

Contents in Context

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Trends of polyfluoroalkyl compounds in marine biota and in humans

Renate Sturm and Lutz Ahrens

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Polyfluoroalkyl compounds are used in a variety of industrial and consumer applications, including polymer production and for surface treatment of textiles and paper. Research over the last 10 years has shown that these compounds are ubiquitous environmental contaminants – they are extremely persistent, show toxic effects and accumulate in the food chain. We evaluate global, temporal and spatial trends of these important emerging contaminants.

Operational Street Pollution Model (OSPM) – a review of performed application and validation studies, and future prospects

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Environ. Chem. **2010**, 7, 485

Trafficked streets are air pollution hot spots where people experience high exposure to hazardous pollutants. Although monitoring networks provide crucial information about measured pollutant levels, the measurements are resource demanding and thus can be performed at only few selected sites. Fast and easily applied street pollution models are therefore necessary tools to provide information about the loadings in streets without measurement activities. We evaluate the Operational Street Pollution Model, one of the most commonly applied models in air pollution management and research worldwide.

Contamination of Antarctic snow by polycyclic aromatic hydrocarbons dominated by combustion sources in the polar region

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Environ. Chem. **2010**, 7, 504

Is long-range transport from populated and industrialised areas to blame for pollution of remote regions? We report that, for the world's most remote region, Antarctica, and one prominent class of global pollutants, polycyclic aromatic hydrocarbons, long-range transport from other continents has not contributed significantly to recent snow contamination. Rather, the major sources are regional scientific stations and ocean transport, mostly tourism.

Nickel sulfide formation at low temperature: initial precipitates, solubility, and transformation products

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Environ. Chem. **2010**, 7, 514

Remediation technologies often rely on manipulation of redox conditions or natural redox processes to favour microbial sulfate-reduction and mineral sulfide formation for treatment of inorganic contaminants in groundwater, including nickel. However, few data are available on the structural properties, solubility, and mineral transformation processes involving nickel sulfides. These data are needed in order to constrain the long term performance of groundwater remediation efforts.

Comparison of 1-D and 2-D NMR techniques for screening earthworm responses to sub-lethal endosulfan exposure

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Environ. Chem. **2010**, 7, 524

The application of metabolomics from an environmental perspective depends on the analytical ability to discriminate minute changes in the organism's metabolic profile resulting from exposure. Nuclear Magnetic Resonance (NMR) experiments were examined to characterise the earthworm's metabolic response to an organochlorine pesticide. The study demonstrates the potential of NMR in understanding subtle biochemical responses resulting from environmental exposure.

Gaseous mercury in coastal urban areas

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Environ. Chem. **2010**, 7, 537

Mercury is a neurotoxin that bioaccumulates in the aquatic food web. Atmospheric emissions from urban areas close to the coast could cause increased local mercury deposition to the ocean. Our study adds important new data to the current limited knowledge on atmospheric mercury emissions and dynamics in coastal urban areas.

Photochlorination of bisphenol A by UV-Vis light irradiation in saline solution: effects of iron, nitrate and citric acid

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Environ. Chem. **2010**, 7, 548

Chlorinated organic compounds are ubiquitous in the environment, and cause concern owing to their persistence and toxicity to organisms. In addition to anthropogenic sources, photochemical processes in saline waters could also yield chlorinated organic compounds. The present paper investigates the effects of iron, pH, nitrate and dissolved organic matter on the photochlorination of bisphenol A, a widely distributed endocrine disrupting chemical.

Isoprene emission from phytoplankton monocultures: the relationship with chlorophyll-*a*, cell volume and carbon content

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Environ. Chem. **2010**, 7, 554

Isoprene, a natural product of both terrestrial vegetation and marine organisms, is rapidly oxidised in the atmosphere, and thereby plays a key role in the regional budget of oxidants. Although isoprene production from terrestrial plants has been extensively investigated, production processes and emission rates from marine species are still poorly understood. We present results from laboratory experiments showing that isoprene is emitted from living phytoplankton cells at variable rates depending on the light intensity, cell volume, and carbon content of the plankton cells.