Professional Honors, 2002

Mary Anderson accepted a three year appointment as Editor-in-Chief of the Journal *Ground Water*. Published by the National Ground Water Association, *Ground Water* is one of the premier hydrology journals with a circulation of over 9500.

Jean Bahr has been named GSA's 2003 Birdsall-Dreiss Lecturer. This distinguished named lecturer is selected annually by the Hydrogeology Division of the Geological Society of America. Jean will be speaking at approximately 40 universities during spring 2003. She will also present a lecture at the annual GSA conference. See Jean's personal website at http://www.geology.wisc.edu/~jmbahr/index.html for a tour shedule and abstracts.

In November Jean was named a "National Associate" of the National Academies in recognition of "extraordinary service" on past and current National Research Council boards and committees. This is a lifetime appointment.

Alan Carroll is on the International Association of Limnogeology Board and the editorial board for *AAPG Bulletin*. Alan was granted tenure in 2002.

Dave Clark was designated a lifetime National Associate of the National Academy of Science.

Chuck DeMets and **John Valley** are included in the ISI list of "Most Highly Cited" scientists. This new searchable database includes 244 researchers in Geosciences. At present, 15 science faculty from all science disciplines at UW-Madison are so designated. ISI also compiles Science Citation Index, which reviews all major journals and includes names of approximately five million scientists worldwide. The most highly cited are selected based on journal references to their published work between 1981 and 1999. See http://isihighlycited.com/home.cgi.

Short biographies of **Bob Dott** and **John Valley** are included among 191 "Notable Scientists" in the book *A to Z of Earth Scientists* by A. E. Gates (2003). The UW-Madison is well represented in this authoritative volume. Other Geobadgers honored include: **Richard Alley** (PhD 1987), **Florence Bascom** (BS 1884, MA 1887), **Marjorie Chan** (PhD 1982), **Maria Luisa Crawford** (visiting professor 1987-88), **Ed Landing** (BS 1972), **Frank Spear** (Weeks Professor 1996), **William Twenhofel** (faculty 1916-45), and **Alice Weeks** (generous supporter of the department).

Clark Johnson is organizing a Mineralogical Society of America short course for 2004 and will edit a book on "Stable isotope geochemistry of intermediate-mass elements." This is a new field of geochemistry that includes iron isotopes, which he and **Brian Beard** have pioneered. Clark and Brian are also members of a NASA Astrobiology Institute that supports their iron isotope studies. One goal is determining if meteorites provide evidence of extraterrestrial life.

Dave Mickelson was reappointed by Governor Doyle to the Wisconsin Board of Professional Geologists. He was also appointed to the editorial board of the journal *Boreas*.

Cliff Thurber was reappointed by the *Journal of Geophysical Research* for a second term as a *JGR-Solid Earth* associate editor. With coauthors Richard Aster and Brian Borchers of New Mexico Tech, Cliff has recently contracted with Academic Press to publish a textbook *Parameter Estimation and Inverse Theory*.

Basil Tikoff's tenure case was considered by the Physical Sciences Divisional Committee, and the vote was unanimous in favor. This, of course, is advisory to the Dean and the Regents, but after this step, no one expects any surprises. Congratulations Basil!

Herb Wang is on the steering committee for the EarthLab initiative, an NSF underground research laboratory for earth sciences that is a part of a neutrino laboratory for physics.

Jean Bahr, left, and Sue Swanson, center, talk with Carol Ekstrom at GSA. (photo by Dave Mickelson)

MSA and Macelwane Awards to John M. Eiler

UW-Madison alumnus, **John M. Eiler** (MS 1991, PhD 1994), is the 2002 recipient of two prestigious society awards for research accomplishments before the age of 35. At the GSA Meeting in Denver, he received the MSA Award from the Mineralogical Society of America. **John Valley** was the presenter (see photo, right). At the AGU meeting in San Francisco, he received the Macelwane Award from the American Geophysical Union. Ed Stolper (Caltech) was the presenter (*EOS* Feb. 4, 2003, p. 39-40). John is also the recent recipient of a Packard Fellowship. The topics of his research range broadly from the stable isotope geochemistry of the Earth's mantle to the atmosphere on Mars.

