Evaluation of the effects of ozone on yield of Japanese rice (Oryza sativa L.) based on stomatal ozone uptake M. Yamaguchi, D. Hoshino, H. Inada, N. Akhtar, C. Sumioka, K. Takeda, T. Izuta

The negative impact of O₃ on yield of Japanese rice can be evaluated by cumulative stomatal O₃ uptake.

481 Modeling stomatal conductance and ozone uptake of *Fagus crenata* grown under different nitrogen loads F. Azuchi, Y. Kinose, T. Matsumura, T. Kanomata, Y. Uehara, A. Kobayashi, M. Yamaguchi, T. Izuta

We found that the nitrogen load to soil at 100 kg ha⁻¹ year⁻¹ decreased accumulated stomatal O_3 uptake in the leaves of F. crenata via soil acidification.

488 Model-based evaluation of the use of polycyclic aromatic hydrocarbons molecular diagnostic ratios as a source identification tool

A. Katsoviannis, K. Breivik

PAHs molecular diagnostic ratios which change greatly as a function of distance from the emitting source are improper for source identification purposes.

495 Mutual impacts of wheat (*Triticum aestivum L.*) and earthworms (*Eisenia fetida*) on the bioavailability of perfluoroalkyl substances (PFASs) in soil

S. Zhao, S. Fang, L. Zhu, L. Liu, Z. Liu, Y. Zhang

PFASs can be uptake by root of wheat from soil and translocated to shoot and co-presence of wheat and earthworm enhance the bioavailability of PFASs in soil.

502 Investigating the need for complex vs. simple scenarios to improve predictions of aquatic ecosystem exposure with the SoilPlus model

D. Ghirardello, M. Morselli, S. Otto, G. Zanin, A. Di Guardo

In order to obtain more ecologically realistic predictions of pulse exposure in aquatic ecosystems detailed information about the scenario is required.

511 Long-term behaviour of ¹³⁷Cs in spruce bark in coniferous forests in the Czech Republic P. Rulík, H. Pilátová, I. Suchara, J. Sucharová

The long-term behaviour of ¹³⁷Cs in spruce bark is described by effective and environmental half-lives and aggregated transfer factors.

515 Dietary and inhalation exposure to polycyclic aromatic hydrocarbons and urinary excretion of monohydroxy metabolites – A controlled case study in Beijing, China

Y. Zhang, J. Ding, G. Shen, J. Zhong, C. Wang, S. Wei, C. Chen, Y. Chen, Y. Lu, H. Shen, W. Li, Y. Huang, H. Chen, S. Su, N. Lin, X. Wang, W. Liu, S. Tao

Severe exposure to PAHs via dietary and inhalation pathways indicated by the intake of parent PAHs as well as the urinary excretion of OHPAHs, was observed for students in Beijing.

523 Influential parameters on particle concentration and size distribution in the mainstream of e-cigarettes F.C. Fuoco, G. Buonanno, L. Stabile, P. Vigo

The mainstream aerosol generated by electronic cigarettes was characterized and the effect of each operating parameter was evaluated: results were similar to conventional cigarette ones.

530 Data-driven modeling of background and mine-related acidity and metals in river basins M.J. Friedel

These results reveal that it is possible to differentiate among the continuum between inputs of background and mine-related acidity and metals.

Plants influence on arsenic availability and speciation in the rhizosphere, roots and shoots of three different vegetables C. Bergqvist, R. Herbert, I. Persson, M. Greger

Regardless of the initial level of extractable As in the soil, the plants almost doubled the extractable As in the rhizosphere soil.

547 Field study on the uptake and translocation of perfluoroalkyl acids (PFAAs) by wheat (*Triticum aestivum* L.) grown in biosolids-amended soils

B. Wen, L. Li, H. Zhang, Y. Ma, X.-Q. Shan, S. Zhang

Land application of biosolids results in the accumulation of PFAAs in agricultural soils and wheat tissues.

555 Toxic assessment of urban atmospheric particle-bound PAHs: Relevance of composition and particle size in Barcelona (Spain)

S.R. Mesquita, B.L. van Drooge, C. Reche, L. Guimarães, J.O. Grimalt, C. Barata, B. Piña

In vivo toxic effects associated to sub-micron urban air particles from combustion and vehicle emissions.

563 Chemical characteristics of PM_{2.5} at a source region of biomass burning emissions: Evidence for secondary aerosol formation

N. Rastogi, A. Singh, D. Singh, M.M. Sarin

Striking diurnal variability in $PM_{2.5}$ mass and chemical species with the evidence of secondary organic and inorganic aerosol formation over the Indo-Gangetic Plain has been discussed.

570 Silicon impurity release and surface transformation of TiO₂ anatase and rutile nanoparticles in water environments X. Liu, G. Chen, J.G. Erwin, C. Su

The incongruent dissolution of surface charge determining Si impurity did not significantly affect the surface potential and aggregation status of TiO₂ nanoparticles in aqueous solutions.

