510

A shift in emission time profiles of fossil fuel combustion due to energy transitions impacts source receptor matrices for air quality

Carlijn Hendriks,* Jeroen Kuenen, Richard Kranenburg, Yvonne Scholz and Martijn Schaap

The impact of a shift in time of air pollutant emissions on ambient concentrations and derived source receptor relations should be included when studying impacts of energy transitions on air quality and climate.

525

Spatial distribution of selected persistent organic pollutants (POPs) in Australia's atmosphere

Xianyu Wang,* Karen Kennedy, Jennifer Powell, Melita Keywood, Rob Gillett, Phong Thai, Phil Bridgen, Sara Broomhall, Chris Paxman, Frank Wania and Jochen F. Mueller

Systematic data for atmospheric POPs and their spatial variations across Australia are presented for the first time.

533

Assessing soil and groundwater contamination from biofuel spills

Colin S. Chen, Youn-Yuen Shu, Suh-Huey Wu and Chien-Jung Tien*

Future modifications of fuels should include evaluation of the proposed constituents for their potential to damage environmental resources such as the subsurface environment.

543

The impact of commonly used air filters in eliminating the exposure to secondhand smoke constituents

Chris A. Pritsos* and Thivanka Muthumalage

The use of microchip controlled TE-10 smoke machine system with 3R4F research cigarettes as a part of the experimental design in order to create an atmosphere with environmental tobacco smoke constituents.

552

Characterization of fine particulate matter in ambient air by combining TEM and multiple spectroscopic techniques – NMR, FTIR and Raman spectroscopy

Zhurun Ji, Rucheng Dai and Zengming Zhang*

We report a study of the microstructures and spectroscopic characteristics of $PM_{2.5}$ and its potential sources in Beijing by combining transmission electron microscopy and multiple spectroscopic techniques: nuclear magnetic resonance, Fourier transform infrared and Raman spectroscopy.

561

Evaluating the applicability of a semi-continuous aerosol sampler to measure Asian dust particles

Se-Chang Son and Seung Shik Park*

A Korean prototype semi-continuous aerosol sampler was used to measure Asian dust particles. During two dust-storm periods, concentrations of crustal and trace elements were significantly enriched.

570

Evaluation of the diffusive gradients in thin films technique using a mixed binding gel for measuring iron, phosphorus and arsenic in the environment

Qin Sun, Liping Zhang, Shiming Ding,* Chao Li, Jinyan Yang, Jing Chen and Peifang Wang

Simultaneous measurements of dissolved iron (Fe), phosphorus (P), and arsenic (As) were made using the diffusive gradients in thin films technique equipped with a mixed binding gel impregnated with zirconium oxide and Chelex-100 (ZrO–Chelex DGT).

578

Speciation of fluoride in workroom air during primary production of aluminium

Nils Petter Skaugset,* Dag G. Ellingsen, Hilde Notø, Lars Jordbekken and Yngvar Thomassen

Exposure to fluorides (F^-) and particulate matter (PM) was assessed by personal sampling with use of Respicon® sampler in Prebake and Søderberg pot rooms in seven aluminium smelters.

586

Influences on and patterns in total gaseous mercury (TGM) at Harwell, England

J. Kentisbeer,* S. R. Leeson, T. Clark, H. M. Malcolm and J. N. Cape

Understanding variation in total gaseous mercury in the southern UK using wind sector and air mass back trajectory analysis to assess a range of influences and sources, local to long-range.

596

Distribution, mass load and environmental impact of multiple-class pharmaceuticals in conventional and upgraded municipal wastewater treatment plants in East China

Xiangjuan Yuan, Zhimin Qiang,* Weiwei Ben, Bing Zhu and Jiuhui Qu

The occurrence, fate and environmental impact of multiple-class pharmaceuticals were comparatively investigated in two wastewater treatment plants (upgraded *vs.* conventional) in East China.

