

Eugene Martin Rasmusson was born February 27, 1929 on a farm five miles south of Lindsborg in McPherson County, Kansas, the oldest of seven children, five boys and two girls. Like most of the residents of the area, he was a descendant of Scandinavian Lutheran immigrants.

**EUGENE M.
RASMUSSON**
1929–2015

One of Gene's great grandfathers, Rasmus Rasmussen, immigrated from Norway and homesteaded near Lindsborg in the early 1870s, and one of his grandfathers, Erick Rasmussen, immigrated from Norway a generation later and worked as a hired hand on Rasmus's farm.

Before Gene was born, his father, Martin, changed the family name from Rasmussen (the Norwegian spelling), to Rasmusson (the Swedish spelling), motivated perhaps by the prevalence of families of Swedish extraction in the local community or by the fact he married a Swede, Alma Nelson. Many years later, Gene recalled being chided by the widow of the famous Jacob Bjerknes for not changing the spelling back to Rasmussen.

When Gene was at a loss for words, he often proclaimed that he was "just a poor farm boy from Kansas." His nuclear family, which eventually grew to nine members, lived in a small farmhouse without electricity, indoor plumbing, central heating, piped-in water, or continuous telephone service. The farm itself was an amalgamation of several of the original 160-acre tracts granted to immigrants by the Homestead Act. Until he went away to college, much of Gene's time was taken up with a strenuous daily routine of farm work, which included caring for livestock and chickens, preparing the fields for planting using mule-drawn plows, and harvesting hay. But farm work was not without idyllic moments. In his memoir, Gene wrote, "The spring and autumn cattle drives were special events for me. By 1940 I had become a participant riding on my pony named Beauty. The last four miles to the summer pasture crossed beautiful, roadless prairie, intersected by Sand Creek, a lovely spring-fed stream." Gene treasured those memories, but his love of the prairie landscape was not strong enough to keep him down on the farm. He later wrote,

To the consternation of my father, I had no real interest in farming or the rural life. A statement made by one of our neighbors hit the nail on the head: "That oldest Rasmusson boy will never be a farmer!" I was bored with the relative isolation of farm life,

particularly during the summer months, when we saw little of our rural schoolmates. I literally counted the days until the beginning of school on Labor Day.

But in reflecting on those memories he also wrote, "but in retrospect, my early years on a farm in the wonderful little Swedish community of Lindsborg [were] fundamental in the development of my personality and philosophy of life."

Gene retained vivid memories of the Dust Bowl, which was at its peak around the time he started grade school. In his memoir he mentions,

crop failures associated with drought and dust storms, heat waves, wheat disease (black rust), and pests, such as grasshoppers, and Hessian flies that bored through the wheat stalks to lay their eggs, leaving them too fragile to stand. In the few years in which a decent crop could be harvested, the price of wheat was so low that there were real questions as to whether it was worth cutting.

He further recalled,

during an intense dust storm the sun would be obscured and the sky and landscape would take on a dull red hue. Nevertheless, dust was everywhere. It would fill the ditches and pile up in drifts on the windward side of buildings. My mother would place wet towels and sheets over the windows and doors in a futile attempt to keep the dust out of the house. When we awoke and lifted the blanket, we would generate a mini-dust storm in the bedroom.

Fortunately for Gene's family, the billowing clouds of dust did not originate from their own farm but from the core of the drought-stricken region farther to the west. Much of their land was covered with sturdy virgin prairie grass, which sustained their herd of around 100 dairy cattle, providing them with some income even in the years of crop failures. With reference to the Dust Bowl, Gene later recalled, "I am certain that this climatic and economic catastrophe was a factor in stimulating my interest in meteorology and ultimately in determining my future career."

Gene's interest in science stemmed from other experiences as well, and it transcended meteorology. He attributed the awakening of his interest in science to occasional programs aired on "Cavalcade of America," sponsored by the Dupont Corporation,

which he listened to on the battery-powered radio that his family acquired when he was seven years old.

Gene was born with an ear for music. He recalled in his memoir his early foray into country western music, performing at rural PTA meetings, singing tunes that his aunt had taught him, such as “May I Sleep in Your Barn Tonight, Mister?” (sung to the tune of “Red River Valley”). From these humble beginnings sprung a lifelong love of music, including opera.

Gene attended high school in Lindsborg, living in town with his Grandmother Nelson most of the school year. He did well academically and was elected senior class president, a member of the National Honor Society, and outstanding boy in his graduating class. He held a part-time job, played left tackle on the school football team, and stayed out of trouble except for the occasional Halloween prank. He graduated from high school in 1946 and enrolled in Kansas State University, where he earned a bachelor of science in civil engineering. His first exposure to meteorology was in an Air Force ROTC training course during his senior year.

