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### **JEM News**

Mike Sharpe provides a summary of the latest environmental news, literature and legislation.

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### **News from China**

An occasional series featuring work from China that may be valuable to the JEM community – summarised by our Associate Editor, Liang-Hong Guo.

1532

**Global climate change and contaminants—an overview of opportunities and priorities for modelling the potential implications for long-term human exposure to organic compounds in the Arctic**

James M. Armitage,\* Cristina L. Quinn and Frank Wania

Human exposure to organic contaminants in a warmer Arctic may depend more on how people alter their interactions with the environment rather than changes in the environment itself.

PERSPECTIVES

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1547

**A database of avian blood spot examinations for exposure of wild birds to environmental toxicants: the DABSE biomonitoring project**

Alan Shlosberg,\* Wilson K. Rumberiha, Avishai Lublin and Kurunthachalam Kannan

The storage system as used in the DABSE wild bird biomonitoring project. Two cards containing 50 µl dried blood spots—one with 9 spots from one large bird and the other with 1–2 spots from several small birds—are kept deep-frozen and dry.

1559

**Effective monitoring of agriculture**

David B. Lindenmayer and Gene E. Likens

Effective monitoring is fundamentally important to tackling significant environmental issues associated with sustainable agriculture.

PAPERS

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1564

**Rapid analysis of neonicotinoid insecticides in guttation drops of corn seedlings obtained from coated seeds**

Andrea Tapparo,\* Chiara Giorio, Matteo Marzaro, Daniele Marton, Lidia Soldà and Vincenzo Girolami

A rapid analytical method for the accurate determination of neonicotinoid residues in guttation drops has been developed and proposed for exposure studies and risk assessment for honey bees in relation to worldwide colony loss phenomena.

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**Visualising the equilibrium distribution and mobility of organic contaminants in soil using the chemical partitioning space**

Fiona Wong and Frank Wania\*

A new tool allows for the graphical assessment of organic contaminant distribution and mobility in soils of variable composition and condition.

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**Effects of sampling techniques on physical parameters and concentrations of selected persistent organic pollutants in suspended matter**

Thorsten Pohlert,\* Gudrun Hillebrand and Vera Breitung

This study analyses the effect of various suspended-matter sampling techniques on micro-pollutant concentrations towards a Europe-wide harmonization of monitoring programs.

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**Fugacity approach to evaluate the sediment–water diffusion of polycyclic aromatic hydrocarbons**

De-Gao Wang,\* Mehran Alaei, Jonathan Byer, Yong-Jun Liu and Chong-Guo Tian

A fugacity fraction approach was developed and used to assess the sediment–water diffusion of polycyclic aromatic hydrocarbons between seawater and surficial sediment.

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**Validation of the inhalable dust algorithm of the Advanced REACH Tool using a dataset from the pharmaceutical industry**

Patricia E. Mc Donnell,\* Jody M. Schinkel, Marie A. Coggins, Wouter Fransman, Hans Kromhout, John W. Cherrie and Erik L. Tielemans

This manuscript presents the refinements of the Advanced REACH Tool for the pharmaceutical industry and the validation of the inhalable dust model with a dataset collated from this industry.

1607

**Large variation in breast milk levels of organohalogenated compounds is dependent on mother's age, changes in body composition and exposures early in life**

Sanna Lignell,\* Marie Aune, Per Ola Darnerud, Daniel Soeria-Atmadja, Annika Hanberg, Susanna Larsson and Anders Glynn

Early exposures (*e.g.* breastfeeding), consumption of contaminated Baltic fish and changes in body constitution around pregnancy are important determinants of breast milk levels of PCBs and PCDD/Fs among Swedish mothers.

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1617

**Quantitative assessment of aerosolized cyanobacterial toxins at two New Zealand lakes**

S. A. Wood\* and D. R. Dietrich

Cyanobacteria produce toxins that are a health hazard. This study investigates whether aerosolized toxins are a health risk to humans.

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1625

**Multiple kinetic Langmuir modeling to predict the environmental behaviour of As(v) in soils**

Johannes T. van Elteren,\* Zdenka Šlejkovec, Iztok Arčon, Michael P. Beeston and Andrej Pohar

We present a novel modeling approach to assess and predict the incorporation of As(v) into soil.

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1634

**Influence of local and regional Mediterranean meteorology on SO<sub>2</sub> ground-level concentrations in SE Spain**

Milagros Santacatalina,\* Adoración Carratalá and Enrique Mantilla

This work presents the results of a 4-year study on sulfur dioxide ground-level concentrations in an area of southeastern Spain, the L'Alacantí region, where the cement industry is important and coke use extends to other industries as well.

**Evaluation of the differences between the SRTM and satellite radar altimetry height measurements and the approach taken for the ACE2 GDEM in areas of large disagreement**

Richard Gavin Smith\* and Philippa A. M. Berry

The SRTM DEM and radar altimeter derived heights were compared globally and areas of regional differences investigated e.g. rainforest canopy.

