1 **Occurrence and distribution of pharmaceutically active and endocrine disrupting compounds in Singapore's marine environment: Influence of hydrodynamics and physical–chemical properties**
S. Bayen, H. Zhang, M.M. Desai, S.K. Ooi, B.C. Kelly

A field study demonstrates the influence of hydrodynamic residence time and physical–chemical properties on exposure risks of PhACs and EDCs in coastal marine ecosystems.

9 **Have the short-term mortality effects of particulate matter air pollution changed in Australia over the period 1993–2007?**
S. Roberts

We show that the mortality effect of PM_{10} has declined in Australia over the period 1993–2007, possibly due to a reduction in the toxicity of PM_{10}.

15 **Concentrations and geographic distribution of selected organic pollutants in Scottish surface soils**
S.M. Rhind, C.E. Kyle, C. Kerr, M. Osprey, Z.L. Zhang, E.I. Duff, A. Lilly, A. Nolan, G. Hudson, W. Towers, J. Bell, M. Coull, C. McKenzie

Soil concentrations of anthropogenic persistent organic pollutants are not clearly related to soil type or pH, vegetation, altitude, or distance from pollutant sources.

28 **Influence of urbanization and industrialization on metal enrichment of sediment cores from Shantou Bay, South China**
Y. Qiao, Y. Yang, J. Zhao, R. Tao, R. Xu

Shantou Bay was polluted by Cd, Cu, Pb and Zn, and showed an increase trend along time. River input, metropolitan and port facilities were identified as their sources based on multi-analysis.

37 **The influence of dissolved phosphorus molecular form on recalcitrance and bioavailability**
B. Li, M.T. Brett

SRP is a poor indicator of the bioavailability of many of P containing compounds and much of what is classified as SRP in nature could be associated with humic-metal complexes with low bioavailability.

45 **Influence of relative trophic position and carbon source on selenium bioaccumulation in turtles from a coal fly-ash spill site**
J.U. Van Dyke, W.A. Hopkins, B.P. Jackson

Stable isotope differences indicate that claw selenium concentrations differ among relative carbon sources, and not among relative trophic positions, in an assemblage of aquatic turtles.

53 **Enhancing the biodegradation of oil in sandy sediments with choline: A naturally methylated nitrogen compound**
B. Mortazavi, A. Horel, J.S. Anders, A. Mirjafari, M.J. Beazley, P.A. Sobecky

Choline, a naturally occurring methylated nitrogen-containing compound, accelerated hydrocarbon degradation in sandy sediments by an extant microbial community.

63 **Placental IGF-1 and IGFBP-3 expression correlate with umbilical cord blood PAH and PBDE levels from prenatal exposure to electronic waste**
X. Xu, T.A. Yekeen, Q. Xiao, Y. Wang, F. Lu, X. Huo

The correlation between POPs and placental IGF-1 and IGFBP-3 assessed provides more information on the human health risk associated with electronic waste.

70 **Critical comparison of intravenous injection of TiO_2 nanoparticles with waterborne and dietary exposures concludes minimal environmentally-relevant toxicity in juvenile rainbow trout *Oncorhynchus mykiss***
D. Boyle, G.A. Al-Bairuty, T.B. Henry, R.D. Handy

Critical evaluation of directly comparable investigations of TiO_2-NP toxicity by waterborne, dietary, and intravenous injection exposures conclude minimal toxicity in juvenile rainbow trout.

80 **A multi-isotope approach for estimating industrial contributions to atmospheric nitrogen deposition in the Athabasca oil sands region in Alberta, Canada**
B.C. Proemse, B. Mayer, M.E. Fenn, C.S. Ross

Distinct $\delta^{18}O$, $\Delta^{17}O$, and $\delta^{15}N$ values were used to estimate industrially derived N contributions to atmospheric nitrate and ammonium deposition in the Athabasca oil sands region.

92 **In-situ assessment of metal contamination via portable X-ray fluorescence spectroscopy: Zlatna, Romania**
D.C. Weindorf, L. Paulette, T. Man

Metal contamination in Zlatna, Romania exceeds regulatory limits; portable X-ray fluorescence spectrometry and kriging interpolation were used to model contaminants in-situ.

101 **Long-term trend of haze pollution and impact of particulate matter in the Yangtze River Delta, China**
Z. Cheng, S. Wang, J. Jiang, Q. Fu, C. Chen, B. Xu, J. Yu, X. Fu, J. Hao

The long-term variation of haze pollution in the YRD and its cause is investigated and the quantitative contribution of particulate matter to haze pollution is estimated.