Gene graduated with a reserve commission in the summer of 1950, coincident with the beginning of the Korean War. After working for nine months as a highway surveyor, he was called to active duty and offered the opportunity to take a one-year basic meteorology training course at the University of Washington (UW) in Seattle, which he accepted. From there he went on to serve as a weather forecaster in support of pilot training at Vance AFB in Enid, Oklahoma. In 1953, he received his “overseas assignment,” which turned out to be at Elmendorf AFB in what was then the Territory of Alaska.

Gene was discharged from active duty in the U.S. Air Force in May 1955, whereupon he returned to Seattle, where Phil Church, his mentor in the training course that he had taken at UW several years earlier advised him to pursue a career in meteorology. Gene disregarded Church’s advice and took a higher-paying position as a plant engineer with Pacific Telephone and Telegraph Co. in Seattle. In March of the following year he resigned his engineering job to take a civil service position in the U.S. Weather Bureau as a river forecaster in St. Louis. His subsequent seven years of work in hydrology and river forecasting proved to be a valuable asset in his future career.

In 1957, while working in St. Louis, Gene became acquainted with Georgene Sachtleben, an accomplished musician who was supervisor of vocal music in the suburban University City school system. They met at a Saturday night YWCA dance—which Gene considered ironic since, having grown up in a pietistic Swedish Lutheran community, he didn’t know how to dance. He recalled how a confirmand

once asked their pastor whether God allowed dancing. After some careful thought, the pastor answered, “Well, yes, but He doesn’t like it!” Gene and Georgene were married in August of 1960 and became parents of four daughters: Mary (1962), Ruth Anne (1964), Elizabeth (1965), and Kristin (1976). In his memoir, Gene credits Georgene for being “the loving wife who has gently but persistently worked to smooth out the rough edges of my farm background.”

During his years in St. Louis, Gene took graduate-level night courses

at St. Louis University, pursuing an M.S. degree in engineering mechanics, which he completed in May of 1963. A few months later, he was awarded a nine-month U.S. Weather Bureau scholarship to study at the Massachusetts Institute of Technology (MIT), which was subsequently extended to almost three years on condition that he pursue a doctoral program. He welcomed this opportunity to study under the supervision of one of the premier meteorological faculties at that time, with Victor Starr as his mentor. Like most of Starr’s students, Gene considered the question of how the atmospheric general circulation fulfills the balance requirements for the conservation of mass, energy, and momentum. However, Gene’s Ph.D. thesis was unique among those written under Starr’s supervision. Drawing upon his flood forecasting experience, he treated the surface and atmospheric branches of continental-scale hydrology not as independent entities, but rather as interacting elements of a coupled system. His analysis of the water budget over North America, published in Rasmusson (1967, 1968) has come to be recognized as an important step toward an interdisciplinary approach to climate system. It laid the groundwork for contemporary programs such as the Global Energy and Water Cycle Experiment (GEWEX), and more generally, for the treatment of land surface processes in global climate models.



Eugene Rasmusson

Upon graduating from MIT in May 1966, Gene joined the staff of the Geophysical Fluid Dynamics Laboratory (GFDL), where he worked for the next four years. During Gene's tenure at GFDL, the laboratory moved from downtown Washington, D.C., to the Forrestal Campus of Princeton University. His most notable contribution during this time was the production of a monograph titled "General Circulation Statistics" in collaboration with Abraham H. Oort, published as a NOAA Professional Paper (Oort and Rasmusson 1971) with a foreword by Victor Starr. Like today's reanalysis products, their analysis served as a resource for numerous empirical studies and as "ground truth" against which the results of newly developed global climate models could be compared. Gene began assembling the five-year global radiosonde dataset on which this analysis is based while he was a graduate student at MIT, working with Howard Frazier and other staff in what had formerly been Robert M. White's group at the Travelers Research Corporation.

GFDL Director Joseph Smagorinsky viewed the role of observationalists like Gene as providing support for the laboratory's model development effort. The Oort and Rasmusson monograph was consistent with that mission, but Gene's aspirations for future projects transcended it. Accordingly, Gene left GFDL in 1970 to lead the newly formed Barbados Oceanographic and Atmospheric Experiment (BOMEX) Analysis Project (BOMAP), whose mission was to process, analyze, and interpret the data acquired during BOMEX, which was conducted in 1969. Most of the principals in the design and implementation of BOMEX were experts in microscale turbulence but had limited knowledge of how to combine turbulence measurements with large-scale wind, temperature, and moisture fields derived from radiosonde data to elucidate the maintenance of the marine boundary layer. Under Gene's leadership, the analysis project took form, the results were published (Holland and Rasmusson 1973), and the experience acquired in BOMEX was incorporated into the planning for subsequent field experiments.

