

**SPACE SCIENCE EDUCATIONAL/PUBLIC OUTREACH AT THE UNIVERSITY OF ARKANSAS.** D. M. Schneider, D. W. G. Sears, P. H. Benoit, D. G. Akridge, and J. M. C. Akridge. Cosmochemistry Group, University of Arkansas, Fayetteville AR 72701 USA. E-mail: schneide@comp.uark.edu.

**Introduction:** Those who study space science are being actively encouraged to develop educational/public outreach forums for their research. Arkansas has few local resources for space science. The Cosmochemistry Group at the University of Arkansas is the only potential source of outreach by active space science researchers in Arkansas other than a small group at the University of Arkansas at Little Rock and the Little Rock Aerospace Museum.

We have developed a four-pronged approach to public education. The first steps taken to increase student and public awareness of space research included the development of cosmochemistry related laboratories and informative tours, various museum-type displays, and public speakers through the Barringer Lecture series. The latest step in our outreach program was to create a homepage on the world wide web, which has been successful beyond our initial expectations.

**Student Education via University Laboratories:** Space science outreach at the college level includes several laboratory activities that have been developed and incorporated into the curriculum of such laboratory courses as Chemistry in the Modern World and a sophomore level Analytical Chemistry course. These activities were designed to serve a dual purpose of teaching analytical techniques as well as develop a basic understanding about meteorites and space science. These laboratories include:

a) Radioactivity and Solar Power, Meteorites and Meteorwrongs: A laboratory designed to teach fundamental concepts about

radioactivity and solar radiation, and basic characteristics of meteorites.

b) Thermoluminescence (TL) of Meteorite Powders: A laboratory designed to teach kinetics by determining the trap-depth in a material using natural and induced TL.

c) Analysis of a Meteorite by Instrumental Neutron Activation Analysis (INAA): A laboratory designed to determine the concentration of elements within a meteorite sample based on nuclear decay.

**Student Education via Public High School Outreach:** At the high school and junior high level, we offer slide shows and tour lectures of our research facilities to visiting school groups. We offer explanations about meteorites, asteroids, space and terrestrial processes, analytical techniques used in space studies, and a variety of other topics. We also illustrate the lectures with demonstrations; for example, as a lead-in to discussing the various luminescence techniques we use, we show a display of luminescent minerals under long- and short-wave radiation. The students respond well and very often lead the direction of the lecture through their questions.

**Public Education via Static Displays and the University Museum:** We have developed a variety of displays dealing with various topics in space science. The first is a museum-styled display cabinet, which currently contains meteorites, "meteorwrongs" (non-meteorite samples which superficially resemble meteorites), moon [1] and Mars [2] soil simulants, models of various spacecraft, books, and "tutorial" placards about the contents. This display varies over time. Along with this display we offer brochures and pamphlets about

meteorites and upcoming lectures. Additionally, the University Museum has a permanent display of meteorites, including the Paragould meteorite, and has had many special displays relating to space science, including displays of space-related artwork, NASA technology, and Martian meteorite samples.

We have also developed displays of posters and informational updates about current and upcoming NASA missions, such as NEAR and the Mars Global Surveyor. Along with these transient displays we have a permanent display of cathodoluminescence mosaics with informational text that reflect a large part of our research on meteorites.

**The Barringer Lecture Series:** We have established a lectureship series in conjunction with the physics and geology departments and the University Museum. Speakers are prominent members of the space science community with a wide variety of backgrounds and interests. The lectures are advertised to the public *via* the University Museum's usual promotional materials and the local media. In the past seven years we have had 14 speakers and we will soon be publishing a book of these lectures.

**Public Education *via* the World-Wide Web:** Perhaps the biggest impact we have had on public education has been through our homepage

(<http://www.uark.edu/depts/cosmo/cosmo.htm>) on the world-wide web. Our group has offered a free meteorite identification service since the early eighties, but this was a very minor service until our page went online in late 1996. At that time, the rate of requests we received increased five-fold. Since 1989 we have received 138 rock samples for identification, with about 85% of those being in the last 2½ years (Fig. 1). Going online has also diversified the geographical area from which samples and requests for information are received (Fig. 2); prior to 1996, all

inquiries received were either from Arkansas or a nearby state.

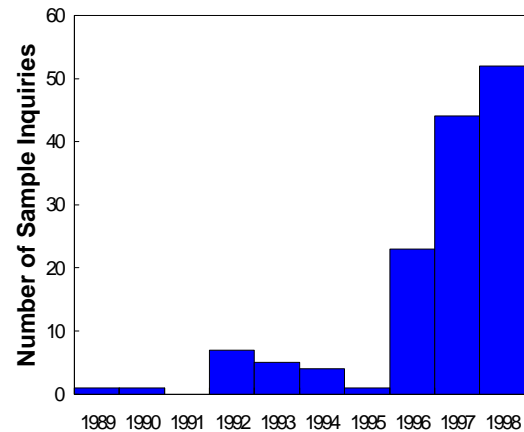


Fig. 1 Number of inquiries about sample identification received for the last nine years.

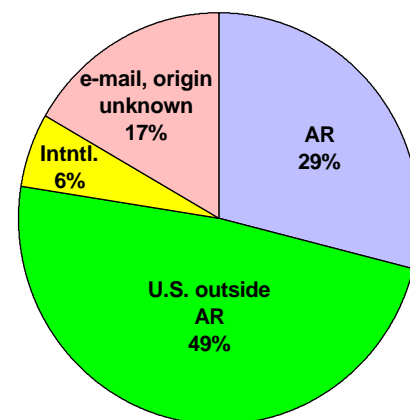


Fig. 2 Geographical distribution of requests for sample identification.

**References:** [1] McKay D. S. et al. (1993) *LPS XXIV*, 963-964. [2] Allen C. C. et al. (1997) *LPS XXVIII*, 27-28.

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