

Journal of Environmental Monitoring

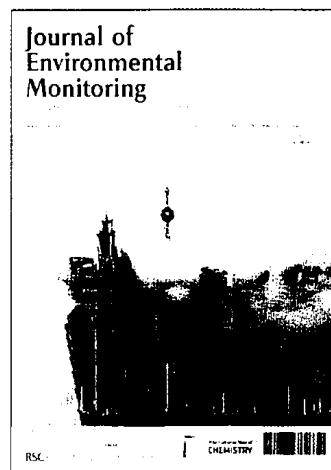
Cutting-edge research on environmental processes and impacts

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Cover

See Xiang Li *et al.*, pp. 2988–2993.
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Inside cover

See Zhendi Wang *et al.*, pp. 3004–3017.
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NEWS

2971

JEM News November 2011

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



FOCUS

2979

Measurement of environmental pollutants using passive sampling devices – a commentary on the current state of the art

Graham A. Mills, Richard Greenwood, Branislav Vrana, Ian J. Allan and Tomáš Ocelka

Passive sampling is widely used in monitoring the aquatic environment; but challenges remain before the technology can be used in a regulatory context.



2983

Application of FT-Raman spectroscopy for *in situ* detection of microorganisms on the surface of textiles

Anna Rygula, Katarzyna Jekiel, Jadwiga Szostak-Kot, Tomasz P. Wrobel and Malgorzata Baranska *

We present the usefulness of FT-Raman spectroscopy for microbiological analysis of textiles.

PAPERS

2988

Characterization of polycyclic aromatic hydrocarbons in fog-rain events

Xiang Li, * Pengfei Li, Lili Yan, Jianmin Chen, * Tiantao Cheng and Shifen Xu

To better understand fog deposition associated with PAH contamination, a comprehensive fog observation campaign on urban atmospheric PAHs was conducted in Shanghai in 2009. The results from ten monitored fog events are shown here.

2994

Comprehensive two-dimensional gas chromatography, a valuable technique for screening and semiquantitation of different chemical compounds in ultrafine 30 nm and 50 nm aerosol particles

José Ruiz-Jiménez, Jevgeni Parshintsev, Totti Laitinen, Kari Hartonen, Marja-Liisa Riekkola, * Tuukka Petäjä and Markku Kulmala

GC×GC-TOF-MS is an excellent technique for screening and semiquantitation of semi-volatile organic compounds in atmospheric ultrafine particles.

3004

Forensic fingerprinting and source identification of the 2009 Sarnia (Ontario) oil spill

Zhendi Wang, * C. Yang, Z. Yang, J. Sun, B. Hollebone, C. Brown and M. Landriault

Integrated forensic oil fingerprinting and data interpretation techniques were used for determination of the source of the 2009 Sarnia (Ontario) oil spill.

Combined use of *Nassarius reticulatus* imposex and statolith age determination for tracking temporal evolution of TBT pollution in the NW Portuguese continental shelf

Carlos M. Barroso,* Milene Rato, Alfredo Veríssimo, Ana Sousa, José António Santos, Sónia Coelho, Miguel B. Gaspar, Francisco Maia and Susana Galante-Oliveira

This work uses *Nassarius reticulatus* as a bioindicator of TBT pollution and reports a rapid imposex decline in this species at the NW Portuguese continental shelf.

3026

Environmental impacts on soil and groundwater at airports: origin, contaminants of concern and environmental risks

L. M. Nunes,* Y.-G. Zhu, T. Y. Stigter, J. P. Monteiro and M. R. Teixeira

Discussion of the relevant contamination sources to soil and groundwater at airports, contaminants of concern and environmental risks.

3040

Monoclonal antibody-based broad-specificity immunoassay for monitoring organophosphorus pesticides in environmental water samples

Zhen-Lin Xu, Dao-Ping Zeng, Jin-Yi Yang, Yu-Dong Shen, Ross C. Beier, Hong-Tao Lei, Hong Wang and Yuan-Ming Sun*

Monitoring organophosphorus pesticides in environmental water samples using a monoclonal antibody-based broad-specificity immunoassay.