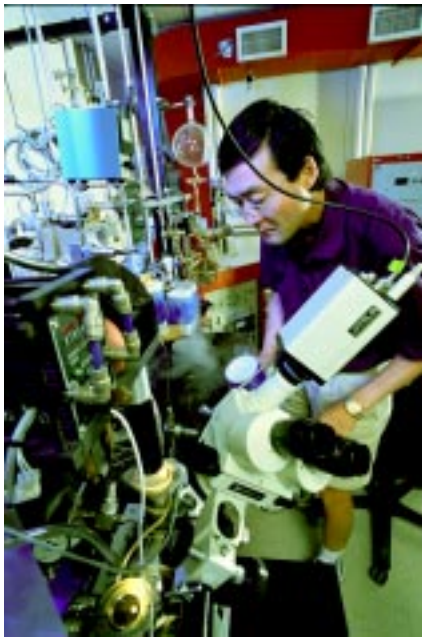
John Eiler (center) receiving the MSA Award from the President of the Mineralogical Society of America, Rod Ewing (right) and citationist John Valley (left).

The following excerpts are from the MSA Award presentation and will be published in *American Mineralogist* in 2003.

"As a graduate student in Madison, John made major contributions to formerly intractable questions relating to the mechanisms of stable isotope exchange in minerals. John recognized that previous models of isotope exchange are not realistic and he formulated a new theoretical basis for inter-mineral exchange. John's Fast Grain Boundary diffusion model is the most comprehensive available. It is the first to properly consider mass-balance in multi-phase systems. And it is still the state-of-the-art today, 10 years after publication.

John was not content to only theorize. He devised tests for the Fast Grain Boundary model at a time when such predictions were largely untestable. To do this required oxygen isotope analysis at the scale of an electron probe beam spot (5-20 mm). But in situ isotope measurements required an ion microprobe and in 1990, ion probes were not capable of the precision necessary for useful oxygen isotope analyses on Earth. This has dramatically changed now: sample sizes are one million times smaller (ng vs. mg), precision by ion probe is 100 times better, and precision of 0.1‰ is within reach. John's thesis helped pioneer these improvements. It became possible to analyze mineral grain boundaries, and to make core to rim traverses. It has been shown that many minerals are isotopically zoned or heterogeneous. John predicted zoning, he was the first to demonstrate its existence in nature, and he has told us what it means. As a consequence, we have new tools that enable us to properly interpret multiple events in the complex thermal and fluid history of a rock.

After Wisconsin, John went to the California Institute of Technology, where he is Assistant Professor of geology. John turned his attention to basalts. In the words of one letter writer, "John Eiler entered the field of mantle geochemistry like a monkey with a machine gun." That was a good thing. In two short years, John demonstrated new approaches for oxygen isotope analysis in ocean island basalts using a laser. His high quality data swept aside previous studies. He established correlations where none were expected. And he published a seminal series of papers that reinterpreted the end-member mantle reservoirs for these important volcanic rocks. He discovered that the mantle is far more homogeneous in $\delta^{18}O$ than previously thought. This was surprising given ongoing recycling of crustal material into the mantle. However, there are important anomalies. While EM1 ("enriched mantle") is like normal mantle, EM2 contains a significant component of subducted sediment. This is not detected by other tests. A different letter writer said, "John Eiler revitalized the field of mantle geochemistry by providing a powerful new tracer".



Visiting Professor Chungsheng Wei, University of Science and Technology, Hefei, China, working in the Stable Isotope Laboratory to analyze oxygen isotope ratios in granites from eastern China. (photo by Wolfgang Hoffmann)