

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

**ON THE DEATH OF PROFESSOR EMERITUS CHARLES R. STEARNS**

Dr. Charles R. Stearns, professor emeritus in the Department of Atmospheric and Oceanic Sciences and a pioneer in polar meteorology, died on Tuesday, June 22, 2010. He was 85.

His association with the University of Wisconsin began 67 years ago, first as an undergraduate in 1943. He was called to serve as an infantryman in the Pacific Theater in World War II from 1943 to 1946 and was awarded a Bronze Star for rescuing fellow soldiers in the Leyte Gulf campaign. He returned to the University of Wisconsin after the war to complete his bachelor of science degree.

Dr. Stearns' career focused on the study of the atmospheric boundary layer and its relationship with the surface beneath it, particularly the measurement of its physical parameters and the instrumentation used to obtain them. His first research involved measuring the wind stress on Lake Mendota. This work was used to complete a master's degree in 1952 as one of the first graduate students in the newly created Department of Meteorology (1948).

After a few years away, he returned to the UW to work with Dr. Vern Suomi and Dr. Heinz Lettau. In 1959, Suomi was working on net radiation measurements, first in a cornfield and then from aircraft. Dr. Stearns did much of the instrumental development work in Science Hall. Based on this work, Suomi conceived the idea for the measurement of net radiation from a satellite, and Dr. Stearns did much of the hardware development that ultimately ended up on Explorer 7, the first meteorological experiment in space.

While working with Dr. Lettau, he designed and built the Second Point meteorological station near what is today known as Frautschi Point on Lake Mendota. This provided data for many graduate theses from numerous experiments on boundary layer flow on Lake Mendota including the well known Christmas tree and bushel basket experiments on the frozen surface of the lake.

His work in boundary layer measurements over the next ten years included a study of coastal deserts in Peru and field programs at Davis, California and at the Aberdeen Proving Ground in Maryland. He completed a PhD in 1967 while developing some of the first computer programs to derive atmospheric wind and temperature profiles from meteorological measurements taken in the field.

He joined the Department of Meteorology faculty in 1965. In 1972, he became academic chairman of the newly created Institute for Environmental Studies. At the same time, he participated in the large interdisciplinary study of the environmental impact of a coal-fired power plant near Portage, Wisconsin. For almost a decade, an array of meteorological towers, microbarographs, and one of the first uses of an acoustic radar provided data for the study. The array of microbarographs would later be moved to the Madison area where the data provided key information in the study of the F5 tornado that destroyed Barneveld, Wisconsin in 1984.

In 1980, at the suggestion of his friend and colleague, Dr. Werner Schwerdtfeger, he assumed the direction of the United States Antarctic Program's automatic weather stations program from Stanford University. Over the next 30 years, the network of some ten stations expanded to over 60. In 1992, Dr. Stearns founded the Antarctic Meteorological Research Center (AMRC), which expanded observations of the Antarctic through the generation of the first routine real-time Antarctic and adjacent Southern Ocean satellite composites using raw data provided by the Space Science and Engineering Center. Stearns

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envisioned using tools then available to enhance meteorological studies of the Antarctic by combining various satellite imagery with overlays of the Antarctic AWS data. He was emphatic that the data be made available to all potential users as soon as possible.

Stearns taught many varied classes during his career and was involved in more than nine major field projects. He deployed to Antarctica 17 times. He was advisor to 30 students over his career and provided assistance to many other students in the United States and abroad via the data archive of the AMRC. For his work in polar meteorology, he was awarded the Antarctic Service Medal by the National Science Foundation and was honored with the naming of an Antarctic Mountain after him (Mount Stearns). He was elected a fellow of the American Meteorological Society in 2004. On July 12, 2010 he was posthumously awarded the Goldthwait Polar Medal for his outstanding contributions to polar research.

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