

Fritz Koerner (joined about 1943 until about 1950)

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Roy Koerner, more commonly known as Fritz, who has died aged 75, was one of the four members of Sir Wally Herbert's British Transarctic Expedition which, on April 5 1969, stood at the North Pole. It was the halfway point of their dog-sled trip across the Arctic Ocean from Point Barrow, Alaska to the Arctic archipelago of Svalbard, a total distance of 3,620 miles. The first surface-crossing of the Arctic Ocean, theirs was only the second confirmed expedition to reach the North Pole. Data collected from Koerner's later work on polar ice characteristics has been used heavily in the recent climate-change discussion.

Back in 1968, Fritz and his companions had left Point Barrow on February 21, and the entire crossing took 16 months. It was supplied by airdrops from the Royal Canadian Air Force that allowed them to camp for the winter on the sea ice at a location where, conveniently, the ice drift carried them steadily towards their goal. For Fritz this was more than just a headline-seeking adventure; as a glaciologist he was studying the sea ice, and the result was the first detailed, continuous survey of its thickness and characteristics.

Born in Portsmouth, Fritz Koerner attended Portsmouth Southern Grammar School, and gained a degree in geography at Sheffield University in 1954. After a brief spell as a teacher, he joined the Falkland Islands Dependency Survey (FIDS; the precursor of the British Antarctic Survey) in 1957 for two years as meteorologist at Hope Bay (now the Argentine station of Esperanza) at the northern tip of the Antarctic peninsula. Like almost all FIDS personnel at that time, he learned to drive dogs, and made extensive trips across the sea ice and glaciers; thus, his passion for glaciology was born. It was there too that he first met Herbert.

In 1961 he joined the Arctic Institute of North America's multi-disciplinary Devon Island Expedition as glaciologist. Having spent a reconnaissance season on the island's ice cap (covering roughly 3,600 square miles), he wintered at the expedition's base camp at Truelove Inlet (along with Alan Gill, who would later join him on the Transarctic Expedition), and in 1962 set out a radial network of mass-balance transects, stretching hundreds of miles and covering every corner of the ice cap. Such studies are aimed at determining the ice cap's "budget", whether it is growing, shrinking or stable. He would repeat most of these transects annually for more than 45 years, along with similar studies of the Agassiz ice cap on Canada's Ellesmere Island and much smaller Meighen Island ice cap in later years.

On the basis of his mass-balance studies of another Canadian ice cap, that of Devon Island, Koerner received his PhD from the London School of Economics in 1968. While in London he met his future wife, Anna Kowalczyk, and after she returned to her native Poland, he reached a decision, got on his motorbike and rode to Warsaw, where he proposed to her. They were married in 1964. Anna accompanied Fritz and assisted him on Devon Island.

Having joined the Institute of Polar Studies at Ohio State University in Columbus, Ohio, in 1966-67, he was a member of a team that spent the Antarctic summer season at the remote Plateau station near the summit of the Antarctic ice sheet in Dronning Maud Land at a height of 12,000ft. Here he concentrated on snow stratigraphy, and later received the US Antarctic service medal. He was one of the few people to receive Britain's polar medal with both Arctic and Antarctic clasps.

In 1969 he and Anna moved to Ottawa, where he joined the Polar Continental Shelf Project (PCSP), a logistics and research arm of the Canadian government, to pursue his glacier studies in the high arctic; he became head of the project's ice core laboratory, and later transferred to an identical position with the Geological Survey of Canada.

At PCSP he made oxygen-isotope studies of ice cores, extracted from the Agassiz ice cap, the cores extending from surface down to bedrock. A study of summer-melt layers in the cores revealed summer temperatures from as far back as 11,000 years ago. It is his ice-core data that has been widely used in recent exchanges about global climatic change.

The author of more than 70 scientific papers and chapters in books, Koerner missed only a couple of field seasons from 1961 until 2008, when he felt unwell and returned to Ottawa, where he died from colon cancer just two weeks later. From his hospital bed he consulted with his colleagues to ensure that his various research projects would continue.

After his retirement in 1999 (although he continued his research as an emeritus scientist at the Geological Survey of Canada), Fritz escorted children on Students on Ice Polar cruises. His wickedly irreverent, iconoclastic sense of humour appealed to his young audiences. In the Arctic he also took the Inuit children of Grise Fiord in southern Ellesmere Island on field trips to one of the local glaciers.

A regular competitor in the Ottawa-Montreal ski race and keen jogger, Fritz was always very fit. Anna died in 1989 after a prolonged illness. Fritz is survived by his daughters Eva, Davina and Kristina, and son Justin.

Roy Martindale "Fritz" Koerner, explorer and glaciologist, born July 3 1932; died May 26 2008  
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