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1653**An analysis of total gaseous mercury (TGM) concentrations across the UK from a rural sampling network**

John Kentisbeer,\* David Leaver and J. N. Cape

Gold-amalgam atmospheric mercury sampling from 10 UK sites over four years shows the significance of 'dirty' air masses arriving from continental Europe through interpolative mapping and air mass back trajectories.

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1662**Evaluating PM<sub>2.5</sub> ionic components and source apportionment in Jinan, China from 2004 to 2008 using trajectory statistical methods**

Shuhui Cheng, LingXiao Yang,\* Xuehua Zhou, Zhe Wang, Yang Zhou, Xiaomei Gao, Wei Nie, Xinfeng Wang, Pengju Xu and Wenxing Wang

A long-term observation of PM<sub>2.5</sub> was conducted from December 2004 to October 2008 in Jinan to identify the air mass flow pattern and potential source areas that contribute to secondary ion concentrations.

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1672**Study of leachability and fractional alteration of arsenic and co-existing elements in stabilized contaminated sludge using a flow-through extraction system**

Janya Buanuam\* and Rainer Wennrich

The study investigates stabilization behaviour of arsenic and co-existing elements in stabilized contaminated sludge by means of a flow-through extraction system.

1678

**Silver speciation in liver of marine mammals by synchrotron X-ray absorption fine structure and X-ray fluorescence spectroscopies**

Emiko Nakazawa, Tokutaka Ikemoto, Akiko Hokura, Yasuko Terada, Takashi Kunito,\* Takahito Yamamoto, Tadasu K. Yamada, Fernando C. W. Rosas, Gilberto Fillmann, Shinsuke Tanabe\* and Izumi Nakai\*

Marine mammals detoxify Ag through formation of either  $\text{Ag}_2\text{Se}$  or  $\text{Ag}_2\text{S}$  depending on Hg level in liver.

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1687

**Do salmon farms increase the concentrations of mercury and other elements in wild fish?**

Jan Ove Bustnes,\* Torgeir Nygård, Tim Dempster, Tomasz Ciesielski, Bjørn Munro Jenssen, Pål Arne Bjørn and Ingebrigt Uglem

This study documents the impact of salmon farms on the input of essential and non-essential elements to wild fish.

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1695

**Determination of response of real-time SidePak AM510 monitor to secondhand smoke, other common indoor aerosols, and outdoor aerosol**

Ruo-Ting Jiang, Viviana Acevedo-Bolton, Kai-Chung Cheng, Neil E. Klepeis, Wayne R. Ott and Lynn M. Hildemann\*

The calibration factor of the SidePak monitor varies substantially with aerosol sources due to different aerosol characteristics.

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1703

**Estuarine mixing behavior of colloidal organic carbon and colloidal mercury in Galveston Bay, Texas**

Seyong Lee, Seunghee Han\* and Gary A. Gill

In the present study, we determined Hg and organic carbon levels from unfiltered, filtered ( $<0.45 \mu\text{m}$ ), colloidal (10 kDa– $0.45 \mu\text{m}$ ), and truly dissolved ( $<10 \text{kDa}$ ) fractions of Galveston Bay surface water in order to understand the estuarine mixing behavior of Hg species as well as interactions of Hg with colloidal organic matter.

**A study on the phytotoxicity of nano mullite and metal-amended nano mullite on mung bean plants**

Anindita Dey, Biswajoy Bagchi, Sukhen Das,\* Ruma Basu and Papiya Nandy

We studied for the first time the effect of nano mullite (NMu) and different metal-amended NMu on shoot growth, relative root elongation, germination index and biomass accumulation in mung bean plants.

**Assessing the removal potential of soil-aquifer treatment system (soil column) for endotoxin**

Mokhtar Guizani,\* Hideaki Kato and Naoyuki Funamizu

This research work is the first in its kind dealing with endotoxin removal from reclaimed wastewater using soil aquifer treatment, a technique which can enhance in an economic way the potable reuse alternatives.

**Intraspecific variation in cadmium tolerance and accumulation of a high-biomass tropical tree *Averrhoa carambola* L.: implication for phytoextraction**

Zi-yun Dai, Wen-sheng Shu, Bin Liao, Cai-yun Wan and Jin-tian Li\*

The high Cd accumulating carambola cultivars (such as WCT) hold particular promise for successful Cd phytoextraction in tropics and subtropics.

**Assessment of radionuclide and metal contamination in a thorium rich area in Norway**

Jelena Mrdakovic Popic,\* Brit Salbu, Terje Strand and Lindis Skipperud

Naturally occurring radionuclides in combination with metals give multiple stressors that pose increased risk for humans and biota living on NORM and TENORM locations.

1739

**Evaluation of lot-to-lot repeatability and effect of assay media choice in the recombinant Factor C assay**

Jennifer Helen McKenzie, K. Udeni Alwis,  
Joanne E. Sordillo, Kesava Srinivas Kalluri  
and Donald Kirby Milton\*

In this study, we evaluate the effect of buffer choice and compare the lot-to-lot variability of recombinant Factor C (rFC) assay for measurement of endotoxin in environmental dust samples.