Inspired by the success of BOMAP and anticipating the need for similar projects to analyze data acquired in field experiments that were then in the planning stage, NOAA created the Center for Experiment Design and Data Analysis (CEDDA) with Gene as chief of the Research Division. CEDDA played a key role in the analysis of data acquired in the Atlantic Tropical Experiment (GATE), which was conducted under the auspices of the Global Atmospheric Research

Program (GARP) in 1974 to support the development of schemes for parameterizing deep convection in numerical weather prediction models. CEDDA also played an important role in the Lake Meteorology Subprogram of the U.S.–Canadian International Field Year for the Great Lakes IFYGL, conducted in 1972–73.

In 1979, Gene was asked to organize the Diagnostic Branch of the newly formed NOAA Climate Analysis Center (CAC). His appointment came at a time large-scale atmosphere–ocean interaction was becoming recognized as an important field of study. About a decade earlier, Jacob Bjerknes had postulated the existence of a physical linkage between El Niño in the equatorial eastern Pacific Ocean and the planetary-scale Southern Oscillation in the atmospheric sea level pressure field discovered by Sir Gilbert Walker 50 years earlier. Gene was a great admirer of Bjerknes' work, and he decided to refocus his personal research efforts on extending it. His diagnostic study (Rasmusson and Carpenter 1982) provided conclusive evidence of the relationships envisioned by Bjerknes. With nearly 2,000 citations to date, this has been by far Gene's most influential paper. It is fair to say that it inspired the use of the acronym "ENSO," which symbolizes the interdependence of El Niño and the Southern Oscillation.

Gene set to work assembling a staff and creating the datasets and analysis tools needed to monitor the global climate in near-real time. With the assistance of Phil Arkin, Chet Ropelewski, and Dick Reynolds, among others, the Diagnostics Branch developed the Climate Diagnostics Database to monitor atmospheric circulation, the Climate Anomaly Monitoring System for land surface temperature and rainfall, and a global sea surface temperature (SST) analysis. By 1982, Gene and his staff had put in place an operational ENSO monitoring and diagnostic system that enabled the CAC to disseminate, in near-real time, information on the evolving anomalies and impacts of the remarkably intense 1982–83 El Niño, bringing worldwide recognition to the CAC. Gene was widely quoted in national and international newspaper and news magazine stories. He was interviewed on numerous radio and television interviews, and was the featured personality in articles on El Niño in the February 1984 issue of *National Geographic* and the December 1983 issue of *Readers Digest*. In 1983, he was awarded the NOAA Administrator's Award for his service to the public and scientific community in disseminating current information on the evolving ENSO anomalies and their impacts during this major climate catastrophe. In 1986, Gene was part of a small scientific delegation

that was granted a personal audience with Pope John Paul, who was interested in the human impacts of El Niño events.

Under Gene's leadership CAC prospered, continuing to add tools and data and to conduct groundbreaking research. While the publications and products generated by members of the Diagnostics Branch did not generally bear Gene's name, they were all marked by his keen instinct for the workings of the climate system, which enabled him to conceive, based on small bits of evidence, accurate conceptual models of phenomena such as ENSO.

After 30 years in the civil service, Gene retired from NOAA in 1986 to become a research scientist at the University of Maryland, where he continued his research and participation in international programs on climate variability and global/regional hydrology. One of his major foci, which hearkened back to his Ph.D. thesis, was the GEWEX Continental-Scale International Project (GCIP), a joint effort of atmospheric scientists and hydrologists to develop datasets, models, and a conceptual framework for understanding land-atmosphere interactions on seasonal-to-interannual time scales in the Mississippi River basin. He was also involved in an international effort to better understand the variability of the summer monsoons over North and South America. Gene received the AMS Jule Charney Award in 1989, and he delivered the Victor Starr Memorial Lecture at MIT in 1992 and the AMS Horton Lecture in Hydrology in 1994. He was elected a Fellow of the AGU in 1997 and a Member of the National Academy of Engineering in 1999. In his role as AMS President in 1998, Gene was instrumental in adding the *Journal of Hydrometeorology* to the portfolio of AMS publications.

