World Authority on Ocean Circulation: Peter Niiler

Prominent ocean researcher, founder of the Global Drifter Program

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Pearn Peter Niiler, a distinguished emeritus professor of physical oceanography at Scripps Institution of Oceanography, UC San Diego, died of a heart attack in San Diego, Calif., on Oct. 15, 2010. He was one of the world's leading authorities on ocean circulation.

For the past 40 years, Niiler's work has helped shape how scientists study the ocean. His early understanding of the linkage between ocean circulation and the world's climate served as a catalyst for improved global ocean observations. He conceived and designed the Global Drifter Program, which in 2005 became the first fully completed component of the Global Ocean Observing System. At the time of his death, Niiler was deploying drifters in front of tropical storms and typhoons to further the knowledge of the interaction of the ocean with these deadly weather systems.

"Peter had the rare gift of inspiring people around him and to bring out the positive part of their character. He was enthusiastic, tenacious and was driven by a genuine interest in understanding the dynamics of the ocean. He was an exceptionally skilled engineer and was able to spin-up amazingly fruitful oceanographic experiments. He was uncommonly generous with his ingenious insights and ideas and guided his colleagues to investigate new creative ways of solving scientific problems. I feel privileged and fortunate to have worked with him for all these years," said Luca Centurioni, a Scripps physical oceanographer.

"Peter could always be counted on to bring vision, creativity, and scientific depth to studies of the coupling of the atmosphere and ocean and to provide innovation in measurements of the upper ocean," said Theresa Paluszkiewicz, of the U.S. Office of Naval Research. "He brought tremendous enthusiasm and joy to tackling new problems, and to designing ever-more daring experiments. His generous spirit in communicating his understanding of ocean dynamics touched many across the globe."

Niiler spent decades designing ocean instruments for directly measuring ocean circulation and using them in increasingly comprehensive observations to learn the ocean's dynamics. Motivated by a growing interest in the role that ocean-atmosphere interactions have in shaping climate, Niiler became a world expert in the upper "mixed layer" of the ocean that interacts most directly with the atmosphere.

When Niiler arrived at Scripps in 1982, surface temperature readings and circulation patterns were a mystery in large parts of the world, especially in the Southern Ocean. Niiler's vision was that such information gaps could only be filled with a completely new global ocean observing system.

"A large part of the world simply could not be sampled," he said in a 2005 interview, "because most of the world's ships don't go there. We needed a new way."

To do this, Niiler and his colleagues met in Boulder, Colo. in 1982 to design new ocean instruments. This led to the creation of the Global Drifter Program, which maintains 1,250 drifting buoys throughout the world's oceans.

To date, more than 350 scientific papers have relied on data from these drifters. Atmospheric pressure data from the drifters are an important element for accurate weather forecasts and are used by meteorological agencies worldwide.

"He wanted to replace the fanciful sketches drawn in the texts of the day with quantitative measurements," said research oceanographer Russ Davis, a longtime colleague of Niiler's at Scripps. "Peter constantly encouraged collaborators and students to go beyond the day's scientific trend to see the whole picture and understand from the fundamentals."

Niiler's deployment of sophisticated technologies confirmed a 60-year-old ocean circulation theory known as the Sverdrup balance. Niiler predicted the existence of the "Great North Pacific Garbage Patch," a massive zone of floating debris. He detected the presence of an even larger debris accumulation site in the southern Pacific Ocean and was involved in preliminary planning for a research expedition there at the time of his death.

"Peter's entrepreneurial skills were also a cornerstone of his scientific achievements and those of his collaborators," said oceanographer Ken Melville, also a colleague of Niiler's at Scripps. "Without Peter's development of national and international collaborators, his nurturing of the small companies that mass produced the equipment he used, and his lobbying of and advice to U.S. government and international agencies, the global programs he dreamt of and planned would not have come to fruition. This legacy will continue to contribute to our developing observations and understanding of the ocean and its coupling to the atmosphere."

In the Gulf of Mexico, Niiler's ocean current measurements formed a baseline to understand the regional circulation. His data was used recently to better understand the fate of the oil spilled from the Deepwater Horizon rig. Niiler also served as an advisor to a federal panel investigating the impact of the oil spill.

"Peter was a pioneer in our modern understanding of global ocean circulation," said Lee-Leung Fu, a senior research scientist at Jet Propulsion Laboratory, Pasadena, Calif. "In my mind, Peter's work in collaboration with Nikolai Maximenko and Jim McWilliams based on his drifter observations adjusted by satellite altimetry has provided definitive and detailed knowledge of the global ocean surface dynamic topography, a cornerstone of the achievement in modern oceanography. I always admired Peter's deep insight in ocean dynamics and ingenuity in observational development and analysis. Peter had been a constant source of mine for stimulating interactions and inspiring advices since the beginning of my career."

