Research Watch

Air

Construction impacts. The authors estimate emission rates of fugitive dust for surface road construction based on measurements of total suspended particulates during various construction phases. Chang, Y.-M., et al. "An Estimation on Overall Emission Rate of Fugitive Dust Emitted From Road Construction Activity," *Environ. Eng. Sci.* **1999,** *16* (5), 375–388)

Global urban air pollution. This comprehensive review presents 103 references about urban air quality worldwide and includes such topics as present-day records, air quality indicators, local emissions and global pollution, global growth and increasing urbanization, hazardous pollutants, and national and international legislation. (Fenger, J., et al. "Urban Air Quality," *Atmos. Environ.* **1999,** *33* (29), 4877–4900)

Biodiversity

Ecological risks of transgenic animals. Using Japanese medaka (*Oryzias latipes*) as a model, deterministic equations predict that a transgene introduced into a natural population by a small number of transgenic fish will spread as a result of enhanced mating advantage. In addition, the reduced viability of offspring will cause eventual local extinction of both populations. (Muir, W. M., et al. "Possible Ecological Risks of Transgenic Organism Release When Transgenes Affect Mating Success: Sexual Selection and the Trojan Gene Hypothesis," *Proc. Natl. Acad. Sci. U.S.A.* **1999,** *96* (24), 13,853–13,856)

Tropical rainforests. Results based on comparison of mitochondrial and morphological divergence in eight populations of a widespread leaf-litter skink in the Wet Tropics Rainforest region of Australia suggest that natural selection operating across ecological gradients can be more important than geographic isolation in similar habitats in generating phenotypic diversity. (Schneider, C. J., et al. "A Test of Alternative Models of Diversification in Tropical Rainforests: Ecological Gradients Versus Rainforest Refugia," *Proc. Natl. Acad. Sci. U.S.A.* **1999,** *96* (24), 13,869–13,873)

Monitoring vehicle emissions

Direct measurement of pollutant emissions from on-road vehicles is difficult because of their spatial and temporal variations and vehicle-to-vehicle differences. To address this issue, K. Bradley and co-workers used open-path Fourier transform infrared (OP-FTIR) spectroscopy and measured a fleet average, fuel-based N_2O emission ratio. The ratio—important because automotive exhaust is thought to be a main source of this greenhouse gas—obtained from OP-FTIR measurements was in close agreement with EPA's estimated emission rate of 0.41 ± 0.04 g N_2O/kg fuel. The results indicate that OP-FTIR provides a viable option for such measurements. Other emissions potentially measurable by this technique include NH_3, NO, NO_2, aromatics, and aldehydes. (*Environ. Sci. Technol.*, this issue, pp. 897–899)

Chemistry

Chlorocarbon formation. PCDD and PCDF formation rates from polycyclic aromatic hydrocarbons, activated carbon, and phenol were compared. (Lino, F., et al. "Formation Rates of Polychlorinated Dibenzofurans and Dibenzo-*p*-dioxins From Polycyclic Aromatic Hydrocarbons, Activated Carbon, and Phenol," *Chemosphere* **1999,** *39* (15), 2749–2756)

Data errors. The influence of thermodynamic data errors upon the results of equilibrium calculations of complex chemical reacting systems is examined. (Belov, G. V., et al. "Influence of Thermodynamic and Thermochemical Data Errors on Calculated Equilibrium Composition," *Ber. Bunsen-Ges. Phys. Chem.* **1998,** *102* (12), 1874–1879)

Dioxins in fly ash. Results based on the fly ash samples collected from three municipal waste incinerators in Taiwan, which were equipped with different air pollution control devices, suggest that environmental conditions in control equipment may cause an increase in fly ash dioxin content. Chang, M. B., et al. "Dioxin Contents in Fly Ash From Large-Scale MSW Incinerators in Taiwan," *Chemosphere* **1999,** *39* (15), 2671–2680)

PCB Dechlorination. The potential role of methanogens and sulfate reducers in polychlorinated biphenyl dechlorination was studied using the specific inhibitors 2-bromoethanesulfonate for methanogens and molybdate for sulfate reducers. (Kim, J., et al. "Reductive Dechlorination of Polychlorinated Biphenyls: Interactions of Dechlorinating Microorganisms With Methanogens and Sulfate Reducers," *J. Environ. Chem.* **1999,** *18* (12), 2696–2702)

Climate Change

Haze damage. The effects of atmospheric aerosols and regional haze from air pollution on yields of rice and winter wheat crops grown in China were assessed. (Chameides, W. L., et al. "Case Study of the Effects of Atmospheric Aerosols and Regional Haze on Agriculture: An Opportunity to Enhance Crop Yields in China