111 **Assessing mixed trace elements in groundwater and their health risk of residents living in the Mekong River basin of Cambodia**
K. Phan, S. Phan, L. Huoy, B. Suy, M.H. Wong, J.H. Hashim, M.S. Mohamed Yasin, S.M. Aljunid, S. Sthiannopkao, K.-W. Kim

Risk assessment indicated that 98.7% of residents in Kandal and 12.4% of Kratie study areas were at risk of non-carcinogenic effects of multiple elements in groundwater.

120 **Polybrominated diphenyl ethers affect the reproduction and development, and alter the sex ratio of zebrafish (*Danio rerio*)**
X.B. Han, K.W.Y. Yuen, R.S.S. Wu

PBDE reduces fertilization and hatching successes, causes malformation and leads to a male biased F1 generation in fish.

127 **Spatial and vertical distribution of mercury in upland forest soils across the northeastern United States**
J.B. Richardson, A.J. Friedland, T.R. Engerbretson, J.M. Kaste, B.P. Jackson

Forest floor Hg was correlated with soil organic matter, pH, latitude, and mean annual precipitation. Mineral soil Hg was greatest in Bs horizons of Spodosols.

135 **A method to analyze "source–sink" structure of non-point source pollution based on remote sensing technology**
M. Jiang, H. Chen, Q. Chen

"Source–Sink" Structure of non-point source nitrogen and phosphorus pollution in Jiulongjiang estuary in China was worked out by the Grid Landscape Contrast Index.

141 **Behavior of Ag nanoparticles in soil: Effects of particle surface coating, aging and sewage sludge amendment**
A.R. Whitley, C. Levard, E. Oostveen, P.M. Bertsch, C.J. Matocha, F.v.d. Kammer, J.M. Unrine

Behavior of manufactured silver nanoparticles in soil depends on surface coating, contact with sewage sludge, and aging.

150 **Uptake and accumulation of four PPCP/EDCs in two leafy vegetables**
L.K. Dodgen, J. Li, D. Parker, J.J. Gan

Four commonly occurring PPCP/EDCs were taken up into roots of lettuce and collards, but translocation into edible leaves was limited and nearly all residue was non-extractable.

157 **Spatio-temporal variation of biogenic volatile organic compounds emissions in China**
L.Y. Li, Y. Chen, S.D. Xie

An emission inventory of BVOCs in China was established based on the most detailed and latest vegetation investigations, and high-resolution meteorological data.

169 **Adsorption of carbamazepine by carbon nanotubes: Effects of DOM introduction and competition with phenanthrene and bisphenol A**
I. Lerman, Y. Chen, B. Xing, B. Chefetz

In multi-component system including the main adsorbate and competitor, DOM exhibited significant effect on adsorption of contaminants by carbon nanotubes.

177 **Abiotic degradation of antibiotic ionophores**
P. Bohn, S.A. Bak, E. Björklund, K.A. Krogh, M. Hansen

Antibiotic ionophores were found to undergo either hydrolysis in acidic environments (monensin, salinomycin, and narasin) or photolysis (lasalocid).

184 **Levels of prenatal mercury exposure and their relationships to neonatal anthropometry in Wujiang City, China**
B.-Q. Guo, S.-Z. Cai, J.-L. Guo, J. Xu, W. Wu, H. Li, X. Zhou, D.-S. Kim, C.-H. Yan, H.-D. Lü

The levels of prenatal Hg exposure were low and no significant correlation was found between low-level Hg exposure and neonatal anthropometry in Wujiang City, China.

190 **Biogeochemistry and community ecology in a spring-fed urban river following a major earthquake**
N.S. Wells, T.J. Clough, L.M. Condron, W.T. Baisden, J.S. Harding, Y. Dong, G.D. Lewis, G. Lear

Linking stream community ecology with biogeochemical function, we provide an in-depth quantification of urban stream recovery following a catastrophic earthquake.

201 ***In situ* application of activated carbon and biochar to PCB-contaminated soil and the effects of mixing regime**
M.J. Denyes, A. Rutter, B.A. Zeeb

In situ *AC and biochar soil amendments perform equally well at reducing PCB uptake, however, laboratory-based mixing methods may exaggerate the sorptive capacities of both amendments.*

209 **Ultrastructural changes and Heat Shock Proteins 70 induced by atmospheric pollution are similar to the effects observed under *in vitro* heavy metals stress in *Conocephalum conicum* (Marchantiales – Bryophyta)**
A. Basile, S. Sorbo, B. Conte, M. Cardi, S. Esposito

Pollution induces ultrastructural changes and Hsp70 induction in C. conicum, *that can be mimicked* in vitro. *This liverworth could be used as bioindicator.*

217 **Mineralogy affects geoavailability, bioaccessibility and bioavailability of zinc**
R.M. Molina, L.A. Schaider, T.C. Donaghey, J.P. Shine, J.D. Brain

Zinc mineralogy influences in vitro bioaccessibility and in vivo bioavailability and in vitro extraction tests can be used to predict Zn bioavailability from particles.