Peter's son Eric Niiler, a science writer and radio journalist, described his father's other interests. Peter Niiler had a passion for architecture and designed numerous homes and several buildings. He played a leading role in creating the distinctive design of the W.M. Keck Foundation Center for Ocean Atmosphere Research, in which his office was housed. He was a painter, a gourmet chef, and an aficionado of wine and travel.

"He was a real Renaissance man of the kind that you don't see anymore," said Eric Niiler.

Davis recalled Niiler's passionate patronage of the arts and his love of basketball.

Born in Tartu, Estonia in 1937, Niiler moved with his family to western Pennsylvania at the age of 12. He studied engineering and earned a bachelor's of science degree from Lehigh University and a Ph.D. from Brown University. After completing a Fulbright fellowship at Cambridge University and postdoctoral fellowship at Harvard, Niiler joined Nova University in 1966. There he studied the Florida Current and the Gulf Stream in a small laboratory aboard a houseboat. He did so at the urging of Henry Stommel, a pioneer in the study of ocean circulation. He moved to Oregon State University in 1974 and joined the Scripps Institution of Oceanography as a professor in 1982.

Niiler was named a Fellow of the American Geophysical Union in 1986. He was a Distinguished visiting Scientist at the Jet Propulsion Laboratory from 1979 to present and was a NATO Visiting Science Fellow in 1980, a Woodrow Wilson Fellow in 1961 and a Fulbright Scholar in 1960.

Niiler is survived by his wife, Nancy McCaleb, choreographer and artistic director of McCaleb Dance in San Diego; sons Eric of Chevy Chase, Md. and Benjamin of Aspen, Colo.; daughter Ashley Iler of Jamul, Calif.; three grandchildren and a great grandson.

Memorial Services will be held on Saturday, October 23 at 3:00 p.m. at St. James by-the-Sea Episcopal Church, 743 Prospect Street, La Jolla, Calif . The family asks that in lieu of flowers, those wishing to honor Peter Niiler would please donate to the arts organization of their choice.

Tributes to Peter Niiler from the oceanographic community

I met Peter in 1989, too late to be his student, but since then I was continuously learning from him. Peter became my closest senior friend and one of three people who really shaped me as a scientist. With Peter's great taste to all aspects of life and his strong, non-trivial opinion on all possible questions, talking with him was a constant challenge and endlessly amazing. His life-long struggle for the drifter program, often against equally mature and influential colleagues, turning them from opponents into allies, required all the sides of his character: theoretical excellence, engineering skill, wisdom of a manager, international attitude, and genius of a storyteller. Peter was generously sparkling his brilliant ideas all around him, and I know that for many years, new scientific papers will continue to appear under his co-authorship. Peter left bright spots in lives of many people next to him or across the ocean, and he will be remembered by everybody who had this luck. - Nikolai Maximenko, University of Hawaii, Manoa

Peter made huge contributions to the observation and understanding of the upper ocean circulation. This is a great loss for the oceanographic community. - John Church, Commonwealth Science and Industrial Research Organization (CSIRO), Australia

He has been a very close friend and a mentor. In additional to physical oceanography, Peter made very significant contributions to ocean-atmosphere interaction and remote sensing. He has been a distinguished visiting scientist at the Jet Propulsion Laboratory and my co-investigators in scattereometer, altimeter, and earth observation satellites missions in the past three decades. -W. Timothy Lu, Jet Propulson Laboratory

Peter was a valued colleague over several decades. I always enjoyed the discussions that we had at numerous meetings over the years with his typical openness, his critical but positive views and his sound ideas. I was really glad that we were able to convince him at the end of the WOCE observations to be an author of our book "Ocean Circulation and Climate" published about ten years ago. Peter had been a key scientist in designing and setting up the network of drifters for the surface circulation program of the World Ocean Circulation Experiment, and we had collaborated in various ways during WOCE. -Gerold Siedler, Leibniz-Institute for Marine Sciences, IFM-GEOMAR Ocean Circulation and Climate, Kiel University, Germany

The passing of Peter Niiler is a sad event. The oceanic world was more interesting place with him present as a leading hands-on spokesperson on the measurement of the structure and dynamics of currents. Peter was a true hero of the measurements of oceanic currents and an exacting researcher of currents, striated ocean patterns, ocean-climate linkages, global ocean observations, the use of drifters, and ocean dynamics. His presence as a force in the ocean community and at AGU meetings will be missed and his work remembered for a long time to come. -Björn Kjerfve, World Maritime University, Malmö, Sweden

