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OBITUARY

James W. Deardorff

James W. Deardorff, a well-known meteorological researcher and educator, died on 28 December 2014, at age 86. The cause of his death was lung cancer, although he had not been a smoker. Jim was born in Seattle and raised in Portland, where he graduated from Lincoln High School. He attended Reed College for one year and then transferred to Stanford University, where he was awarded an NROTC Scholarship. After graduating he spent three years in the Navy, and then enrolled in Meteorology at the University of Washington and received his Ph.D. in 1959. In 1962 he accepted a position at the new National Center for Atmospheric Research (NCAR) in Boulder, Colorado.

Jim's NCAR career extended over 16 years and was marked by unusually creative research that was increasingly recognized and appreciated. The research was of two main types: pioneering work in the numerical modelling technique now known as large-eddy simulation, and laboratory studies of turbulent free convection.

The large-eddy simulation work was inspired by the earlier work of Jim's senior NCAR colleague, Douglas Lilly, who developed its theoretical outlines some years earlier at the Geophysical Fluid Dynamics Laboratory in Princeton, New Jersey. Under Lilly's tutelage at NCAR, Jim developed the code for and carried out what was probably the first three-dimensional, time-dependent numerical simulations of turbulent flow with spatial and temporal resolution adequate to resolve the dynamics and evolution of the energy-containing eddies. That work attracted wide recognition, and began to be adopted in other research centres, including the Center for Turbulence Research at Stanford that soon gave the semantically precise name, large-eddy simulation.

Jim's work on free convection used a 1-m square convection tank, with water heated from the bottom, to study the dispersion of effluents from sources towed through the tank. Despite the huge differences in Reynolds numbers between the tank turbulence and that in the atmosphere, Jim exploited the emerging concept of Reynolds number independence of turbulent flows to make parametrizations of turbulent diffusion that have been very useful in atmospheric boundary-layer applications.

This free-convection tank was located in the second basement of the NCAR Mesa Laboratory, which overlooks the city of Boulder. At the time there were two interpretations of his reason for choosing that remote location. Jim's stated reason was that its placement just above the stable bedrock minimized the possibility that external vibrations would affect the convection. The other interpretation, if less plausible, is sociologically more interesting.

NCAR at that time had a relatively new and very energetic director who had been charged with reassessing, reorganizing, and revitalizing its science programs and activities. He took that charge very seriously, and little escaped his notice. In this interpretation of history, Jim chose the remote location to minimize the risk of having his unusual and not obviously atmospherically relevant experimental facility discovered by a disapproving new regime.

In 1978 Jim took a position as a research professor in the Department of Atmospheric Sciences at the Oregon State University, Corvallis and remained there until he retired in 1986.

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