225 **Effects of local and spatial conditions on the quality of harvested rainwater in the Mekong Delta, Vietnam**
G.-J. Wilbers, Z. Sebesvari, A. Rechenburg, F.G. Renaud

Concentrations of lead and total coliforms in household-harvested rainwater in the Mekong Delta exceed drinking water guidelines in 17% and 92% of the samples, respectively.

233 **Impact of carbonaceous materials in soil on the transport of soil-bound PAHs during rainfall-runoff events**
X. Luo, Y. Zheng, B. Wu, Z. Lin, F. Han, W. Zhang, X. Wang

Anthropogenic carbonaceous materials in soil, especially black carbon, largely control the transport of soil-bound PAHs during rainfall-runoff events.

242 **Photosynthetic response of early and late leaves of white birch (*Betula platyphylla* var. *japonica*) grown under free-air ozone exposure**
Y. Hoshika, M. Watanabe, N. Inada, Q. Mao, T. Koike

Early leaves have higher resistance to ozone stress than late leaves in heterophyllous white birch.

248 **Complexation with dissolved organic matter and mobility control of heavy metals in the rhizosphere of hyperaccumulator *Sedum alfredii***
T. Li, Q. Tao, C. Liang, M.J.I. Shohag, X. Yang, D.L. Sparks

DOM in the rhizosphere of hyperaccumulator S. alfredii *could significantly increase metal mobility through the formation of soluble DOM–metal complexes.*

256 **Mercury concentrations in human placenta, umbilical cord, cord blood and amniotic fluid and their relations with body parameters of newborns**
I. Kozikowska, Ł.J. Binkowski, K. Szczepańska, H. Sławska, K. Miszczuk, M. Śliwińska, T. Łaciak, R. Stawarz

Maternal age was not an influential factor of mercury concentrations in studied samples. 75% of cord blood samples exceeded the Hg threshold concentration.

263 **Comparison of earthworm responses to petroleum hydrocarbon exposure in aged field contaminated soil using traditional ecotoxicity endpoints and ^{1}H NMR-based metabolomics**
M. Whitfield Åslund, G.L. Stephenson, A.J. Simpson, M.J. Simpson

Earthworm metabolomic responses measured after 2 and 14 days are compared to traditional earthworm ecotoxicity endpoints (survival and reproduction) in petroleum hydrocarbon contaminated soil.

269 **The effects of surfactants and solution chemistry on the transport of multiwalled carbon nanotubes in quartz sand-packed columns**
Y. Lu, X. Xu, K. Yang, D. Lin

The MWCNT transport through porous media varied with surfactant property and solution chemistry.

278 **Associations of particulate air pollution and daily mortality in 16 Chinese cities: An improved effect estimate after accounting for the indoor exposure to particles of outdoor origin**
R. Chen, B. Zhou, H. Kan, B. Zhao

Accounting for the indoor PM_{10} concentrations of outdoor origin in the exposure assessment could improve the effect estimates of ambient PM_{10}.

283 **Atmospheric polychlorinated biphenyls in Indian cities: Levels, emission sources and toxicity equivalents**
P. Chakraborty, G. Zhang, S. Eckhardt, J. Li, K. Breivik, P.K.S. Lam, S. Tanabe, K.C. Jones

Measurement of atmospheric Polychlorinated biphenyls in seven major Indian cities.

291 **Influence of socio-demographic and diet determinants on the levels of mercury in preschool children from a Mediterranean island**
M. Garí, J.O. Grimalt, M. Torrent, J. Sunyer

Oily fish and shellfish consumption, parity, maternal smoking and occupational status are the main determinants of mercury in four year-old children from Menorca Island (Mediterranean Sea).

299 **Wet deposition of brominated flame retardants to the Great Lakes basin – Status and trends**
M. Robson, L. Melymuk, L. Bradley, B. Treen, S. Backus

Spatial and temporal trends in the wet deposition of brominated flame retardants reveal a decline in BDE 209 concentrations and the importance of episodic high concentration events.