I believe the community owes him a lot for his great achievements, in many aspects, including of course much better scientific knowledge in physical oceanography, but also in bringing communities from different disciplines to work together and benefit from each other.... We are losing an exceptional scientist, a friend, an artist, and I will always remember him as someone who could enjoy the many aspects of life, and could make others working with him proud of what they have been doing. -Etienne Charpentier, World Meteorological Organization, Geneva, Switzerland

Peter Niiler was a good friend since his days at Nova and remarkable colleague. His combination of creativity and persistance took us far. He understood the physics of the upper ocean and realized what it would take to really observe it. At the same time his flair for living and building things were a source of wonder. He enjoyed a good life and made oceanography social and colorful for many of us. -Peter Rhines, University of Washington

I am thankful that I had the opportunity to share the time with him and talk about some of our more than 30 years of interaction. Peter has been influential in so many of our careers. I came to know him in the late 1970s while a graduate student at University of Washington. His enthusiasm and boyish energy for physical oceanography puzzles was quite endearing and certainly was a factor in propelling my lifelong passion for the field. I always felt blessed to be able to share a meal or attend one of his lectures. He, like Henry Stommel, had a manner and intellect that was so engaging and friendly. Our discipline has lost one of its best. -Eric Lindstrom, NASA

Peter Niiler was a good man. He worked with Russian scientists and helped many of them to find a shelter in the USA. I know many of them and for them personally it is a big hurt. - Konstantin Korotenko

Peter and I go back to his days in Cambridge in the early '60's and I always liked and admired him for both his personal and scientific virtues. - Joe Pedlosky, Woods Hole Oceanographic Institution, Woods Hole, Mass.

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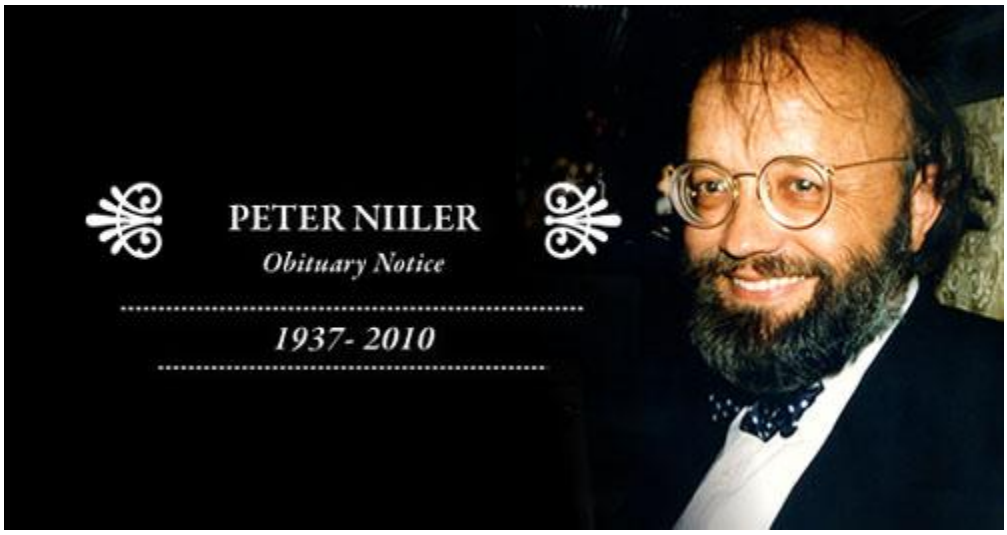

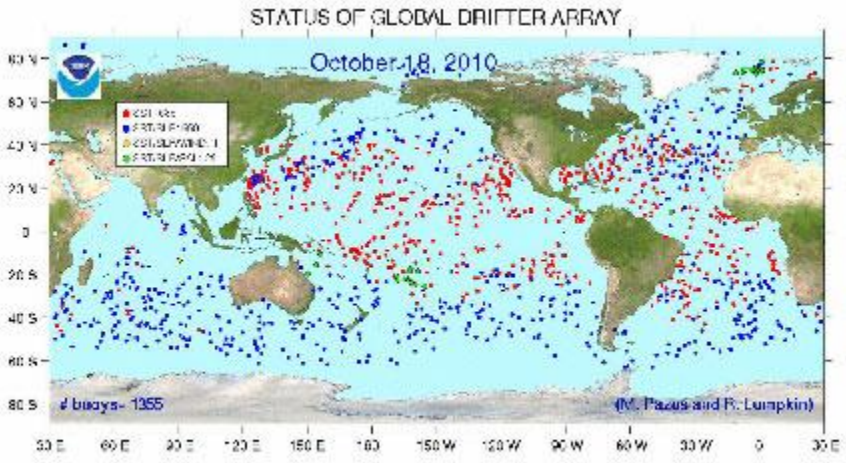
STATUS OF GLOBAL DRIFTER ARRAY
October 18, 2010
buoys= 1355
(M. Pazos and R. Lumpkin)