Gene formally retired in 2000 but remained active as a Research Professor Emeritus at the University of Maryland. He continued to play an active role on panels and committees of the National Research Council. He chaired the advisory panel that oversaw the design of an exhibit devoted to global warming at the National Academy's Koshland Museum. In 2002, he received the AMS C. F. Brooks Award, and in 2007 he was honored at a one-day symposium at the AMS Annual Meeting in San Antonio. In 2010, Gene was elected an Honorary Member of AMS.

In January 2015, two months before his death, Gene took part (via telephone) in the Rasmusson-Wyrтки Symposium at the AMS Annual Meeting in



**Eugene Rasmusson [Photo Credit: Thomas Nebbia/
National Geographic]**

Phoenix, and he submitted a written contribution (Rasmusson 2015) recalling some of the early history of ENSO research, dating back to the pioneering studies of Jacob Bjerknes. Georgene recalls Gene telling her, "I've got to write this [article]. I'm the only person who knows this." This last paper of Gene's attests to his enduring ability to grasp and explain the significance of the historical events that he witnessed, despite his frequent complaints about his lapses in memory. He loved history of all kinds: from sports to Biblical archaeology, from his own genealogy to the life histories of the waiters and waitresses whom he encountered when dining out with his family.

Over the course of his long and winding career path, Gene met and touched the lives of many of us in the scientific community. He first crossed paths with Donald R. Johnson, who also hailed from McPherson County in Kansas, while he was an undergraduate at the University of Kansas and Don was still attending high school in Lindsborg. Gene preceded Don by one year in the U.S. Air Force training course at the University of Washington and followed him by five years in his term as AMS President. While in the U.S. Air Force in Anchorage, Gene befriended J. Murray Mitchell. They

must have been an interesting pair: Gene, the poor farm boy from Kansas and “Mitch,” the prep school boy from a well-to-do family in Tuxedo, New York. Gene kept in touch with Johnson, Mitchell, and with his MIT classmates, Robert Dickinson and John M. Wallace.

Gene deeply appreciated the strong sense of community among his peers in the geosciences—in particular, the sharing of ideas, the culture of working cooperatively for the benefit of society rather than merely for personal gain, and nurturing the next generation of scientists. While serving as CAC director, he fostered the careers of younger scientists including Phillip Arkin, Chet Ropelewski, and Dick Reynolds. While a research professor at the University of Maryland, he was a strong supporter of James Carton, Hugo Berbery, and Sumant Nigam.

Gene felt blessed for having received a first-class education that his family could never have paid for, and for the rewarding professional opportunities that came his way. Out of gratitude for the gifts that he had received, Gene and Georgene established the Eugene Rasmusson Endowed Fellowship that is awarded annually to an outstanding graduate student who has advanced to candidacy in doctoral research in atmospheric and oceanic science at the University of Maryland.

The Department of Atmospheric and Oceanic Science at the University of Maryland launched The Eugene Rasmusson Lectures in 2011 to honor its distinguished faculty member. Past lecturers have included John Kutzbach, George Philander, Mark Cane, and John M. Wallace.

Farm boy and academician; cowboy and lab director; operational forecaster, researcher, and science

media celebrity; country-western singer and opera aficionado—Gene was all of them at some point in his life. He characterized it as “a great trip” that he wouldn’t have missed for anything.

Air Force Lt. Col. Eugene Martin Rasmusson was laid to rest at Arlington National Cemetery with full military honors (including a 21-gun salute) the afternoon of July 22, 2015, under blue skies, surrounded by immediate family and several dozen friends and colleagues.

—JOHN M. WALLACE AND SUMANT NIGAM

FOR FURTHER READING

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José A. Colón Pérez, former meteorologist-in-charge of the San Juan Weather Forecast Office (formerly also National Hurricane Center-East) and AMS Fellow, passed away on July 12 in San Juan, Puerto Rico.

Colón was born in Coamo, Puerto Rico, in 1921. He was an honors mathematics and chemistry (minor) student at the University of Puerto Rico in Río Piedras (UPR) during World War II, when the U.S. Navy funded the University of Chicago to train Pacific-bound military aircrews and personnel. To this end, a delegation from Chicago met the recently appointed president of UPR, Chicago alumni Jaime

Benítez, resulting in the establishment of the joint Chicago–UPR Institute for Tropical Meteorology (ITM) at UPR, led initially by C. Palmer and later by Gordon Dunn and Herbert Riehl. The ITM was administered by Clayborn D. McDowell, who maintained the ITM afterward as a member of the UPR faculty and well-known television weather broadcaster.

The mathematical talent of José Colón was noticed by G. W. Kenrick—who had published experimental

JOSÉ A. COLÓN PÉREZ
1921–2015