3049

Assessment of the effects of Cr, Cu, Ni and Pb soil contamination by ecotoxicological tests

Giulia Maisto,* Sonia Manzo, Flavia De Nicola, Rita Carotenuto, Annamaria Rocco and Anna Alfani

This study aimed to assess soil quality by chemical and ecotoxicological investigations and to check the correspondence between soil metal concentrations and ecotoxicity.

3057

Spectrophotometric determination of persulfate by oxidative decolorization of azo dyes for wastewater treatment

Yaobin Ding, Lihua Zhu,* Jingchun Yan, Qingqing Xiang and Heqing Tang*

This present work proposes a simple, rapid and sensitive spectrophotometric method for the determination of persulfate in wastewater samples.

3064

Levels, sources and spatiotemporal variation of nutrients and micropollutants in small streams of a Mediterranean River basin

Ioannis Karaouzas,* Dimitra A. Lambropoulou, Nikolaos T. Skoulikidis and Triantafyllos A. Albanis

Small streams (<10 km²) may contribute to the pollution load of the basin and thus it is essential that they are included into the EU Water Framework Directive monitoring schemes.

3075

An examination of the toxic properties of water extracts in the vicinity of an oil sand extraction site

F. Gagné,* C. André, M. Douville, A. Talbot, J. Parrott, M. McMaster and M. Hewitt

We examined the sub-lethal effects of water extracts from the oil sands extraction area on primary cultures of rainbow trout hepatocytes.

3087

Heavy metal concentrations in particle size fractions from street dust of Murcia (Spain) as the basis for risk assessment

Jose A. Acosta,* Ángel Faz, Karsten Kalbitz, Boris Jansen and Silvia Martínez-Martínez

This article shows that the risk assessment programs in areas affected by anthropogenic activities should include monitoring of metal concentrations in dust, with a special focus on the effect of particle size in the distribution of metals.

Occurrence and fate of pharmaceuticals and personal care products in drinking water in southern China

Tiejun Qiao, Zhengrong Yu, Xihui Zhang*
and Doris W. T. Au

Occurrence and fate of PPCPs was first investigated in full-scale water supply systems in southern China.

Analysis and occurrence of emerging chlorinated and brominated flame retardants in surficial sediment of the Dalian costal area in China

De-Gao Wang,* Mehran Alaei, Ed Sverko, Yi-Fan Li,
Eric J. Reiner and Li Shen

Chlorinated and brominated flame retardants were analyzed in surficial sediment collected from the Dalian costal area in northeast China.

Bias from two analytical laboratories involved in a long-term air monitoring program measuring organic pollutants in the Arctic: a quality assurance/quality control assessment

Yushan Su,* Hayley Hung, Gary Stern, Ed Sverko,
Randy Lao, Enzo Barresi, Bruno Rosenberg, Phil Fellin,
Henrik Li and Hang Xiao

Three rounds of inter-laboratory comparison were conducted to assess data comparability between the two laboratories involved in the long-term air monitoring program in the Arctic.

Long-range atmospheric transport of persistent organochlorinated compounds from south and mainland south-eastern Asia to a remote mountain site in south-western China

Yue Xu, Gan Zhang,* Jun Li, Paromita Chakraborty,
Hua Li and Xiang Liu

A monitoring campaign at a remote mountain site in south-western China indicates that India and southern China could be important source regions of atmospheric organochlorinated compounds in tropical Asia.

Mapping the organic carbon stocks of surface soils using local spatial interpolator

Sandeep Kumar* and Rattan Lal

This study estimates the SOC stock in the surface (0–15 cm) soils of Pennsylvania, USA using a GWRK approach, and results were compared with those obtained from OK (ordinary kriging), MLR, RK, and GWR approaches.

A pilot study of pesticides and PCBs in the breast milk of women residing in urban and agricultural communities of California

Rosana Hernandez Weldon, Dana Boyd Barr, Celina Trujillo, Asa Bradman, Nina Holland and Brenda Eskenazi*

In this pilot study we report variability in concentrations of persistent and non-persistent pesticides and PCBs in breast milk from women residing in urban and agricultural regions of California.

