to more than five thousand undergraduates. I will be retiring at the end of the summer of 2003. The time has flown.

Jane and I spent a month in southern France during the summer of 2002. I collaborated with Andy Lotter of the Netherlands on a chapter for a book of pollen analytical techniques. **Phil Brown** covered a couple of Geol. 101 lectures for me while I attended a conference in London, and I have just completed a paper for the proceedings volume. Ken Lange (former Naturalist at Devils Lake State Park) and I ran a day's trip to the Baraboo region for the Botanical Society of America that met in Madison during August. I sold my 1971 MG Midget to thin-section maker (and former student) **Brian Hess**, so it will retain its affiliation with the department. I have had remarkably fine colleagues here at Madison; it really is a great department.

Dave Mickelson

It's been a busy year for the Quats! We are in our final year of our southern Laurentide Ice Sheet project and postdoc **Andreas Bauder** is working hard to get some results from a 3-d model we started to use this year. **Cornelia Winguth** continues to work as an Assistant Scientist on the Scandinavian Ice Sheet project, along with taking care of a baby boy born this summer while on their family vacation to Lake Superior. In January Vin and I went to Santa Cruz to work on organizing a volume on U.S. eroding bluff shorelines and to enjoy warm temperatures and sunshine. **Anders Carlson** finished his MS thesis and has moved on to Oregon State University for his PhD. Field work began in St. Croix County, where **Hans Hinke** is doing an MS thesis. I then spent a week in the Uintas with **Ben Laabs** working on an evaluation of the geomorphology and glacial history of the south side of the range. Then Vin and I went to Norway and Sweden to work with **Jessica Darter** and colleagues from the Norwegian Survey. Our shoreline work continues with **Lindsay Anderson** planning to finish her thesis in 2003. Summer was saddened by the death of my mother in July, and we spent time in Massachusetts in late July. A month later, son John, who graduated in May, moved to Cambridge where he now works at Harvard. Amy continues to live in Milwaukee. Our daughter Becca, married in September, and they live in Middleton. Along with all of the above, I finally had my barn built in Dodgeville, a good home for my six old tractors! The year ended with a trip to Patagonia with **Danny Douglass, Brad Singer,** and **Mike Kaplan**, former Weeks Postdoc now working in Scotland. We had a Christmas dinner of frozen pizza cooked at a gas station on our way across Argentina!

It was great to see many of my friends at GSA in Denver, where the former Quats got together for dinner one evening. Try to make the next one! Photos are at:

http://www.geology.wisc.edu/alumni/current_events/quat_dinner.html

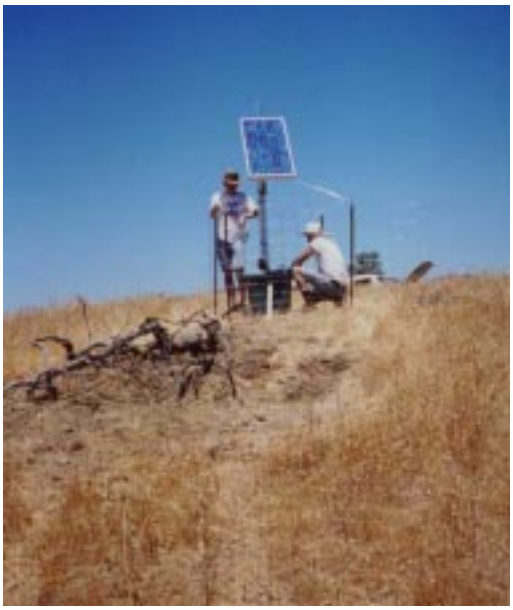
Toni Simo

The year 2002 found me traveling between Barcelona and Madison as I continue my teaching and research at UW-Madison part-time and complete research avenues at the University UPC in Barcelona. I found this interaction between two worlds stimulating and challenging. Research in the carbonate group continues active in many area and topics. In May, in less than 48 hours, **Norlene Emerson** (PhD)**, Liz Leslie** (MS)**, Kate McColgin** (MS) and **Michelle Stoklosa** defended successfully their theses and moved on to different projects (Norlene is teaching at UW-Richland Center, Liz is doing a PhD with **Clay Kelly**, Kate works for Conoco-Phillips, and Michelle is at the U. Idaho). Aspirins circulated freely during the talks to diminish the carbonate overdose. With Norlene ends a time of intense work in the Decorah Formation. Luckily, **Steve Beyer** (with **Byers**) and **Lauren Chetel** are taking the lead of new Ordovician studies in Iowa and Minnesota. Michelle and Kate did a fantastic job in the Oligocene and lower Miocene in the SE of Spain to realize that better age is needed. This has become a new project in collaboration with the University of Barcelona in establishing a new chronostratigraphy for the western Mediterranean and Oman based on large benthic foraminifera.

Lauren Chetel and **Wasinee Aswasereelert** jointed the program in the fall. Lauren (MS) is working with **Brad Singer** and me in the age dating of Ordovician K-bentonites to establish an Ordovician chronology, estimate rates of surficial processes on epeiric seas, and tie the stratigraphy to Taconian orogenic events. Wasinee is doing research in the local Cambrian section, the Eau Claire Formation, an aquitard, of interest to the Wisconsin Geological Survey.

Leonardo Piccoli continues his thesis dedicated to bridge the gap between outcrop studies and seismic via GPR and synthetic seismic. Excellent GPR (thanks to **David Alumbaugh, Neal Lord, Rob Pyzalski** and **Bill Unger** for their involvement) results with penetration of 60 m in the Wolfcampian, Hueco Mountains have our hopes high as we are integrating this work with a recently donated Wolfcampian 3D seismic survey in the Midland Basin by Oxy (thanks **Bill Fitchen!**). Several oil companies have shown interest and are supporting a new survey in the Guadalupe Mountains. **Essam Sharaf** and **Martin Shields** continue to unravel the paleontology, sedimentology and basin evolution of the East Java Basin. This project is collaboration with **Alan Carroll** involved a second field season for Essam and me in remote areas of Java. However, this time we had the help of four Indonesians to solve logistic and field problems. The continuing deforestation of East Java allows the first detailed work on the exposed carbonate rocks, equivalent to prolific mound reservoirs in the subsurface. **Olga Rey** continues her work in La Luna mud rocks in Venezuela investigating the Cretaceous epeiric sea

Distinguished Lecturer Jerry Harris, left, chair of the geophysics department of Stanford University and David Alumbaugh, right, talked in the Cline Lounge after Dr. Harris's presentation (Crosswell Seismic Profiling: The Decade Ahead) on Dec. 6, 2002. (photo by Mary Diman)



Lee Powell (kneeling) and Cliff Thurber (standing) completing the installation of a temporary seismic station on the San Andreas fault near Parkfield, CA. This is one of about 50 such installations that were part of a detailed study of the fault zone structure at the proposed site for the San Andreas Fault Observatory at Depth (SAFOD). (photo by Steve Roecker, RPI)

paleoceanography of this important oil source rock. In Spain, I am advising a PhD student working on a recent delta, which is an aquifer with problems of salt intrusion. It is a very interesting project as we are applying reservoir characterization techniques in a reservoir that we have historical dates and we can model in great detail sedimentary processes. GPR and seismic imaging are on the horizon.

The teaching front has been dedicated to improve the new curriculum courses, Introduction to Geologic Structures, and Geologic Evolution of the Earth. I am co-teaching these courses with **Basil Tikoff** and we are trying to expose the freshman and juniors to geology in a dynamic way; hopefully they will be interested and become geology majors.

Brad Singer

2002 marked the publication of papers in the *Journal of Geophysical Research and Earth and Planetary Science Letters* addressing global paleomagnetic field behavior during the past one million years based on the first $^{40}Ar/^{39}Ar$ ages determined in the UW-Madison Rare Gas Geochronology Laboratory. Thus, the laboratory that I established in 2000 is on the map, with several papers on paleomagnetism, paleoclimate, stratigraphy, volcanic petrology and structural geology in the press. Some of this work was showcased in 4 presentations at the GSA meeting in Denver and four more at the fall AGU meeting in San Francisco.

