Memorial to Marie Morisawa
1919–1994

DONALD R. COATES
Department of Geological Sciences and Environmental Studies
Binghamton University, Binghamton, NY 13902

June 10, 1994, was to have been like any other summer day. It was to have been spent at the university office, answering correspondence, evaluating manuscripts, writing articles, and sharing thoughts with colleagues. However, the winding road that connected her Pennsylvania house and the university had different ideas. Instead of a safe arrival at 9:00 a.m., there would be a single-car accident that claimed the precious life of Marie Morisawa. She had been in ideal health, so there was no physical reason for the crash.

Marie Morisawa was born on November 2, 1919, in Toledo, Ohio. Her father was Japanese and her mother was American. She inherited the best traits of both cultures, and was very proud of her lineage. She graduated from Hunter College in 1941 with a major in mathematics. This background was to serve her well when she switched disciplines to geology at the University of Wyoming, earning a master's degree in 1952.

At Columbia University she became part of the team financed by the Office of Naval Research which Arthur N. Strahler assembled to usher in the quantitative revolution in geomorphology. While obtaining her Ph.D. degree in 1960 at Columbia, she also was an instructor at Bryn Mawr College during the period 1955–1959. This is where I first met her, although all of us who were Strahler's students knew each other either personally or professionally. We felt bonded by the common denominator of quantitative methods as applied to geomorphology. Morisawa's dissertation on streamflow in small watersheds in Pennsylvania was heralded as a major contribution, and parts of it were published in a 1962 issue of the Geological Society of America *Bulletin.*

In 1959 Morisawa moved west, where she was an assistant professor at the University of Montana from 1959 to 1961. She served as a geologist with the U.S. Geological Survey in Washington, D.C. from 1961 to 1962. Marie Morisawa resumed her teaching career at Antioch College as associate professor from 1963 to 1969. It was at this time that important changes were happening at Binghamton University (formerly State University of New York at Binghamton). The geomorphology program had developed a substantial following and was in need of expansion. Although both Morisawa and I had been trained in hydrology, my major interests had shifted to glacial geology and hydrogeology, so I was able to convince her to move to Binghamton, where she remained during the rest of her career. I could not have selected a better, more trusted, and compatible colleague for those 25 years. Morisawa arrived in 1970 as an associate professor and became professor of geology in 1974. We commonly "brown bagged" it for lunch, and our students were always welcome to join our frequent discussions about the state of geology and geomorphology as well as national and world affairs. Indeed, teaching and talking with students were some of Marie's greatest joys. She was a dedicated, gifted, and outstanding teacher who was greatly respected and admired by her students.

The year 1970 was magical because with the arrival of Marie Morisawa it became possible

to fulfill my missionary-type dream, which she shared, to make geomorphology more visible to the geological profession. Accordingly, we initiated the Binghamton Geomorphology Symposia Series on October 16–17, 1970, on the topic "Environmental Geomorphology." These symposia have continued throughout the decades, and Marie had, as usual, assembled an outstanding international group of scientists to speak on the topic "Geomorphology and Natural Hazards" for our 25th meeting. Sadly, instead of the plaudits she was to have received for this achievement, we dedicated the meeting and the ensuing publication in her honor.

Although streams were always Marie's first love, she was highly versatile with many other geomorphic specializations that included gravity movements, coastal processes, and environmental affairs. Her publication record of eight books, numerous articles, abstracts, book reviews, and government reports attests to her scholarship and wide-ranging interests. These works gave Morisawa a national and international reputation, as evidenced by her many grants, contracts, and awards, and the requests she received for consultations and speaking engagements.

Geomorphic changes caused by the 1959 Hebgen earthquake in Montana provided an ideal outdoor laboratory for Morisawa's studies on the initiation of drainage systems. This work produced several abstracts and a 1964 article publication in the *American Journal of Science*. Throughout her life Marie Morisawa was interested in a broad realm of geologic hazards, earthquakes, landslides, floods, and volcanic activity. Her book on streams, published in 1968, was a best-seller. Its popularity continued for many years, and it was so modern and useful that an expanded version was unnecessary until the 1985 publication of her new book on rivers. A 1977 laboratory manual of geomorphology was so well received that it never had competition from other possible authors on the subject. The 1975 textbook *Our Geological Environment,* written with J. S. Watkins and M. L. Bottino provides insights into Morisawa's interest, knowledge, and love of geology, and the importance of understanding the natural world.

A side of Morisawa that was seldom discussed, as she could be a very private person, was the early master's degree she received in theology. The impact this had on her life was very noticeable in her love of the natural world, animals, and friends and associates. She loved the beauty of landscapes and was intensely interested in aesthetic values—how they could be judged, measured, and preserved. Morisawa was one of the leaders in attempts to quantify human preferences in scenery. She wrote, in "Evaluating Riverscapes" (1971): "Only recently have scientists become sufficiently aroused by deterioration of environmental quality to attempt evaluations of scenic beauty. We are beginning to realize that the true values of life come from ties with the natural world. ... It is necessary to save sanctuaries for the spirit *now*."

