

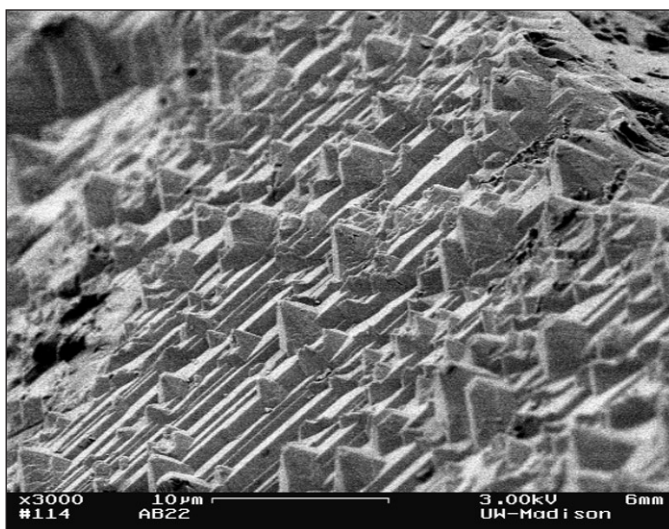
encountered while working in western China.

At the other end of the cultural and climatic scale is the Brooks Range of northern Alaska, where Marwan Wartes is working on his PhD. His project, generously supported by Anadarko Petroleum Co., involves the Lower Cretaceous Fortress Mountain Formation in the Brooks Range foothills. This unit contains chert-pebble conglomerate facies that represent the earliest coherent record of coarse-grained clastic sediments to be shed from the Brookian orogen, and is also a potential petroleum reservoir. Marwan is working its sedimentology and reservoir properties, as well as trying to link chert clasts to specific “allochthons” in order to better understand the structural evolution of the Brooks Range. During the time I spent with him in the field I was impressed by the greatly increased level of exploration activity in the Brooks Range foothills, which apparently was being driven in part by talk of building a gas pipeline. We shared a camp with Anadarko, the Alaska Division of Geological and Geophysical Surveys, and the U.S.G.S., which altogether totaled about 25 people and three helicopters.

#### ❖ Chuck DeMets

The past year was wonderful across the board for my family and professional life. My family and I enjoyed several relaxing vacations, mostly to northern Wisconsin for assorted skiing and fishing and to Massachusetts for family visits. Our three kids are wonderful travelers and a joy. We also added a new family member, one who is furry, enthusiastic, and very energetic: Pandora, a golden retriever. Although managing chaos is a contradiction in terms, it seems to be how my wife and I spend much of our time.

My research efforts in 2001 were considerable and far-flung. I spent two weeks in March working in Jalisco, Mexico with staff member Bill Unger. I sent another staff member Neal Lord to Jamaica in February to work with my Jamaican colleagues on a multi-year seismotectonic study and to Oaxaca, Mexico in June to work with my Mexican colleagues on a new multi-year earthquake hazards project. I bought four new GPS receivers and sent these to Jamaica and Mexico for permanent, continuous observations in the field areas where I’m working. The goal in each of these field areas is to study and model zones of active faulting, with a goal of better understanding the mechanics and kinematics of active crustal deformation. In June, Raytheon Corporation enticed my talented post-doctoral fellow Tim Masterlark to move to South Dakota, leaving



*Micron scale pyramids of anhydrite deposited upon anhydrite phenocrysts within the Pinatubo magma chamber prior to eruption. Photo by John Fournelle.*

me searching hard for a bright new graduate student with an interest in faulting, earthquakes, and field work in warm sunny tropical locations.

#### ❖ John Fournelle

2001 saw the fruition of three projects I have been working on with others here in Weeks Hall. First, a new project with Ilya Bindeman and John Valley, focusing on a suite of samples I collected in 1989 at Fisher Caldera in the Aleutians. These are the first low  $\delta^{18}\text{O}$  samples from the Aleutians, and a paper on this project appeared in late 2001 in *JVGR*. Second, the senior thesis manuscript of Ryan Jakubowski—reporting on our discovery of magmatic vapor deposition of anhydrite was submitted to *American Mineralogist*. I had wrapped up one major loose thread in July,



*Postcard-perfect to a geologist—one of Chuck DeMets’ high-precision GPS positioning antennae seems to be enjoying a day at the beach near Oaxaca, Mexico. Photo by Neal Lord.*

collaborating with Patrick Camus at ThermoNORAN in Middleton, using his electron backscatter diffraction apparatus. Third, a manuscript based on Eric Carson's MS, tephrochronology of the Cold Bay, Alaska area, has been accepted by *Quaternary Science Reviews*.

I was called upon extensively by researchers in Prof. Chang-Beom Eom's group in Material Science to evaluate MgB<sub>2</sub> thin films they were attempting to synthesize in the race to new superconductors. This pushes the capabilities of our electron microprobe and requires operating the instrument at rather low accelerating voltages (down to 3 keV) at times. In June I conducted a 2 1/2 hour interview with emeritus professor Lloyd Pray. I presented a report of my Aleutian oral history project at GSA in Boston.

❖ Clay Kelly

Please see *New Faculty* for Clay Kelly's report.

❖ Louis J. Maher

I taught Geol. 101 (General Geology) and Geol. 722 (Quaternary Pollen Analysis) in the spring. During the fall I did Geol. 101 again and helped Basil Tikoff with Geol. 202 (Introduction to Geologic Structures), one of the new majors' courses. Geol. 202 involved a lot of field trips, both local and out of state. I really enjoyed the excursion to the Badlands and the Black Hills. The weather was perfect, the geology was excellent, and my very capable Geol. 101 TAs handled the lectures I missed in Madison.

Eric Grimm, an old friend and colleague from the Illinois State Museum, mentioned that he was finding pollen fluctuations in a number of his sites in Illinois that appeared to match an anomalous interval in my diagram from Devils Lake. The curve of pollen from ash trees rose when spruce declined at the end of the glacial period. Then ash abundance dropped drastically while spruce pollen increased for a time before ash continued its postglacial rise. In the original Devils Lake C-14 chronology, the zone of low ash pollen dated from just after the destruction of the Two Creeks Forest by the Great Lakean ice advance that deposited till over the forest bed along Lake Michigan. The total influx of pollen during this interval was quite low in Devils Lake which suggested a time of cool wet weather. I have always been proud of the Devils Lake C-14 dates that were done by Margaret Bender at the Center for Climate Research's C-14 lab here in Madison in the late 1970s. They were dates run on the bulk sediment, but the 4-inch diameter cores allowed the sample to come from an interval of just a few centimeters, and the smooth curve of increasing age with depth looked very convincing. But in recent years Accelerator Mass Spectrometry (AMS)

has allowed a tiny organic sample, such as a single seed or needle, to be dated. It has been noted that bulk sediment dates are often older than AMS dates, probably because the bulk samples may contain rebedded material. Eric Grimm was using AMS for his Illinois sites, and the low ash pollen interval appeared to be about a thousand years younger than in Devils Lake. Luckily, the original Devils Lake cores were still in the cold room in the basement of Weeks Hall. I spent part of the summer working with those cores looking for organic matter to date. The place of each pollen sample was marked with a short length of plastic drinking straw, so I could locate



*At the GSA Quats dinner, left to right, from the top: Danny Douglass, Lou Maher; Jeff Munroe and Sarah Principato; Steve Gaffield, Rich Whittecar and Todd Rayne. Photos by Dave Mickelson.*