Xu Liang
(1963-Present)

Associate Professor
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"With strength and love for your work, you will be able to overcome the challenges." Xu Liang, 2006.

Overview

Xu Liang began her academic career at Sichuan University, formerly Chengdu University of Science and Technology, in China. After earning both a bachelor's degree and master's degree in engineering, Liang moved on to the University of Washington, where she completed a second master's degree in environmental science and engineering and a Ph.D. in hydrology and water resources. Since completing her degrees in 1994, Liang has spent time at Princeton University as a post-doctoral researcher and at the Joint Center for Earth Systems Technology, NASA/University of Maryland as a research scientist, before joining the University of California, Berkeley as a faculty member. Liang's environmental and academic career path was strongly influenced by her family—both of her parents are educators—and by her compassion for human beings.

This interview was conducted in 2015.

Career

After completing her doctoral work, Liang was invited to work as a post-doctoral researcher with a colleague of her advisors. Traveling to the opposite coast, Liang worked in the Department of Civil and Environmental Engineering at Princeton. While there, she further developed the hydrology-based Variable Infiltration Capacity (VIC) land surface model. She also designed Phase-2C experiments for the Project for Intercomparison of Land-surface Parameterization Schemes (PILPS), and organized an international workshop on PILPS Phase-2C with her advisors. The PILPS Phase-2C Intercomparison Experiment was the first to compare the current generation of land surface models at a regional scale. The international workshop allowed professionals to work together to assess the strengths and weaknesses of land surface models.

Liang joined the University of California, Berkeley faculty in 1998 with the ambitious goal of discovering the fundamental laws that govern water and energy cycles. She hoped that a better understanding of those processes, and how they influence the transport and cycling of nutrients

and pollutants across different spatial scales, could lead to more accurate prediction of weather, drought, and floods. Liang especially strives to develop quantitative frameworks that connect the processes of different spatial scales across the atmosphere-vegetation-land-soil continuum. "These connections will allow us to better understand the intricacies of interactions and feedbacks among atmosphere, vegetation, land, and soil as an integrated system," she explains. Her research has already resulted in numerous publications and accolades, including the selection of the VIC model as one of four models used by North American Land Data Assimilation Systems.

While Liang is devoted to understanding atmospheric and landmass interactions, she places equal importance on her teaching and mentoring responsibilities. When she arrived at Berkeley in 1998, there were no other surface water hydrologists in the department. It was Liang's goal not only to develop strong hydrology courses, but also to develop and build a surface water hydrology program in the department. At Berkeley, Liang has graduated four Ph.D. students and currently advises another three Ph.D. students. In 2000 another Hydrology professor joined the program, and together they have worked with at least twelve doctoral students.

Contributions

Liang has already made significant contributions to the field of hydrology, and in 2006 she will add to that list when she begins work on a surface hydrology program at the University of Pittsburgh. However, the path has not always been easy. She has dedicated tremendous energy to convincing people why surface water hydrology and water resources are important, and notes that that energy could have been channeled more efficiently into creating solutions to environmental problems. Nonetheless, Liang believes that challenges are a natural part of her work, one that can and should be dealt with. "With strength and love for your work, you will be able to overcome the challenges," she says.

Liang's work has been influenced and assisted by many great hydrologists, including her advisors. They provided tremendous support and encouraged her to pursue a career in academia, and she especially appreciates their support of her as a foreign woman in science and engineering. Liang notes that the academic environment can be very challenging and difficult; thus, it is crucial to have a supporting environment. "I feel very lucky to know and have the support of so many Hydrologists and atmospheric scientists," she says.

Advice to Young Professionals

Liang strives to recruit women and minority students to her program (50 percent of her graduated Ph.D. students are women). Further, she encourages students to take classes outside of the department to strengthen their interdisciplinary knowledge and understanding of environmental processes. Under her guidance, two students have received the prestigious Berkeley Atmospheric Science Center Research Award three times. Finally, she actively encourages students to participate in programs sponsored by the National Science Foundation, especially those pertaining to hydrology. "Hydrology is a great field with a bright future," she says. "I encourage everyone to consider pursuing a career related to water."