579 Effects of copper and aluminum on the adsorption of sulfathiazole and tylosin on peat and soil Z. Pei, S. Yang, L. Li, C. Li, S. Zhang, X.-q. Shan, B. Wen, B. Guo

Cu and Al changed the adsorption behavior of STZ and T in soil and peat via complexation and/or change in partial properties of peat and soil.

586 Species composition of a soil invertebrate multi-species test system determines the level of ecotoxicity V. Sechi, A. D'Annibale, K. Maraldo, A. Johansen, R. Bossi, J. Jensen, P.H. Krogh

Soil ecotoxicological fate and effects in multispecies test systems are affected by earthworm activity.

597 Influence of open vegetation fires on black carbon and ozone variability in the southern Himalayas (NCO-P, 5079 m a.s.l.) D. Putero, T.C. Landi, P. Cristofanelli, A. Marinoni, P. Laj, R. Duchi, F. Calzolari, G.P. Verza, P. Bonasoni

Open fire emissions play an important role in modulating black carbon and ozone variability over south Himalayas.

605 Comparison of three labeled silica nanoparticles used as tracers in transport experiments in porous media. Part I: Syntheses and characterizations

E. Vitorge, S. Szenknect, J.M.F. Martins, V. Barthès, A. Auger, O. Renard, J.-P. Gaudet

How to synthesize and choose suitable tracers for engineered silica nanoparticles or natural colloids?

613 Comparison of three labeled silica nanoparticles used as tracers in transport experiments in porous media. Part II: Transport experiments and modeling

E. Vitorge, S. Szenknect, J.M.-F. Martins, V. Barthès, J.-P. Gaudet

Follow the kinetics of transport, deposition and release of silica nanoparticles with suitably labeled nanoparticles.

620 Removal of pharmaceuticals and personal care products in aquatic plant-based systems: A review

D. Zhang, R.M. Gersberg, W.J. Ng, S.K. Tan

This review gives an overview of the present state of research on the removal of pharmaceutical and personal care products by means of constructed wetlands.

640 Extraction agents for the removal of polycyclic aromatic hydrocarbons (PAHs) from soil in soil washing technologies E.V. Lau, S. Gan, H.K. Ng, P.E. Poh

The efficiency of the extraction agent plays a significant role in soil washing of PAH-contaminated soil.

650 Can Coronene and/or Benzo(a)pyrene/Coronene ratio act as unique markers for vehicle emission? G. Shen, Y. Chen, S. Wei, X. Fu, A. Ding, H. Wu, S. Tao

Coronene alone is not a unique tracer for vehicle emission and the use of specific Benzo[a]pyrene to Coronene ratio needs more evaluation studies.

Letter to the Editor

654 Comments on neonatal hair-Hg and birth weight in China: Mercury in rice and fish

J.G. Dórea

Reply to Letter to the Editor

Reply to comments on neonatal hair-Hg and birth weight in China: Mercury in rice and fish B.-Q. Guo, S.-Z. Cai, C.-H. Yan

Special Issue: Biological reactions of forests to air pollution and climate change

Introduction

657 Biological reactions of forests to climate change and air pollution

A. Augustaitis, A. Bytnerowicz, E. Paoletti

Special Issue Papers

659 Particulate pollutants are capable to 'degrade' epicuticular waxes and to decrease the drought tolerance of Scots pine (Pinus sylvestris L.)

J. Burkhardt, S. Pariyar

'Wax degradation' on pine needles and increased minimum epidermal conductance (i.e. uncontrollable water loss) were created by particles, suggesting a link between air pollution and tree drought tolerance.

668 Trends in atmospheric deposition fluxes of sulphur and nitrogen in Czech forests

I. Hůnová, J. Maznová, P. Kurfürst

While sulphur deposition significantly decreased with the highest improvement in formerly most affected areas, nitrogen deposition still represents a considerable stress in Czech forests.

676 Elevated ozone negatively affects photosynthesis of current-year leaves but not previous-year leaves in evergreen Cyclobalanopsis glauca seedlings

W. Zhang, Z. Feng, X. Wang, J. Niu

Impacts of elevated O₂ on photosynthesis of evergreen woody species depend on leaf ages.

682 Canopy carbon budget of Siebold's beech (Fagus crenata) sapling under free air ozone exposure M. Watanabe, Y. Hoshika, N. Inada, T. Koike

Contributions of ozone-induced reduction in photosynthesis and increase in respiration to canopy net carbon gain of beech sapling were different between seasons.

690 Perchlorate content of plant foliage reflects a wide range of species-dependent accumulation but not ozone-induced biosynthesis

D.A. Grantz, K.O. Burkey, W.A. Jackson, H.-B. Vu, M.T. McGrath, G. Harvey

Exposure of crop species to ozone did not lead to biosynthesis or greater accumulation of foliar perchlorate. Older leaves accumulated more perchlorate than younger leaves.