

## In Memoriam



Marvin L. Wesely

Marvin L. Wesely, Argonne National Laboratory Senior Meteorologist and leader of the Atmospheric Research Section in the Environmental Research Division, died on January 20, 2003, from a rare form of heart cancer. Marv was an internationally known and highly respected leader in the scientific measurement and modeling of atmospheric boundary layer turbulence and dry deposition of air pollutants. His fundamental contributions in the development of methodologies for formulating dry deposition processes are used in atmospheric and biospheric models applied on all scales, worldwide. His work in the area of atmospheric science was supported by the U.S. Department of Energy (DOE) for 30 years.

Marv was born on May 5, 1944, in Cedar Bluffs, Nebraska. His rural community nurtured his interest in weather and environmental issues. The youngest of four children raised on a family farm, he developed a strong understanding of the interactions between crops and their environment. His formal education began in a one-room schoolhouse, where he quickly showed high aptitude for math and science and a particular interest in nature.

Marv attended the University of Nebraska, Lincoln, and obtained a bachelor's degree in technical agronomy with high distinction (1965). He then went on to the University of Wisconsin-Madison and received master's (1968) and doctoral degrees (1970) in soil science. While at the University of Wisconsin, he met and, in 1968, married his wife, Meridel, who was also a graduate student.

Marv's first publication was on the use of a fast-response thermometer for eddy correlation experiments, co-authored with George Thurtell and C. Bert Tanner. This work, while Marv was in graduate school, relied on a 1967 study at Davis, California,

funded by the U.S. Army Atmospheric Sciences Laboratory. Later work with the same authors made use of a novel three-dimensional pressure sphere system anemometer for determining wind fields (*Journal of Applied Meteorology*, 9, 379-387, 1972).



Left to right: George Thurtell, unknown technician, Marv Wesely, and Andy Black (University of British Columbia, Vancouver) at the field site in Davis, California, 1967.

This early work set the stage for Marv's subsequent interest in the accurate, rapid measurement of meteorological and chemical parameters necessary to determine gradients and fluxes of materials in the lower troposphere.

From 1970 to 1973, Marv served with the U.S. Army Ballistic Research Laboratories, examining light refraction and scintillation by mean temperature gradients and atmospheric turbulence. He entered the Army as a first lieutenant and was promoted to captain before leaving the service.

After his time with the Army, Marv accepted a position as an assistant meteorologist at Argonne National Laboratory near Chicago, Illinois, in June of 1973. While at Argonne, Marv worked with Bruce Hicks, Paul Frenzen, and others on numerous field studies during the 1970s-1990s, focusing on development of eddy correlation methods for determining dry deposition velocities for a variety of gases and particles in different surface vegetative environments.

During his career Marv focused on experimental and theoretical studies of air-surface exchange of heat, momentum, water vapor, carbon dioxide, sulfur and nitrogen oxides, ozone, and hydrocarbons in the atmosphere. His fundamental studies examining atmospheric turbulence in the lower atmosphere and its interactions with the biosphere were based on the development and application of a number of innovative approaches and the use of ground-based remote sensing systems. Marv's latest work involved use of

satellite imagery to incorporate vegetation mapping into the development of more accurate estimates of isoprene and natural hydrocarbon emissions from a variety of ecosystems. His research efforts led to better understanding and predictive capability in atmospheric science work ranging from air quality improvement to global climate change. Marv authored or co-authored over 150 publications during his career.

Marv was a leader in the organization of many field projects in the area of surface exchange studies. For example, under his leadership, Argonne, the National Center for Atmospheric Research, and the National Oceanographic and Atmospheric Administration organized and established the Cooperative Atmosphere-Surface Exchange Studies (CASES) effort in 1996 in the Walnut River Watershed in Kansas. CASES was established to enable scientists to observe, understand, and model linkages between the atmosphere, hydrosphere, and terrestrial biosphere on time scales from minutes to years, as well as to act as a focal point providing field experience for students of the natural sciences.

During his 30-year tenure at Argonne, Marv held a number of key positions. He was a member of numerous committees dealing with promotion and hiring for both the Environmental Research Division and Argonne. In 1978, he was named Deputy Section Head for the Atmospheric Physics Section in the Radiological and Environmental Research Division, and three years later became Section Head of the Atmospheric Research Section in the Environmental Research Division. In 1993 he was promoted to Senior Meteorologist, Level 709, and in 2000 he was promoted to Senior Meteorologist, Level 710. This is the highest level a scientist can hold at Argonne; at the time of Marv's death only ten scientists held the title.

Marv was a long-time member of many professional societies, including the American Meteorological Society; the American Association for Advancement of Science; the American Geophysical Union; the American Society of Agronomy; the Royal Meteorological Society; and Sigma Xi, The Scientific Research Society of North America. He earned the University of Chicago Distinguished Performance Award in 1987 for his work in atmospheric science, the Argonne Exceptional Performance Award in 1995 for his efforts in establishing the Atmospheric Boundary Layer Experiments (ABLE) facility in Kansas, and the Editor's Award of the *Journal of Applied Meteorology* (American Meteorological Society) in 2000.

Marv was a leader for the DOE Atmospheric Science Program, having been involved with research for that agency for 30 years. In 1995, he was named the Chief Scientist for the DOE Atmospheric Chemistry Program and took responsibility for scientific coordination of that effort. Most recently, in 2002, he became the chairman of the Technical Advisory Committee of the DOE National Institute of Global Environmental Change.

Marv was especially involved with efforts of the American Meteorological Society. He served for six years on the Committee on Measurements, chairing that committee for the last three years of his appointment, in 1996-1998. He was recently made an editor of the

*Journal of Applied Meteorology* and was heavily involved in working to improve and maintain that important publication.

At his funeral, Marv's younger daughter remarked, "My father's death was truly a tragedy, but his life was certainly not." Indeed, those of us who knew him will remember him as a quiet, gentle, and fair man; a unique and hard working scientist; and a trusted friend. Marv was a strong, stable force in the area of atmospheric science at Argonne and for the DOE Atmospheric Science Program. His quiet and steady hand is sorely missed, especially by those who knew him and worked with him.

Marv is survived by his wife, Meridel; two daughters, Jennifer and Pamela; two older brothers, Elden and Robert Wesely; and an older sister, Mary Ann Hawkins.

In remembrance of Marv, a fund is being established to help undergraduate students interested in atmospheric chemistry and atmospheric science attend American Meteorological Society symposia and conferences in those areas.

Contributions to the **Marvin L. Wesely Student Travel Fund** can be made directly to this address:

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