A tool for rapid screening of direct DNA agents using reaction rates and relative interaction potency: towards screening environmental contaminants for hazard

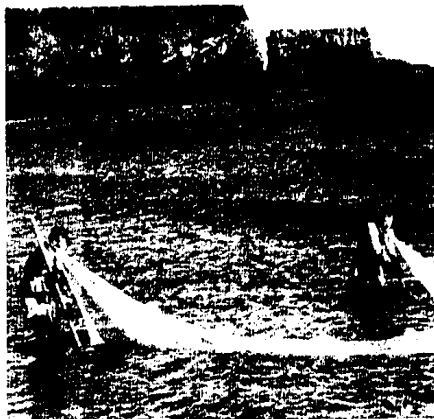
Jennilee M. A. Gavina, Mamoona Rubab, Huijuan Zhang, Jiping Zhu, Andy Nong and Yong-Lai Feng*

A chromatography-based method is shown as a tool to rapidly determine the relative potency and kinetics of probable genotoxins for assessment of relative chemical hazard.

Passive ammonia monitoring in the United States: Comparing three different sampling devices

Melissa A. Puchalski,* Mark E. Sather, John T. Walker, Christopher M. B. Lehmann, David A. Gay, Johnson Mathew and Wayne P. Robarge

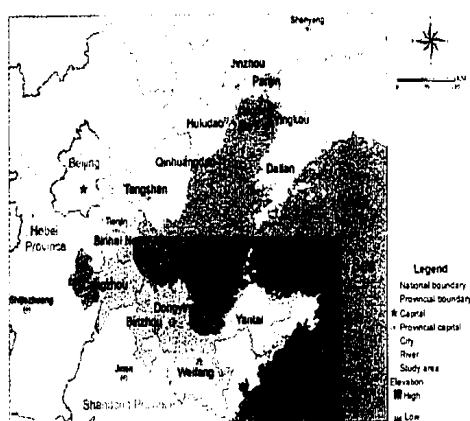
With the importance of capturing the full nitrogen budget increasing in the US, a statistical comparison between three passive samplers used to measure NH₃ is provided. Passive samplers are a cost-effective way to capture long-term trends across a broad regional area.



The potential use of Atlantic silverside (*Menidia menidia*) for monitoring estuarine pollution

Meghan A. Doyle, Thijs Bosker and Kelly R. Munkittrick*

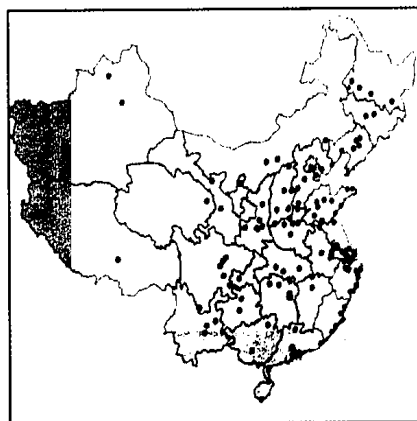
This study demonstrated that site differences can be detected with Atlantic silversides, highlighting their potential as a sentinel species in environmental monitoring.



Comparative analysis of environmental carrying capacity of the Bohai Sea Rim area in China

Lu Lin, Yi Liu,* Jining Chen, Tianzhu Zhang and Siyu Zeng

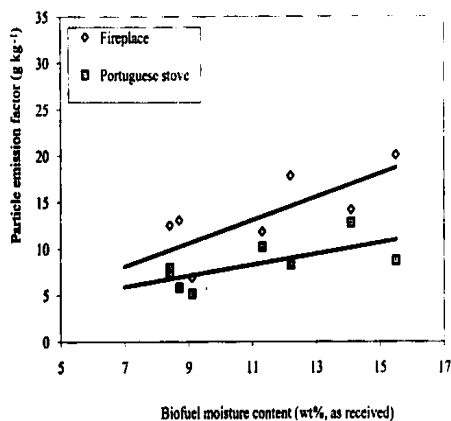
We developed a comparative analysis framework, combining complex environmental modeling, for ranking comprehensive environmental carrying capacities at a large spatial scale.



Site location optimization of regional air quality monitoring network in china: methodology and case study

Junyu Zheng,* Xiaoqiong Feng, Panwei Liu, Liuju Zhong and Senchao Lai

This paper proposes a methodological framework for site location optimization in designing a RAQMN adapting to air quality management practice in China.