307 **Localized enrichment of polycyclic aromatic hydrocarbons in soil, spruce needles, and lake sediments linked to *in-situ* bitumen extraction near Cold Lake, Alberta**
J.B. Korosi, G. Irvine, E.K. Skierszkan, J.R. Doyle, L.E. Kimpe, J. Janvier, J.M. Blais

PAHs in sediments and soils were generally low in areas adjacent to in-situ *bitumen extraction rigs in the Cold Lake Alberta oil sands, but evidence of localized contamination at some sites was evident.*

316 **Familial differences in the effects of mercury on reproduction in zebra finches**
C.W. Varian-Ramos, J.P. Swaddle, D.A. Cristol

Genetic variation in response to contaminants can lead to adaptation on long-term contaminated sites, with implications for risk assessment and conservation of impacted populations.

324 **Source contribution analysis of surface particulate polycyclic aromatic hydrocarbon concentrations in northeastern Asia by source–receptor relationships**
Y. Inomata, M. Kajino, K. Sato, T. Ohara, J.-i. Kurokawa, H. Ueda, N. Tang, K. Hayakawa, T. Ohizumi, H. Akimoto

Transboundary transport of PAHs in northeast Asia was investigated by source–receptor analysis.

335 **Accumulation of wet-deposited radiocaesium and radiostrontium by spring oilseed rape (*Brássica napus* L.) and spring wheat (*Tríticum aestívum* L.)**
Stefan.B. Bengtsson, J. Eriksson, A.I. Gärdenäs, M. Vinichuk, K. Rosén

Intercepted radionuclides can be transferred into the food chain for humans.

343 **Ozone distribution in remote ecologically vulnerable terrain of the southern Sierra Nevada, CA**
J. Panek, D. Saah, A. Esperanza, A. Bytnerowicz, W. Fraczek, R. Cisneros

A passive ozone sampler network in combination with spatial analysis techniques was used to characterize landscape-scale ozone patterns and dynamics, identifying regions of consistently high and low ozone exposure for forest management prioritization.

357 **Sediment pore water distribution coefficients of PCB congeners in enriched black carbon sediment**
A. Martinez, C. O'Sullivan, D. Reible, K.C. Hornbuckle

The organic carbon fraction times the octanol–water partition coefficient yielded the best prediction model for the sediment pore water distribution coefficient of PCBs.

364 **Space and time resolved monitoring of airborne particulate matter in proximity of a traffic roundabout in Sweden**
K.E. Wilkinson, J. Lundkvist, J. Netrval, M. Eriksson, G.A. Seisenbaeva, V.G. Kessler

Automated SEM–EDS analysis of captured roadside PM at a traffic roundabout in Sweden displaying the time- and space-resolved chemical differences of the captured particles.

371 **Adverse effects induced by ecgonine methyl ester to the zebra mussel: A comparison with the benzoylecgonine**
M. Parolini, A. Binelli

Environmentally relevant ecgonine methyl ester concentrations induced adverse effects to zebra mussels.

379 **Estimating the toxicity of ambient fine aerosols using freshwater rotifer *Brachionus calyciflorus* (Rotifera: Monogononta)**
V. Verma, R. Rico-Martinez, N. Kotra, C. Rennolds, J. Liu, T.W. Snell, R.J. Weber

The toxicity of ambient fine aerosols as estimated using freshwater rotifers is largely contributed by their hydrophobic components.

385 **Study of molecularly imprinted solid-phase extraction of gonyautoxins 2,3 in the cultured dinoflagellate *Alexandrium tamarense* by high-performance liquid chromatography with fluorescence detection**
Z.-R. Lian, J.-T. Wang

MIPMs for GTX2,3 were prepared and applied as special SPE sorbents. The MISPE process was valid for the isolation and clean-up of GTX2,3 from A. tamarense *extract.*

392 **Spatio-temporal variations of black carbon concentrations in the Megacity Beijing**
N. Schleicher, S. Norra, M. Fricker, U. Kaminski, Y. Chen, F. Chai, S. Wang, Y. Yu, K. Cen

Black carbon was investigated for a two-year period in the megacity Beijing to gain detailed knowledge about the seasonal, temporal and spatial patterns of BC particles and their sources.

402 **Antibiotics in riverine runoff of the Pearl River Delta and Pearl River Estuary, China: Concentrations, mass loading and ecological risks**
W. Xu, W. Yan, X. Li, Y. Zou, X. Chen, W. Huang, L. Miao, R. Zhang, G. Zhang, S. Zou

Antibiotics were ubiquitous in the river and coastal water in the Pearl River Delta and posed various ecological risks to the relevant aquatic organisms.

