

Air Quality at Lake Tahoe

Happy Hour with Tom Cahill, Ph.D. (UC Davis)

Date: March 20, 2007

Time: 5:30 – 7:00 p.m. Lecture begins promptly at 6:00 p.m.

Cost: \$5 donation requested.

Includes a **No-Host Bar**.

Location: Assembly Rooms A & B, Tahoe Center for Environmental Sciences
291 Country Club Drive, Incline Village, Nevada (on the campus of Sierra Nevada College)

Lecture Topic: Air Quality at Lake Tahoe

Lake Tahoe is a unique and scenic location with a nutrient-sensitive lake that makes up much of the high elevation air basin. However, there are significant pollutant sources within the basin and important transport from upwind sources, both of which threaten Lake Tahoe's unique ecosystem. Research shows that gaseous pollutants including carbon monoxide (CO), nitric oxide (NO), nitrogen dioxide (NO₂), hydrocarbons, are locally generated, while methane (CH₄), and ozone (O₃) mostly transported into the basin. Particles in the air, largely from cars and wood smoke, are almost all local in winter but include significant transport from upwind sources in summer.

Air quality questions include:

- How does air quality limit visibility? If visibility is poor, one of the world's great scenic resources is degraded, and tourists go elsewhere.
- How is air quality tied to declines in lake clarity?
- Is air quality adequate to protect the forests? If the forests are devastated by ozone damage and they are full of dying trees, the scene is degraded and the chance for catastrophic fires increases.
- Is air quality adequate to protect human health? If people who come to Lake Tahoe suffer from carbon monoxide or ozone and high fine particle impacts that make breathing difficult, visitors will stop coming and local residents will suffer.
- What impact does street sweeping have on overall air quality at Lake Tahoe? Many people have complained about the street sweepers' "dust clouds" and the dust generated by residents using leaf blowers to clean their driveways or parking lots.
- What impact does prescribed burning of forest fuels have on air quality? Knowing that these forest fuels need to be removed to protect the forests and prevent wildfires, how can air quality impacts be mitigated or reduced.
- What can you do to protect air quality? Learn about how you can reduce pollutants in the air and preserve the visibility and clean mountain air of the region.

Thomas A. Cahill, Ph.D., professor, physics; and emeritus professor, atmospheric sciences, is an international authority on the constituents and transport of airborne particles. Cahill received his Ph.D. in physics from UCLA in 1965 and has been a professor at UC Davis since 1967. Professor Cahill originally focused on nuclear and atomic physics and now specializes in environmental applications of accelerator beams (soft beta rays, ions, polarized x-rays, and lasers) in atmospheric physics and chemistry, with emphasis on long range transport of aerosols and their radiative effects in the atmosphere. His work at Lake Tahoe began with Charles Goldman in 1974, in a seminal joint article "Danger Signs for Tahoe's Future." He proposed and petitioned the formation of the Lake Tahoe Air Basin by the California Air Resources Board in 1975, and has been extensively involved in air quality work in the basin and the Sierra Nevada since that time.

As director of the DELTA Group (Detection and Evaluation of Long-range Transport of Aerosols), Cahill has made detailed studies of aerosols and global dust storms in Asia that occur every spring. With the DELTA Group, he verified that storms carry desert sand and industrial pollutants across the Pacific, and even impact Lake Tahoe. Cahill led a team of experts on the study of dust and smoke created in Manhattan by the collapse of the World Trade Center, including very fine particles causing health problems for impacted rescue workers and residents. He is presently involved with the National Science Foundation in aerosol transport to the critical Greenland ice cap.

Sponsorship: This event is sponsored by the UC Davis Tahoe Environmental Research Center (TERC), with a portion of room usage and catering services sponsored by Sierra Nevada College and Sodexo.

Monthly Lecture Series: The UC Davis Tahoe Environmental Research Center (TERC) *Monthly Lecture Series* will provide a forum for community members to gain access to scientific experts. The *Monthly Lecture Series* will present interesting topics in science directly to enthusiasts in nearby communities. Topics range from A to Z (air quality to zooplankton) and are pertinent to the region. Speakers include authorities on various environmental issues, scientific research and related regional topics of interest.