Faculty Activities in 2000

❖ Mary Anderson

Keeping track of departmental activities as department chairman was a stimulating experience during the year 2000 (and the meeting of the Alumni Board in New Orleans in April was not only productive but also a lot of fun), but my scientific life was even more exciting. In June, I traveled to Japan for the Western Pacific Geophysics meeting where I presented a paper (co-authored by Ken Bradbury and Tim Eaton) on the use of temperature measurements in hydrogeological investigations in Wisconsin. I enticed former hydros Charlie Andrews, Erik Webb, and Chunmiao Zheng to present papers at the meeting as well. Husband Charles and I took some vacation time to do a little sightseeing in the Japan Alps. In October, I participated in a workshop on the interaction between ecology and hydrology as a member of the Committee on Opportunities in the Hydrological Sciences, sponsored by the National Research Council. We are currently planning a workshop on groundwater fluxes at interfaces (e.g., recharge and discharge). The highlight of the year, however, was a fantastic symposium held in my honor at the GSA meeting in Reno. The symposium was convened by former students Chunmiao Zheng, Charlie Andrews, and Ken Bradbury. Current PhD students Wes Dripps and Sue Swanson presented papers as did many former hydros. Many other former students also attended the symposium, reception and dinner. The symposium showcased research that has roots in Wisconsin; the reception and dinner provided an opportunity for a great reunion. The week before the symposium, I was honored to accept the C.V. Theis Award, given by the American Institute of Hydrology at their annual meeting in Research Triangle Park, North Carolina. Teaching groundwater modeling continues as does research on recharge estimation and groundwater-lake interaction. Dr. Quanlin Zhou joined the group as a Weeks postdoc and is helping with a new effort on using temperature measurements to delineate flow systems and estimate recharge rates.

❖ Jean Bahr

The year 2000 saw the start of an interdisciplinary Water and Watersheds project funded by the EPA and involving faculty and students from a number of departments on campus. The overall goal of this project is to evaluate hydrologic, ecologic, and social processes that may contribute to degraded water quality and reduced water availability as agricultural watersheds are converted to urban and suburban uses. I am collaborating with UW alumni **Ken Bradbury** (WGNHS) and **Randy Hunt** (USGS) in the hydrogeologic aspects of this project. Graduate students **Sue Swanson**, **Kristin Anderson**, **Dawn Chapel** and **Laura Parent** are contributing to this project through a field and modeling case study of the Pheasant Branch watershed, which complements our DNR funded work in the Token Creek and Nine Springs watersheds. Our work was featured at GSA in an invited talk I presented in a session on groundwater-surface water interactions and in one by Sue Swanson in the session honoring Mary Anderson.

Three of my advisees completed MS degrees in 2000. **Pete Taglia** perfected an in-situ microcosm method to measure field-based rates of intrinsic and enhanced biodegradation. The results of his final experiment demonstrated significant spatial variability of degradation processes and rates. Such spatial variability can complicate the assessment of "natural attenuation" as well as the design of engineered bioremediation. **Tara Root** used inverse geochemical models and data on groundwater chemistry to assess the feasibility of flow paths from Yucca Mountain to a possible discharge area at Franklin Lake Playa. Her results indicate that a number of flow paths converge at the playa from distinct upgradient sources and that these sources could include Yucca Mountain. Using hydrologic records and water chemistry data, **Shaili Pfeiffer** identified areas of groundwater, river water, and local recharge mixing in a lowland savanna along the lower Wisconsin River in a study designed to

photo courtesy Mary Anderson

Charlie Andrews, left, Mary Anderson and Chunmiao Zheng. The photo was taken at the reception that followed the symposium held in May's honor at the GSA meeting in Reno. Read more about the symposium on page 35.