

Princeton University

Honors Faculty Members
Receiving Emeritus Status



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The biographical sketches were written by
colleagues in the departments of those honored.

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Faculty Members Receiving Emeritus Status

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John Suppe



John Suppe arrived in Princeton in 1971 as a young man in the heyday of plate tectonics. He was assigned responsibility for teaching GEO 316, the undergraduate course “Structural Geology and Tectonics,” which largely dealt with the deformation that takes place along plate boundaries. Eventually he published a widely influential textbook of the same name. From the beginning, GEO 316 was taught in the spring semester so that the course could culminate in a field trip to Vermont during reading period to examine on the ground evidence of an ancient Ordovician plate tectonic collision between an island arc and North America. This annual trip continued until his departure from Princeton 36 years later, even making it to Vermont and back in the odd-even days of gas rationing in the energy crisis of the late ’70s. John was fond of asking his students in the field to imagine, arguing from the evidence at hand, what it would be like to go back in time to the Ordovician and witness these plate tectonic interactions in actuality. This was a serious, subtle, and many-faceted question, especially because the remains of arc-continent collisions are extremely common in ancient mountain belts like the Appalachians, but these collisions occur with such geologic rapidity that there are only a few places where arc-continent collision can be observed on Earth today, most notably Taiwan and Timor.

John had the opportunity to “go back to the Ordovician” when he went to Taiwan in 1978 as a Guggenheim Fellow to investigate the present-day collision between the Philippine-Sea plate and China, which produces the mountainous island of Taiwan. This proved to be exceedingly fruitful, not just for John but also for a number of Princeton students and a half-dozen faculty, as well as the larger international research community who eventually became involved in

research in Taiwan. When John began he was nearly the only foreigner working in Taiwan, but by now this small island has become a well-instrumented international tectonic laboratory that is one of the prime sites for tectonic research in the world. Many of the most talented geologists and geophysicists now work on active processes occurring in Taiwan and surrounding regions of the Far East. In summer 2007 John retired from Princeton to become the Distinguished Chair Research Professor at the National Taiwan University in Taipei to take part in the current rapid growth in quality and quantity of science in the Far East.

Taiwan was just one of John's research interests, but was the inspiration for a number of his fundamental and highly cited contributions. One of his goals when he went to Taiwan in 1978 was to test an idea inspired by the senior thesis of Dan Davis '78 that the mechanics of mountain belts can be quantitatively treated as analogous to the wedges of soil or snow that form in front of a moving bulldozer or snow plow, with their tapers reflecting their internal strength and the frictional resistance of their basal sliding surfaces. This became the highly successful Davis-Suppe-Dahlen theory of critical-taper wedge mechanics, also involving contributions from his late faculty colleague Tony Dahlen. Taiwan was also the initial inspiration in 1978 for the field of fault-related folding that John founded, which is the theory that the large folds of the upper crust are produced by propagation and displacement of faults, commonly growing in large earthquakes. This theory, beyond its fundamental insight into deformation of the crust, has significant applications in assessing earthquake hazards in areas of hidden faults such as Los Angeles and in petroleum exploration and development. Taiwan also was the inspiration for John's recognition of the existence of erosionally steady-state mountain belts that erode as fast as they grow, which is a subject of much present research. John's important contributions have been at the interface between data and theory, based on the belief that the richest insight is often inspired

by looking closely at the raw phenomena of nature with a theoretical mindset. His contributions and those of his students and other collaborators have come from work in California, Spain, western China, Sumatra, the Philippines, the Gulf of Mexico, Japan, Nigeria, and the planet Venus.

John has been a visiting professor at National Taiwan University, Caltech, the University of Barcelona, and the Ludwigs Maximilian University, Munich, and is an honorary professor of Nanjing University. He is a member of the National Academy of Sciences, and was awarded the Research Prize of Alexander von Humboldt Foundation and, most recently, the Wilbur Lucius Cross Medal for distinguished alumni of the Graduate School of Yale University. He was the Blair Professor of Geosciences at Princeton from 1988 to 2007. As department chair, John had the vision to steer the geosciences department to become one of the leading centers for research in the new field of biogeochemistry and environmental geosciences, which is the application of microbiology and molecular biology to biologically mediated chemical processes in the Earth, such as global warming. As a result, Princeton graduates in biogeochemistry are now faculty in the leading departments nationwide, and the department is engaged in cutting-edge science ranging from geophysics to climate change.