

**MEMORIAL RESOLUTION OF THE FACULTY
OF THE UNIVERSITY OF WISCONSIN-MADISON**

ON THE DEATH OF PROFESSOR EMERITUS HEINZ H. LETTAU

Heinz Helmut Lettau died on August 3, 2005 in Mount Pleasant, South Carolina. He received many honors during his lifetime for his work in micrometeorology.

Heinz was born in Koenigsberg, Germany on November 4, 1909. His fascination with the “first mile” of the atmosphere started at a young age with the observation of the sand dunes on the edge of the Baltic Sea. Their constant movement, driven by the wind, led him to try to understand the interaction between the earth’s surface and the wind.

Heinz received his Ph.D. in geophysics and meteorology from the University of Leipzig in 1931. After graduation, Heinz and Werner Schwerdtfeger decided to investigate the Austausch coefficient for turbulent mass exchange in the lower 4 km of the atmosphere by using hot air balloon flights. The measurements of the vertical wind components made during these flights helped to develop understanding of atmospheric turbulence in what Heinz called the planetary boundary layer.

After D-Day, the United States recruited many of the top German scientists to augment research programs in this country. The Air Force had discovered the importance of knowing near surface conditions for wind and turbulence, so Heinz, who had been working with German Weather Bureau, was approached to help with the studies of wind turbulence. The flattest open place that could be found was in Nebraska. Heinz and Guenther Loeser were put in charge of developing a large experimental program to measure and describe the prairie wind. The experiment was set up outside of O’Neill, Nebraska in 1953 and came to be known as the Great Plains Field Turbulence Project. After the untimely death of Loeser in an accident, Heinz directed the project to its completion. The results completely changed the ideas about the wind and temperature in the first mile of the atmosphere. Changes were felt from aviation and rocketry to agriculture.

Heinz continued his research on wind turbulence and boundary layer interactions, arriving at the University of Wisconsin as a visiting professor in 1957. He accepted a joint appointment at the university in the departments of meteorology and civil engineering in 1958. At Wisconsin, one of his research studies involved placing bushel baskets and Christmas trees on the ice of Lake Mendota to create a simulated forest. This study of wind and temperature in the boundary layer entered the legend of Madison as people were fascinated by the appearance of row upon row of Christmas trees anchored into the lake ice.

Heinz’ research led him to study wind and turbulence in many unusual places. He collaborated with Werner Schwerdtfeger in a study of the inversion wind on the high polar plateau of Antarctica and in the dry valleys of the Transantarctic Mountains. Another project took place in Peru, again to study sand dunes, this time in the arid coastal deserts between the Andes Mountains and the Pacific Ocean. And in the 1960s, he estimated that the moon’s surface would only have a few inches of dust instead of the feet of dust estimated by others. This, of course, had huge implications for the first landing on the moon a few years later.

The emphasis on wind, turbulence, and the interaction of the ground and the boundary layer had a natural application for agriculture in modeling soil and moisture characteristics. This new work developed a mathematical model of the hydrological balance of insolation, precipitation, evaporation and runoff. Heinz called the concept of explaining basic climatic elements with a mathematical model climatology.

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Heinz received many honors over the years for his pioneering work, including the Increase A. Lapham Professorship at the University of Wisconsin, the AMS Fellow and Carl-Gustaf Rossby Award from the American Meteorological Society, and the Alfred Wegener Medal from the Deutsche Meteorologische Gesellschaft.

Heinz retired in 1980 from the Department of Atmospheric and Oceanic Sciences and became an emeritus professor. He continued to research and publish about topics of interest to him. He continued to develop his evapotranspiration climatology model. In addition, he turned his attention to Greenland and developed a way of explaining the circulation around the domed ice sheet crest. At the time of his death, he was working on a theory to explain the formation and shape of ice sheet domes during past glaciations.

Heinz is survived by his wife, Katharina, sons Bernhard, Ulrich, and Ludwig, and 9 grandchildren. He leaves many devoted students to carry on the research he began.

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