

December 15, 2007

# ENVIRONMENTAL Science & Technology

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## Mortality from SHIP EMISSIONS: A Global Assessment

Acceleration of Chemical Weathering  
for Mitigating Climate Change

Repeating History: Pharmaceuticals  
in the Environment

PUBLISHED BY  
THE AMERICAN  
CHEMICAL SOCIETY

## News and Features

### 8204 Letter

Pharmaceuticals in drinking water: is the cure worse than the disease?

## NEWS

### 8206 Death from shipping

New models estimate premature mortality from shipping emissions on a global scale.

### 8207 The Mississippi: an "orphan" river

A National Academies panel says that EPA should look at the Big Muddy as one river system to protect it from pollution.

### 8207-8209 News Briefs

Go green, energy experts say • First carbon-neutral building • Kashmir's climate crisis • Future growth for nuclear power?

### 8208 Speeding up earth's natural climate control

Could the removal of acid from seawater slow global warming?

### 8209 Solar Decathlon stars sustainable designs

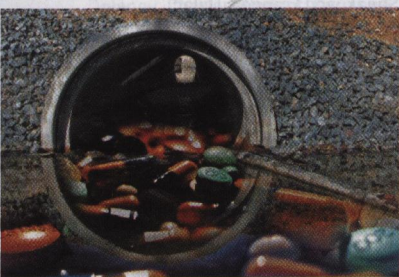
Teams from universities and colleges around the world converged on Washington, D.C., to see who could make the best sun-powered house.

### 8219 2007 News and Features Subject and Author Index

## FEATURE

### 8211 Repeating History: Pharmaceuticals in the Environment

Gerald T. Ankley, Bryan W. Brooks, Duane B. Huggett, and John P. Sumpter



As state-of-the-art analytical techniques become more sensitive and more widely deployed, an increasing number of human and veterinary drugs are being detected in environmental samples. What

is the impact of these pharmaceuticals in the environment? Ankley et al. identify several issues associated with assessing the risks of pharmaceuticals and discuss how knowledge of endocrine-disrupting chemicals can help scientists address these issues.

**Cover:** Oceangoing ships are notorious for spewing particulate matter, nitrogen oxides, and sulfate into the air. New research on pp 8512-8518 provides some of the first estimates of premature mortality from exposure to global ship emissions. Photo by Jupiterimages.

## Research

### POLICY ANALYSIS

#### ■ 8227

#### Enterococci Concentrations in Diverse Coastal Environments Exhibit Extreme Variability

Alexandria B. Boehm

Enterococci concentrations in coastal waters exhibit large variations over timescales of minutes; this presents a challenge to using a single-sample standard to assess water quality.

#### ■ 8233

#### ▶ Cost-Effectiveness of Reducing Sulfur Emissions from Ships

Chengfeng Wang, James J. Corbett, and James J. Winebrake

GIS optimization of ship emissions reduction strategies shows that combining performance standards with market-based instruments improves policy cost-effectiveness and reduces more fleetwide SO<sub>2</sub> pollution near shore.

### CHARACTERIZATION OF NATURAL AND AFFECTED ENVIRONMENTS

#### 8240

#### Major Structural Components in Freshwater Dissolved Organic Matter

Buuan Lam, Andrew Baer, Mehran Alaee, Brent Lefebvre, Arvin Moser, Antony Williams, and André J. Simpson

Major structural components in freshwater dissolved organic matter are elucidated with modern nuclear magnetic resonance spectroscopy.

#### ■ 8248

#### Semivolatile Fluorinated Organic Compounds in Asian and Western U.S. Air Masses

Arkadiusz M. Piekarczyk, Toby Primbs, Jennifer A. Field, Douglas F. Barofsky, and Staci Simonich

Semivolatile fluorinated organic compounds are measured in Asian and western U.S. air masses, their atmospheric residence times are estimated, and their relative proportions and concentrations are compared with respect to potential source regions.

#### ■ 8256

#### Atmospheric Polycyclic Aromatic Hydrocarbons in North China: A Winter-Time Study

Shuzhen Liu, Shu Tao, Wenxin Liu, Yanan Liu, Han Dou, Jingyu Zhao, Luguang Wang, Jingfei Wang, Zaifeng Tian, and Yuan Gao

■ Supporting information is available free at <http://pubs.acs.org/est>.  
▶ This issue contains a news story about this research.

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