Emission factors from residential combustion appliances burning Portuguese biomass fuels

A. P. Fernandes,* C. A. Alves, C. Gonçalves, L. Tarelho, C. Pio, C. Schimdl and H. Bauer

The purpose of this work was to compare the emissions from combustion of wood species typical for Portugal in different residential appliances.

3207

Occurrence, finger printing and ecological risk assessment of polycyclic aromatic hydrocarbons (PAHs) in the Chenab River, Pakistan

Samiya Farooq, Syed Ali-Musstjab-Akber-Shah Eqani, Riffat Naseem Malik,* Athanasios Katsoyiannis, Gan Zhang, Yanlin Zhang, Jun Li, Liu Xiang, Kevin C. Jones and Zabta Khan Shinwari

This study was designed to evaluate the occurrence, sources and spatio-temporal trends of PAHs in the surface waters of the riverine ecosystem of Chenab, Pakistan.

3216

Atmospheric NO₂ and NH₃ deposition into a typical agro-ecosystem in Southeast China

Jian Cui, Jing Zhou,* Hao Yang, Ying Peng, Yuanqiu He and Andy Chan

Sum fluxes of NO₂ and NH₃ deposition in the agro-ecosystem during 2006–2007.

3222

Saharan dust episodes and pregnancy

Payam Dadvand,* Xavier Basagaña, Francesc Figueras, Elmira Amoly, Aurelio Tobias, Audrey de Nazelle, Xavier Querol, Jordi Sunyer and Mark J. Nieuwenhuijsen

Our study aimed to investigate the impact of Saharan dust episodes on pregnancy complications (preeclampsia and bacteriuria) and outcomes (birth weight and gestational age at delivery) among a population of pregnant women in Barcelona, Spain, during 2003–2005.

3229

Occurrence of antibiotic resistance and characterization of resistance genes and integrons in Enterobacteriaceae isolated from integrated fish farms in south China

Hao-Chang Su, Guang-Guo Ying,* Ran Tao, Rui-Quan Zhang, Lisa Reynolds Fogarty and Dana W. Kolpin

Fish farms are a reservoir of antibiotic resistant genes and gene cassettes.

Road traffic noise: self-reported noise annoyance *versus* GIS modelled road traffic noise exposure

Matthias Birk, Olga Ivina, Stephanie von Klot,
Wolfgang Babisch and Joachim Heinrich*

This paper investigates the association between self-reported road traffic noise annoyance and GIS modelled road traffic noise exposure in the immediate neighbourhood of the place of residence.

Influence of home characteristics on airborne and dustborne endotoxin and β -D-glucan

Umesh Singh, Linda Levin, Sergey A. Grinshpun,
Christopher Schaffer, Atin Adhikari and Tiina Reponen*

Correlations between dustborne and airborne microbial contaminants underscoring exposure to PM10 contaminants, previously under-researched, were determined in this study.

Endotoxin and β -(1 \rightarrow 3)-glucan exposure in poultry and ruminant clinics

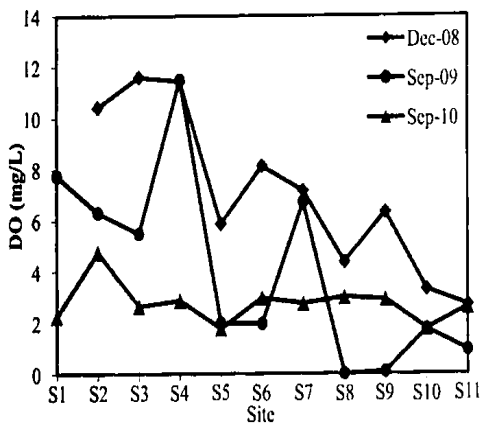
Sadegh Samadi,* Nancy N. J. Rietbroek, Roelof M. Dwars,
Ali-Reza Jamshidifard, Dick J. J. Heederik
and Inge M. Wouters

Levels of endotoxin and β -(1 \rightarrow 3)-glucan during veterinary practice in ruminant and poultry clinics were explored and related to task-based determinants.