Mike Smith defended his MS thesis on the geochronology of the Green River Formation in Wyoming (keep your eyes on GSA Bulletin for this work) and is now working on an NSF funded project on Eocene lacustrine basin evolution in Wyoming and Utah for his PhD with **Alan Carroll** and me. **Brian Jicha** completed his MS thesis using radiogenic isotopes to constrain the origin and timing of volcanism at three Aleutian Island arc volcanoes. This work reflects extensive collaboration with **Clark Johnson** and **Brian Beard**, particularly with Hf isotopes measured on the new Multicollector ICP-MS. **Brian Jicha** submitted his thesis to the *Journal of Petrology* and began to focus on a PhD dissertation on the origin and time scales of volcanic and plutonic processes in the central Aleutian arc.

PhD student **Danny Douglass**, Weeks Post-doctoral Fellow **Mike Kaplan** and I traveled to southern Argentina twice in 2002 for our NSF funded project to establish a chronology and terrestrial paleoclimate record for Pleistocene glaciations of the Patagonian Andes using in situ cosmogenic nuclides. **Dave Mickelson** and **Jim Bockheim** (UW professor of Soils Science) joined us during the second field campaign. **Mike Kaplan** was awarded a prestigious Fellowship from the Royal Society of London and is now working at Edinburgh University, Scotland in collaboration with Danny and myself.

In July, **Dr. Kyle Min** joined the department as an Assistant Research Scientist and assumed responsibilities of managing the Rare Gas Geochronology Laboratory. This is no small feat because in addition to the PhD projects that **Mike Smith** and **Brian Jicha** are pursuing, **Miriam Barquero-Molina** and **Melissa Harper** are undertaking MS thesis projects on the chronology of Plio-Pleistocene volcanism in the Central and Southern Volcanic Zones of the Chilean Andes, **Lauren Chetel** is attempting to obtain a precise chronology for Ordovician bentonites and associated strata in the Upper Mississippi Valley in collaboration with myself and **Toni Simo,** and **John Hora** joined the group from UCLA with plans to explore for his PhD the chronology and time scales of subvolcanic magma differentiation within 70 km thick continental crust of northern Chile. The success of the Rare Gas Geochronology Laboratory is further reflected in the collaborative research projects underway with scientists and students at 10 institutions from coast to coast in the USA and in Italy, France, Germany, and Bulgaria. I am looking forward to a decision regarding my tenure and working together with everyone to carry forward the effort in geochronology during 2003.

Cliff Thurber

It is hard to imagine a more challenging and rewarding year than 2002 was for me. Drilling for the 2-km "San Andreas Fault Observatory at Depth" (SAFOD) Pilot Hole at Parkfield, CA, took place over the summer, aimed at setting the stage for drilling the main SAFOD fault-crossing hole (part of the EarthScope project). We finished off our seismic field project on the San Andreas Fault at Parkfield with a literal bang—with our collaborators at RPI, we carried out a major active-source seismic experiment in October, involving 16 shots of 100 to 500 lbs in size. We are in the process of refining our 3-D model of the seismic velocity structure around the SAFOD drill site, and are steadily improving the accuracy with which we can determine the locations of clusters of small earthquakes (magnitude about 2) that are the target for SAFOD drilling. **Lee Powell,** grad student **Kyle Roberts,** and post-doc **Shirley Baher** participated in this project. We continued work on a major nuclear explosion monitoring project, involving former post-doc **Charlotte Rowe,** new post-doc **Wayne Du,** grad student **Haijiang Zhang,** and Assistant Scientist **Bill Lutter**. This project involves the development of sophisticated tools for accurate real-time location of seismic events. My volcano seismology research continued along two fronts. Work on the deep structure of Kilauea volcano's East Rift Zone using seismic velocity and attenuation tomography was carried out by grad student **Samantha Hansen,** who defended her MS thesis in December. Our work on high-precision location of volcanic earthquakes at the Soufriere Hills volcano, Montserrat, has produced dramatic improvements in the determination of