

Obituary Notice: Renowned Geophysicist and Professor: Victor Vacquier Sr.

Honored geophysicist and professor Victor Vacquier known for his fundamental contributions to geomagnetism and early acceptance of the theory of plate tectonics

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Victor Vacquier Sr., professor emeritus of geophysics at Scripps Institution of Oceanography, UC San Diego, died Jan. 11, 2009, in La Jolla, Calif., from pneumonia. He was 101 years old. Vacquier's distinguished science career included the invention of the fluxgate magnetometer and airborne and marine magnetic surveying, which led to the discovery of magnetic field patterns preserved in the seafloor.

"What always impressed me about Vic was that, in addition to his scientific confidence, he was always so energetic and enthusiastic about the work he was doing," said Scripps geophysicist John Sclater during a 1992 symposium at Scripps honoring Vacquier's work. "His interest in going to sea, ability to do high-quality work and to make it fun both for himself and for others was the keystone of the success of the marine geology and geophysics program at Scripps."

In 1957, Vacquier joined Scripps as a research physicist to direct the geomagnetics program in the Marine Physical Laboratory (MPL). In 1962 became a professor of geophysics at Scripps. During his oceanographic career, Vacquier led numerous ocean-going expeditions to obtain records of Earth's magnetic field in the three major oceans and to measure and map the flow of heat outward from the seafloor.

His pioneering research to map magnetic field patterns along the seafloor established that vast tracks of the oceanic crust in the eastern Pacific were offset at long linear fracture zones. His work in the western Pacific revealed that marine magnetic anomalies were offset by 1,250 kilometers (776 miles) across a fracture zone and was a key factor for the rapid acceptance of the theory of plate tectonics in the mid 1960s.

In the early 1960s Vacquier took over the shipboard measurement program for oceanic heat flow at Scripps. He and colleagues found evidence for elevated heat flow through the seafloor at the crest of the Mid-Atlantic Ridge and the Central Indian Ridge. In the extensive deep basins of the western Pacific and the eastern Indian Ocean he confirmed that the heat flow was nearly uniform and much lower than that at the mid-ocean ridges. Such measurements reinforced the principles of seafloor spreading and led to the now widely-accepted thermal models of the oceanic lithosphere.

Vacquier was born in St. Petersburg, Russia, on Oct. 13, 1907. In 1920, following the Russian Revolution, he and his family escaped across the frozen Gulf of Finland to Helsinki on a one-horse sleigh. He and his mother immigrated to the United States in 1923.

Vacquier received a bachelor's degree in electrical engineering from the University of Wisconsin in 1927 and a master's degree in physics in 1929. He worked for Gulf Research in Pittsburgh, where in 1940 he invented the

fluxgate magnetometer. The instrument was used on a blimp and then on an airplane to detect submarines during World War II. The method was later applied to airborne exploration for oil and minerals.

From 1944 to 1953 he worked for Sperry Gyroscope, Inc., where he developed the Mark 19 and Mark 23 gyrocompasses, standard equipment on all Navy ships for at least 30 years to measure the direction of true north. From 1953 to 1957 he worked at the New Mexico Institute of Mining and Technology where he developed an electrical conductivity method to prospect for groundwater.

Vacquier's active research career spanned more than seven decades and included more than 50 scientific publications and 18 patents. He received numerous honors for his pioneering work in geophysics. In 1960, he was awarded the Wetherill Medal of the Franklin Institute for his development of the magnetic-airborne detector and its application to geophysical prospecting for oil and minerals. He received the 1963 Albatross Award of the American Miscellaneous Society for "having displaced the seafloor by 700 kilometers," the John Adam Fleming Medal from the American Geophysical Union in 1973 for "original research and technical leadership in geomagnetism." In 1976, he received the Society of Exploration Geophysicists' Fessenden Award in recognition of his invention of the airborne magnetometer and in 1995 received the Alexander Agassiz Medal from the U.S. National Academy of Science for his contributions to geomagnetism and tectonics.

He is survived by his wife Mihoko Vacquier of La Jolla, Calif., his son Victor D. Vacquier, a Scripps professor, and daughter-in-law Judith Vacquier of La Jolla, Calif., four grandchildren and four great grandchildren.

Memorial services will be held at Scripps Institution of Oceanography at a later date.

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