Modelling of occupational respirable crystalline silica exposure for quantitative exposure assessment in community-based case-control studies

S. Peters, R. Vermeulen, L. Portengen, A. Olsson,
B. Kendzia, R. Vincent, B. Savary, J. Lavoué, D. Cavallo,
A. Cattaneo, D. Mirabelli, N. Plato, J. Fevotte, B. Pesch,
T. Brüning, K. Straif and H. Kromhout

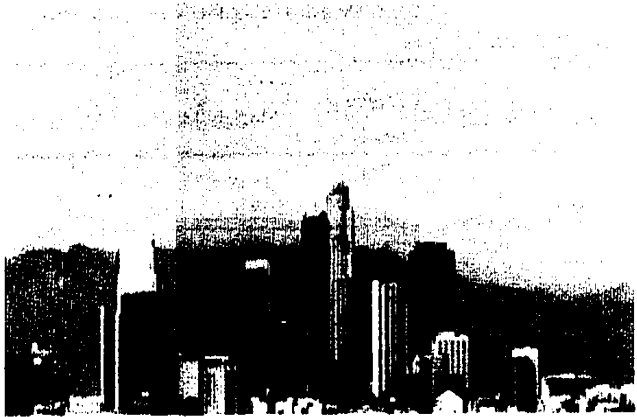
Statistical model for silica exposure to create a quantitative JEM.



Occurrence and behaviour of nonylphenol and octylphenol in Nanming River, Guiyang City, China

Xiuzhen Tao, Changyuan Tang,* Pan Wu, Zhiwei Han, Chipeng Zhang and YiZhang Zhang

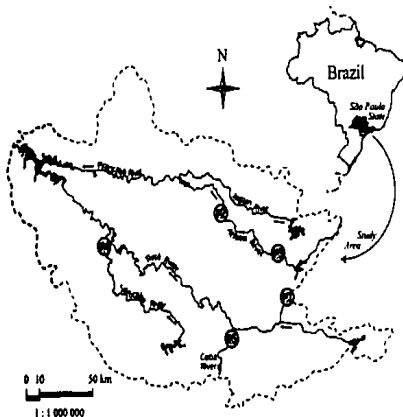
Occurrence, variation and behaviour of nonylphenol (NP) and octylphenol (OP) were studied in surface water and groundwater in Guiyang, Guizhou Province, southwestern China. It was found that the predicted mixture effect for APs in river water on fish vitellogenin induction was low upstream and medium downstream, respectively.



Diurnal trends in coarse particulate matter composition in the Los Angeles Basin

Kalam Cheung, Nancy Daher, Martin M. Shafer, Zhi Ning, James J. Schauer and Constantinos Sioutas*

This study examines the diurnal profile of mass concentration and chemical composition of coarse particulate matter in the Los Angeles Basin.

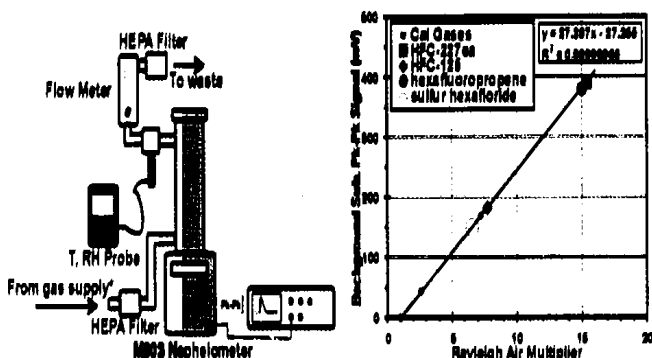


Bioluminescent yeast estrogen assay (BLYES) as a sensitive tool to monitor surface and drinking water for estrogenicity

Ana Marcela Di Dea Bergamasco, Melanie Eldridge, John Sanseverino, Fernando Fabríz Sodré, Cassiana Carolina Montagner, Igor Cardoso Pescara, Wilson Figueiredo Jardim and Gisela de Aragão Umbuzeiro*

The aim of this work was to verify whether the *S. cerevisiae* BLYES bioassay could be an effective screening tool to evaluate raw and drinking water for estrogenicity.

TECHNICAL NOTE



Rayleigh scattering measurements of several fluorocarbon gases

Serena Zadoo and Jonathan E. Thompson*

Rayleigh scattering constants for tetrafluoromethane (R-14), sulfur hexafluoride, pentafluoroethane (HFC-125), hexafluoropropene (HFC-216), 1,1,1,2,3,3,3,-heptafluoropropane (HFC-227ea), and octafluorocyclobutane (C-318) are reported.