

PROFILE

The towering sand dunes of a Baltic Sea vacation spot had a spellbinding grip on a young Heinz Lettau, who began to envision his academic future in the swirling winds that created them.

Lettau, whose meteorology career spans six decades in Germany and the United States, became a pioneer in studying the give-and-take relationship between the earth's surface and the wind. He has spent the latter 37 years at UW-Madison.

An emeritus professor of atmospheric and oceanic sciences here since 1980, Lettau has remained active in research and writing. Later this month he will retire with finality when he moves to Charleston, S.C. to be closer to his family.

The Koenigsberg, Germany native is known academically for his studies of wind turbulence and flight response, for wind and temperature connections, and for his exhaustive look at the atmosphere's first mile.

But it all comes back these days to a simple childhood curiosity: What forces created those massive, moving hills of sand?

Lettau accents stories about his career with documents from a large magazine tray on his bookshelf. "My treasure box," he calls it. The stack of books and yellowing papers provide a mental road map to Lettau's youth in Koenigsberg, on the southeast edge of the Baltic Sea.

Lettau attended a summer camp in 1925 at a hang glider school in Rossitten, located on a slender isthmus. "Life on this protected nature preserve was controlled by the wind," he says. The winds created a 10-mile wall of sand dunes with crests of 120 to 180 feet. The dune migrated slowly to the east, occasionally burying — and 150 years later, unearthing — ancient cemeteries and fishing cottages in its sandy wake.



JEFF MILLER

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Along that stretch of dunes, a 1920s world record was set for flight in a non-engine powered plane, a cruise of more than eight hours.

"This is what really captivated me about what the wind can do," Lettau says of the dunes. "My conclusion then was that one should try to understand more about the wind."

Since then, Lettau has studied some equally exotic locales. Like the arid coastal deserts of Peru between the Andes Mountains and the Pacific Ocean. Or the frozen tundra of the Antarctic. Or the surface of the Moon.

"My academic life is full of little anecdotes," Lettau says.

Lettau may be best known in Madison for his winter studies on Lake Mendota, which involved rows of either bushel baskets or Christmas trees. In both projects, his students created a simulated and controlled forest by which they could measure the wind's effect on the heating and cooling process of trees.

The science was called "micrometeorology," and it looked at changes in temperature and wind velocity only a few feet above the ground. Lettau says that's where the real action is, where the wind affects botanical functions.

"One of its major tenets is, what does the wind do to the ground and what does the ground do to the wind?" he says. "The thing that's interesting here is the interaction."

And in the mid-1960s, he helped put to rest a scientific controversy about the amount of dust on the Moon's surface. A prominent science journal published an article that predicted travel on the lunar surface would be impossible because of a nine-foot layer of dust. Lettau's own examination led him to conclude the Moon's surface had only inches of dust at best. He remembered watching the 1969 Apollo 11 Moon walk on television with some gratification, as Astronaut Neil Armstrong left his shallow boot print.

One of his favorite stories is of his first research project at The Albertian University in Koenigsberg. He wanted to compare the intensity of blueness in the sky at the harbor to 10 miles inland. So he borrowed a crude, hand-held blue scale and crisscrossed the city on his bicycle, taking readings at different stops.

That image might best capture the teaching and researching style of Lettau, who preferred the resourcefulness of bicycles and bushel baskets to today's million-dollar mega-grants.

"Research is becoming so complicated and so competitive that the good times have passed," Lettau says. "The present tendency is to look for measurements of things, not in trying to understand the whole."

— Brian Mattmiller