

Myrl Beck, Jr., Professor Emeritus of Geology in the Geology Department of Western Washington University, passed away at age 89 on January 4, 2023 in Bellingham, WA. Over a 50+ year career, Myrl made a number of outstanding contributions to geological problems through application



of geophysical techniques- mainly paleomagnetism, but also including measurement and analyses of gravity and magnetic field data and numerical techniques. Myrl completed an MS in Geology at Stanford University in 1961, was employed as a geologist by Standard Oil and the USGS from 1962 to 1966, and completed his PhD in Geological Sciences at the University of California-Riverside in 1969. From 1969 onward he has been a member of the Geology Department's faculty at Western Washington University- earning promotions to Associate Professor in 1971 and Full Professor in 1974- retiring from teaching and appointed as Professor Emeritus in 1997. Based on his accomplishments as a

geologist and geophysicist Myrl was made a Fellow of the American Geophysical Union in 1984 and a Fellow of the Geological Society of America in 1995. During his career as an active member of the WWU faculty, Myrl established a paleomagnetism laboratory, advised 30 MS theses (8 of his thesis students went on to PhD programs and were hired as tenure-track faculty at other universities), all while teaching 6-7 courses per year at a regional comprehensive university (which was a state college in 1969 when he was initially hired). Over his career he published 106 papers- these have been collectively cited >2500 times, with a sustained annual citation average of >50. Several of these works have been highly influential in developing our understanding of tectonic and deformation processes in convergent-margin settings, and are recognized as fundamental contributions to geological applications of geophysics.

The primary focus of Myrl's research has been to examine processes of continental margin evolution and deformation using paleomagnetic methods. One of his most influential papers was his 1972 paper on the paleomagnetism of the Mt Stuart Batholith- co-authored with MS student Linda Nosen and published in *Nature Physical Sciences*. Although alternative explanations for the large and significant discordance between the paleomagnetic pole obtained from the Mt Stuart batholith and the pole expected if this rock unit had been an undeformed or untranslated portion of North America were discussed (including significant tilt of the batholith, or an error in the age of the measured magnetization), the preferred explanation- that these igneous rocks were intruded in a micro-plate that was located >2000 km south of its present location- was a novel and in many respects revolutionary finding. This paper- and the many studies that were inspired by it- in many ways formed the basis for using paleomagnetism and other geophysical techniques to develop and test hypotheses for continental margin construction by providing a quantitative methodology for determining the origin and paleogeographic history of tectonostratigraphic terranes. The many subsequent studies designed to test and refine the ideas set out by Myrl in 1972 led to the development of what is now referred to as the Baja-BC hypothesis, which has fundamentally changed our understanding of the tectonic history of the North American Cordillera.

Myrl's other most significant papers deal with some of the implications that followed from the Beck and Nosen (1972) work. This pair of single-author papers- one published in the *American Journal of Science* in 1976, the other in *JGR* in 1980- carefully documented the body of paleomagnetic results (many of these conducted by Myrl and his students) from the NA Cordillera, and concluded there was a consistent pattern of significant latitudinal displacement and clock-wise rotation for Mesozoic and Cenozoic rocks throughout much of this region. From these observations, Myrl proposed that regional, dextral shear due to the interaction of subducting oceanic plates and strike-

slip produced by this interaction. These two papers are Myrl's most highly cited publications, and for good reason. In these studies Myrl makes a convincing argument that the margin of North America is comprised of a wide zone of distributed deformation- which includes a mixture of internally deformed to relatively rigid blocks, and a network of dextral faults or fault zones. While these papers dealt with deformation that has spanned a significant amount of geological time, many of the processes and observations contained in these papers have been applied fruitfully to neotectonic problems using a combination of geodetic (GPS), paleomagnetic, and structural studies. On the basis of these two review papers, and the pioneering work of the 1972 work on Mt Stuart, Myrl can be credited as one of the key contributors to our present understanding of the dynamic history of the Cordilleran margin. Myrl has also worked on similar problems in an array of locations- including the South American Cordillera, the Aegean, and the southern margin of the Caribbean plate. Myrl's long and fruitful collaborations with students and colleagues José Cembrano and Connie Rojas, Alfredo García, Francisco Hervé in Chile were fondly remembered, and resulted in a number of significant publications and research findings, the most important of which was the recognition that, in contrast to the North American Cordillera, the Andean margin of South America lacked evidence for significant accretion of terranes or translation of portions of the continental margin. Collectively these works have also made significant contributions to our understanding of the tectonic history of these active margins. In retirement, another focus of his research was on the APWP for the Mesozoic of North America. He has also published several works describing the statistics and applications of shape analysis of directional datasets- these works (beginning in 1976) were predecessors for the many recent studies that examine the shapes of paleomagnetic data sets to evaluate other paleomagnetic or tectonic processes such as inclination error in sediments.

Myrl has made significant contributions to geoscience throughout his long career teaching geology and geophysics at a university where teaching is the primary institutional focus. Over his nearly 30 year teaching career, Myrl taught introductory geology, plate tectonics, and geophysics to literally thousands of students. This, in addition to his outstanding research accomplishments outlined above has also undoubtedly been one of his most important geophysical contributions to geology.

During his very active retirement years, Myrl served as a science volunteer for the Anza Borrego Desert State Park- Stout Research Center in Borrego Springs, CA, helping with field and lab work documenting and preserving fossil specimens and providing expertise on the geology and tectonics of the area to the other park personnel and to numerous visitors and visiting scientists. Following the death of his wife Linda, Myrl also devoted countless hours as a research volunteer and assistant to the Fred Hutchinson Cancer Research Center (Seattle, WA), working to maintain research databases and catalog and proof research archives. Myrl was well travelled, and could be counted on for good discussions of the various locales he visited, the ups and downs of the Seattle Mariners, a catalog of trees found on the WWU Campus (<https://treetour.wvu.edu/>), and has been an active and enthusiastic participant in YouTube discussions of plate tectonics and his contributions to our understanding of geology (<https://www.youtube.com/watch?v=BOCjRO5UI6E>) and (<https://www.youtube.com/watch?v=8REtqqq7Yjk>).

Myrl was preceded in death by his wife Linda Joyce Beck, and is survived by his three daughters Karen Beck, Linda Kelly, and Kristen Beck. A link to his obituary is here: [Dr. Myrl Emil Beck - Moles Farewell Tributes](#).