606

Chemical fingerprinting of hydrocarbon-contamination in soil

Esther S. Boll,* Jens Nejrup, Julie K. Jensen and Jan H. Christensen

Chemical fingerprinting analyses of 29 hydrocarbon-contaminated soils were performed to assess the soil quality and determine the main contaminant sources.

619

Exploring the relationship between the optical properties of water and the quality and quantity of dissolved organic carbon in aquatic ecosystems: strong correlations do not always mean strong predictive power

Darren. S. Baldwin* and William Valo

The robustness of empirical models derived from correlation studies needs to be independently verified before being relied on.

631

Lead and zinc dust depositions from ore trains characterised using lead isotopic compositions

L. J. Kristensen,* M. P. Taylor and A. L. Morrison

Elevated lead and zinc concentrations in remote environments can be traced to uncovered transport of ore concentrates from mining operations.

638

Evaluation criteria for bioaerosol samplers

Jana Kesavan* and Jose-Luis Sagripanti

Humans contract a variety of serious diseases through inhalation of infectious aerosols.

646

Investigation of the relationship between atmospheric mercury and concentrations of key greenhouse gases at a mountainous monitoring site

Ki-Hyun Kim, Sudhir Kumar Pandey,* Richard J. C. Brown, Guey Rong Sheu, Eui-Chan Jeon, Kweon Jung and Chang-Hee Kang

The study at Mt. Gwan-ak (Seoul, Korea) revealed that the behavior of Hg was strongly correlated with water vapor and CH_4, suggesting good similarities in their source characteristics.

656

Workplace exposure to airborne alumina nanoparticles associated with separation and packaging processes in a pilot factory

Mingluan Xing, Hua Zou, Xiangjing Gao, Bing Chang, Shichuan Tang* and Meibian Zhang*

Workplace exposure to airborne Al_2O_3 nanoparticles in a pilot factory was characterised by particle concentrations, size distribution, morphology and chemical composition, compared with background particles.

667

Levels of bisphenol-A in different paper products in Guangzhou, China, and assessment of human exposure *via* dermal contact

Ruifang Fan,* Biyan Zeng, Xiaosu Liu, Chao Chen, Qinwei Zhuang, Yongjun Wang, Mingli Hu, Yanshan Lv, Junnan Li, Yuanxiu Zhou and Zhi Yuan William Lin

Bisphenol A (BPA) is a chemical widely used both in plastics production as a food and beverage container and in thermal papers as a color developer.

674

Sorption and desorption of diverse contaminants of varying polarity in wastewater sludge with and without alum

M.-F. Morissette, S. Vo Duy, H. P. H. Arp and S. Sauvé*

Sewage sludge sorption and desorption measurements were conducted for nine diverse contaminants of varying polarity: caffeine, sulfamethoxazole, carbamazepine, atrazine, estradiol, ethinylestradiol, diclofenac, and, for the first time desethylatrazine and norethindrone.

683

Combined radiocarbon and CO_2 flux measurements used to determine *in situ* chlorinated solvent mineralization rate

T. J. Boyd,* M. T. Montgomery, R. H. Cuenca and Y. Hagimoto

Chlorinated hydrocarbon turnover (mineralization) estimated by CO_2 radiocarbon content and respiration rate coupled to ZOI models.

693

Bioconcentration and trophic transfer of polychlorinated biphenyls and polychlorinated dibenzo-*p*-dioxins and dibenzofurans in aquatic animals from an e-waste dismantling area in East China

Chaofei Zhu, Pu Wang, Yingming Li, Zhaojing Chen, Wenjuan Li, Patrick Ssebugere, Qinghua Zhang* and Guibin Jiang

The relationship between log BCF of PCBs and their log K_{ow} in all aquatic species.

700

Correction: Influences on and patterns in total gaseous mercury (TGM) at Harwell, England

J. Kentisbeer,* S. R. Leeson, T. Clark, H. M. Malcolm and J. N. Cape