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# Fritz Schott's Contributions to the Understanding of the Ocean Circulation

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The ocean circulation and its central significance for global climate lay at the heart of Fritz's research. In the context of hard-won data from his more than 30 research cruises to key regions of the Atlantic and Indian oceans, he made fundamental contributions to our understanding of the wind-driven and thermohaline ocean circulation. His insights and explorations of circulation and dynamics of the tropical Indian and Atlantic Oceans have led the field and provided a large part of the basis for planning large, international experiments.

Fritz's work is also distinguished by his making exceptional use of modeling results, increasingly as the models have improved. His research has provided a much clearer correspondence between the observed ocean-structure and dynamical theory-noting both theoretical successes and limitations.
Besides his general interest in the physical oceanography of the World Oceans, most of his research was devoted to the dynamics of tropical oceans with its intense and highly variable current systems. Concerning the Indian Ocean, Fritz's investigated the response of the Somali Current system to the variable monsoon winds in the early 1980's, obtaining high-quality, hydrographic surveys and the first long term direct measurement of ocean currents from moored arrays. His analyses and interpretations provided a synthesis of the complex circulations there.

In the tropical Atlantic Ocean Fritz research focused on the western boundary circulation with important contributions to the understanding of the North Brazil Current retroflection, and the variability of the shallow and deep western boundary currents. Trying to solve the fundamental question 'what is the role of the tropical ocean for climate variability', Fritz initiated large multinational research programs under the umbrella of the World Climate Research Projects WOCE (World Ocean Circulation Experiment) and CLIVAR (Climate Variability and Predictability).

Fritz was the initiator and driving force behind the Collaborative Research Project "Dynamics of the Thermohaline Circulation" which was funded from 1996-2006 by the German Research Foundation (DFG). Within this project, he and his colleagues made major contributions to our understanding of the sinking of cold, dense waters in the northern North Atlantic, a process critical for the deep ocean circulation as well as the role played by the Gulf Stream and Deep Western Boundary current system for climate. The starting point of this project was again the observation of the ocean. Vertical velocity and hydrographic measurements during active convection carried out in the Greenland Sea, the Labrador Sea and the Gulf of Lions represents the observational basis of the fundamental work regarding the open-ocean convection.