408 **Distributions, sources and pollution status of 17 trace metal/metalloids in the street dust of a heavily industrialized city of central China**
Z. Li, X. Feng, G. Li, X. Bi, J. Zhu, H. Qin, Z. Dai, J. Liu, Q. Li, G. Sun

Pb/Zn smelting and hard alloy processing operations have caused seriously contamination of trace metal/metalloids in the street dust.

417 **Improved retrieval of $PM_{2.5}$ from satellite data products using non-linear methods**
M. Sorek-Hamer, A.W. Strawa, R.B. Chatfield, R. Esswein, A. Cohen, D.M. Broday

Improved $PM_{2.5}$ retrievals from satellite observations can fill in missing surface measurements in areas with sparse ground monitoring and be used for evaluating air quality models and as exposure metrics.

424 **Polychlorinated biphenyls in surface soil in urban and background areas of Mongolia**
E.A. Mamontova, A.A. Mamontov, E.N. Tarasova, M.I. Kuzmin, D. Ganchimeg, M.Yu. Khomutova, O. Gombosuren, E. Ganjuurjav

Polychlorinated biphenyls were measured in soils throughout Mongolia.

430 **Atmospheric organic nitrogen deposition: Analysis of nationwide data and a case study in Northeast China**
C.M. Jiang, W.T. Yu, Q. Ma, Y.G. Xu, H. Zou, S.C. Zhang, W.P. Sheng

Synthesis of DON deposition across China implied regional importance of anthropogenic sources, and an observation in Northeast China suggested the ecological significances of the DON flux should be considered.

437 **Modelling relationships between lichen bioindicators, air quality and climate on a national scale: Results from the UK OPAL air survey**
L. Seed, P. Wolseley, L. Gosling, L. Davies, S.A. Power

Data on selected lichen taxa collected by members of the public in England is used to show the relationship of indicator taxa and pollution indices to air pollution and climate data.

448 **Can citizen science produce good science? Testing the OPAL Air Survey methodology, using lichens as indicators of nitrogenous pollution**
D.J. Tregidgo, S.E. West, M.R. Ashmore

A simplified lichen biomonitoring method used for citizen science can detect the impact of nitrogenous air pollution from local roads.

452 **Biphasic dose responses in biology, toxicology and medicine: Accounting for their generalizability and quantitative features**
E.J. Calabrese

This paper provides a biologically based explanation for the generalizability/quantitative features of the hormetic dose response, representing a fundamental contribution to the field.

461 **Sources, factors, mechanisms and possible solutions to pollutants in marine ecosystems**
K.M.G. Mostofa, C.-Q. Liu, D. Vione, K. Gao, H. Ogawa

Review of sources, factors, mechanisms and possible remedial measures of key pollutants (contaminants, toxins, ship breaking, overfishing) in marine ecosystems.

479 **Pyrethroid effects on freshwater invertebrates: A meta-analysis of pulse exposures**
J.J. Rasmussen, P. Wiberg-Larsen, E.A. Kristensen, N. Cedergreen, N. Friberg

This review shows that pulse exposure of pyrethroids have long-term effects on macroinvertebrates at lower concentrations than 1/100 of the 48 h LC50 for D. magna.

486 **Photobleaching of lignin derived compounds from pulp mill effluents upon irradiation: The key role of receiving waters**
M. Otero, I. Guilherme, E.B.H. Santos

Under irradiation, DOM from kraft pulp mill effluents progressively resembles that from not-polluted sites, which may not occur if effluents are discharged in saline waters.

490 **Anthropogenic contaminants in Indo-Pacific humpback and Australian snubfin dolphins from the central and southern Great Barrier Reef**
D. Cagnazzi, M.C. Fossi, G.J. Parra, P.L. Harrison, S. Maltese, D. Coppola, A. Soccodato, M. Bent, L. Marsili

Potentially hazardous levels of some coastal contaminants were found in two species of dolphins inhabiting the Great Barrier Reef Marine Park coastal region.

495 **Microplastic pollution in deep-sea sediments**
L. Van Cauwenberghe, A. Vanreusel, J. Mees, C.R. Janssen

Here, we demonstrate that microplastics have invaded the marine environment to an extent that they appear to even be present in the remote deep sea.

Letter to the Editor

500 **Comments on "Characterising metal build-up on urban road surfaces" by Egodawatta et al. (2013). Environmental Pollution 176, 87–91**
J. Zhang, P. Krebs

Reply to Letter to the Editor

503 **Reply to comment on "Characterising metal build-up on urban road surfaces" by Egodawatta et al. (2013). Environmental Pollution, 176, 87–91**
P. Egodawatta, A.M. Ziyath, A. Goonetilleke