Alumni Profile: John K. Hall, PhD ’70

After completing a doctorate in marine geophysics at Lamont, John K. Hall immigrated to Jerusalem with his Israeli wife and spent 35 years at the Geological Survey of Israel before retiring in 2005. A self-described “five times over Mayflower Yankee,” Hall has devoted much of his career to mapping the bodies of water in and around the Middle East. In 2000, Hall purchased his own private multibeam (swath) sonar, which he has used to map the bathymetry of the Mediterranean and the northernmost Gulf of Elat. As vice-chairman of the International Bathymetric Chart of the Mediterranean project, Hall has been a longtime vocal proponent of assembling a 0.1’ grid of the Mediterranean and Black Seas.

Hall’s instrumental role in obtaining seismic and bathymetric data from these areas, as well as the Red, Dead, Caspian, and Black Seas, Lake Baikal, and the Sea of Galilee (the “puddles” as Hall jokingly refers to them), stems from a spirit of curiosity, determination, and adventure that has similarly marked his latest endeavor: the mapping of the inaccessible Alpha Ridge, located in the central Arctic Ocean.

If the destination is not entirely new for him (Hall conducted his thesis research on Fletcher’s Ice Island), his mode of transport certainly is. To reach this nearly impenetrable part of the Arctic, Hall has purchased and equipped a hovercraft, the R/H Sabvabaa. As a graduate student, Hall speculated that the Alpha Ridge (which rivals the Himalayas in size) was a fossil spreading ridge—a region once active due to mantle convection. Subsequent findings by others have shown this to be incorrect, but the ridge, which could conceivably reveal the origin of the Arctic’s main Amerasia Basin, remains a mystery.

Over the years, another Lamont alumnus, Yngve Kristoffersen (PhD ’77), would review Hall’s early published seismic records of this area. Something in the data puzzled Kristoffersen, so in 2004 he invited Hall to the University of Bergen to discuss the records. The seismic evidence showed a severely disturbed area some 200 by 600 kilometers, suggesting an intriguing scenario: the possibility that an asteroid hit the Alpha Ridge several million years ago. Hall and Kristoffersen have decided to return to the region to test this hypothesis further. In the process, they also plan to deploy autonomous drifting seismic reflection buoys, along with echo-sounding buoys developed under the Seafloor Soundings in Polar and Remote Regions project.

“These are some of the most exciting parts of the project. We are not only trying to map the area, but also to find a way to collect samples from the bottom of the ridge to see what has been deposited there. This could help us understand the history of the Arctic region.”

“arctic landgrab” depicts this international activity and illustrates the areas mapped by CCOM.

By the time this piece goes to print, Hall will have completed his fourth (and Mayer’s fifth) Healy cruise, a joint seismic operation with the Canadian icebreaker Louis S. St-Laurent. These cruises, to areas Hall traversed on the drifting ice station more than four decades ago, have fortified his belief that the hovercraft, operating without time and financial constraints, offers the best chance to get “boots on the ground.” The Sabvabaa, with a crew of two or three, has much of the capability that Lamont’s Vema had in the 1960s.

When he is not at sea, Hall is on the editorial advisory board of the journal Hydro International. He has also coauthored two books—one on the Russian swath mapping of the eastern Mediterranean and another on the geology of the Levant. This past summer, Hall was inducted into the Norwegian Academy of Sciences and Polar Research. Hall views his proactive swath mapping and hovercraft purchase as having been made possible by his grandfather’s successful career as head of the American Chicle Company.

In his nominal retirement, Hall can look back on a long (if far from finished) career. To a great extent Hall credits his years at Lamont for shaping the course of his research. “We did an awful lot of pioneering then, and I believe that I have faithfully continued in this tradition.”

“To get into an area inaccessible to icebreakers—or reachable by plane only in spring—is pure chutzpah.”

[Image of John K. Hall]

[Image of the R/H Sabvabaa]