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1746

**Comparison of two dynamic measurement methods of odor and odorant emission rates from freshly dewatered biosolids**

Tingting Wang, Chakkrid Sattayatewa,  
Dhesikan Venkatesan, Kenneth E. Noll, Krishna R. Pagilla  
and Demetrios J. Moschandreas\*

This study employed two dynamic chamber methods, an EPA flux chamber and a wind tunnel, to generate an appropriate database of odor and odorant emission rates from freshly dewatered biosolids in a centrifuge dewatering building.

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1753

**The key role played by the Augusta basin (southern Italy) in the mercury contamination of the Mediterranean Sea**

Mario Sprovieri,\* Elvira Oliveri, Rossella Di Leonardo,  
Elena Romano, Antonella Ausili, Massimo Gabellini,  
Marco Barra, Giorgio Tranchida, Adriana Bellanca,  
Rodolfo Neri, Francesca Budillon, Roberto Saggiomo,  
Salvatore Mazzola and Vincenzo Saggiomo

We investigate the role of the Augusta basin as a critical point source of HgT for the Mediterranean Sea.

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1761

**Forecasting of cyanobacterial density in Torrão reservoir using artificial neural networks**

Rita Torres, Elisa Pereira, Vítor Vasconcelos\* and Luís Oliva Teles

General regression neural networks (GRNN) were able to forecast the density of cyanobacteria in the Torrão reservoir (Tâmega river, Portugal).



**Variations of periphytic diatom sensitivity to the herbicide diuron and relation to species distribution in a contamination gradient: implications for biomonitoring**

Vincent Roubeix,\* Nicolas Mazzella, Laurie Schouler, Vincent Fauvelle, Soizic Morin, Michel Coste, François Delmas and Christelle Margoum

Diatom species have different sensitivities to pesticides, thus the composition of river periphytic communities can indicate water contamination.

**Constructed wetlands using aluminium-based drinking water treatment sludge as P-removing substrate: should aluminium release be a concern?**

Akintunde O. Babatunde, Jeyakumar L. G. Kumar and Yaqian Zhao\*

The study monitors an important concern of the possible aluminium release from dewatered alum sludge when it is beneficially reused as a substrate in constructed wetland system for wastewater treatment.

**Arsenic transformations in terrestrial small mammal food chains from contaminated sites in Canada**

Jared R. Saunders, Christopher Hough, Loren D. Knopper, Iris Koch and Kenneth J. Reimer\*

Arsenic speciation and transformation are reported for the first time in two small mammal food chains from contaminated natural environments in Canada.

**Metals and organotins in multiple bivalve species in a one-off global survey**

Martin M. Larsen,\* Jakob Strand, Jan H. Christensen, Katrin Vorkamp, Asger B. Hansen and Ole Andersen

During the Danish Galathea 3 expedition, metals and organotins were analysed in bivalves from all over the world, from Greenland to Australia.

1803

**Effects of salinity and organic matter on the partitioning of perfluoroalkyl acid (PFAs) to clay particles**

Junho Jeon, Kurunthachalam Kannan, Byung J. Lim, Kwang Guk An and Sang Don Kim\*

This study was initiated to provide insight into fate (*e.g.*, sorption to clay particles) of perfluoroalkyl acids (PFAs), *i.e.* perfluorooctane sulfate (PFOS) and perfluorooctanic acid (PFOA), in estuarine environments where salinity and organic matter play crucial roles as environmental factors.

1811

**Optical fiber based methodology for assessment of thiocyanate in seawater**

Lurdes I. B. Silva,\* Celine I. L. Justino, Isabel Lopes, Ruth Pereira, Ana Cristina Freitas, Ricardo Calado, Teresa A. P. Rocha-Santos, Teresa S. L. Panteleitchouk, Maria E. Pereira and Armando Costa Duarte

An optical fiber-based methodology has been developed for thiocyanate detection in seawater samples.

1816

**Seasonal trends and potential sources of ambient air OCPs in urban and suburban areas in Dalian, China**

Qingbo Li,\* Xianyu Wang, Rong Wang, Hongqi Sui, Wenyan Li and Lu Li

The influence of air mass trajectories on the atmospheric concentration of OCPs in urban areas.

1823

**Fractionation of traffic-emitted Ce, La and Zr in road dusts**

Valentina Lyubomirova, Romyana Djingova and Johannes T. van Elteren

Studying the fractionation of Ce, La and Zr in road dust samples *via* a sequential extraction protocol using increasingly stronger extractants.

**Okadaic acid induces morphological changes, apoptosis and cell cycle alterations in different human cell types**

Vanessa Valdiglesias, Blanca Laffon,\* Eduardo Pásaro and Josefina Méndez

The effects of OA on cell morphology, cell cycle and apoptosis were examined in three different types of human cells: peripheral blood leukocytes, hepatoma cells and neuroblastoma cells.

**Comparison of the SidePak™ personal monitor with the Aerosol Particle Sizer (APS)**

Araceli Sánchez Jiménez,\* Martie van Tongeren, Karen S. Galea, Kjersti Steinsvåg, Laura MacCalman and John W. Cherrie

This study compares the performance of the SidePak™ personal monitor and the TSI aerodynamic particle sizer to measure oil mist levels.