The above quotation typifies Morisawa's great rapport with the environment, and her subsequent publications on the topic embellish this theme. She was so mindful of the role that humans play in the changing, and often degrading, the environment. This was especially true when such processes as urbanization produced deleterious effects on her dearly beloved streams. Morisawa quantified the human-caused upset in hydraulic geometry and stream equilibrium in several publications, such as the 1979 chapter written with E. Laflure in *River Channel Changes*.

Marie Morisawa's eclectic interests are readily apparent if one has access to her entire publication record, of which only several representative ones can be mentioned. She did her early studies on talus slopes in the Rocky Mountains, studied geomorphic aspects of the Wasatch fault zone (1972), and worked on plate tectonics (1973) and on geomorphic effects produced by tectonism (1985). Morisawa also loved the coastal environment and received funding for work on the beach at Fire Island, New York. Here, she directed the writers of six M.A. theses, and some of this work led to the 1974 publication with C. A. M. King on how to monitor the coastal environment.

Throughout her career, Morisawa received innumerable awards and accolades in recogni-

tion of her outstanding achievements. She was especially proud in 1992 of her Distinguished Alumna Award from the University of Wyoming and her Outstanding educator Award from the Association of Women Geoscientists. She received many grants and contracts from such groups as the National Science Foundation, Office of Water Resources, Ford Foundation, U.S. Geological Survey, and the U.S. Department of Commerce Sea Grant Program. She was a Fellow of the Geological Society of America and the American Association for the Advancement of Science. She held membership in many professional groups, including Sigma Xi, American Quaternary Association, American Geophysical Union, and American Water Resources Association. In addition, she held offices in many of these organizations—for example, Councilor for GSA, AAAS, and AMQA. She was happy to serve as vice chair and chair of the Quaternary Geology and Geomorphology Division of the Geological Society of America (1978–1981), and as board member during the periods 1970–1971, 1972–1974, and 1976–1978.

Because of Marie's national and international reputations, scientists from such countries as Argentina, Greece, and Poland came to Binghamton for their sabbatical studies. In 1987–1988 she had a Fulbright Award to lecture in India. She was widely sought by more than a dozen American universities to give talks, and in 1990 she was geologist-in-residence at Carlton College. In the Binghamton community, she frequently donated her services for the purposes of environmental planning and management. For example, she assisted in writing the master plan for the Town of Vestal, New York.

Following her 1990 retirement from Binghamton University, she remained as professionally active as ever. She continued to advise students, serve the community, write articles, and evaluate manuscripts. She also continued in the capacity of editor-in-chief of the journal *Geomorphology,* which she helped start in 1986. In addition, Marie was instrumental in helping to assure the continuity of the Binghamton Geomorphology Symposia Series.

It was a pleasure to be around Marie Morisawa and share her love for life, for geomorphology, for the natural world, and for people. She was greatly beloved by all who knew her, and she took special pride in her teaching and in her students. She kept an open-door policy without establishment of office hours, because students knew she would give them as much time as necessary, any time of day or night. She balanced a perfect life between teaching and research endeavors. Geomorphology was her life, and she lived it to the fullest. It is difficult to describe what she meant to the profession and people in general with anything less than superlatives. She was dignified but not presumptuous; humble but not meek; brilliant but not braggy; gracious but not showy; warm but not gushy. Indeed the memory of Marie Morisawa is indelibly imprinted on those of us who knew her, and her writings will live on as one of the true legacies of her life. We have suffered a great loss, but the world of human relations is better because of her example, and the science of geomorphology is richer because of her drive and accomplishments. Marie, we miss you profoundly.

SELECTED BIBLIOGRAPHY OF M. MORISAWA

1962 Quantitative geomorphology of some watersheds in the Appalachian Plateau: Geological Society of America Bulletin, v. 73, 4. 1025–1046.

1963 Distribution of streamflow direction in drainage systems: Journal of Geology, v. 71, p. 528–529.

1964 Development of drainage systems on an upraised lake floor: American Journal of Science, v. 262, p. 340–354.

1968: Streams: their dynamics and morphology: New York, McGraw-Hill, 173 p.

1971 Evaluating riverscapes, *in* Coates, D. R., ed., Environmental geomorphology: Binghamton, State University of New York, p. 91–106.

1972 The Wasatch fault zone—general aspects, *in* Environmental geology of the Wasatch front, 1971: Salt Lake City, Utah Geological Association, p. D1–D17.
1973 Plate tectonics and geomorphology, *in* Recent researches in geology: Delhi India, University of Dehli, Department of Geology, p. 269–282.
1974 (with King, C. A. M.) Monitoring the coastal environment: Geology, v. 2, p. 385–388.
—— (editor) Fluvial geomorphology (Proceedings, Fourth Annual Geomorphology Symposium): London, Allen and Unwin, 310 p.
1975 (with Watkins, J. S., Bottino, M. L.) Our geological environment: Philadelphia, W. B. Saunders Company, 519 p.
1976 The aesthetics of river scenery, *in* Women in Geology: Canton, New York, St. Lawrence University, p. 69–77.
1977 Geomorphology laboratory manual: New York, John Wiley & Sons, 235 p.
1979 (with Laflure, E.) Hydraulic geometry, stream equilibrium and urbanization, *in* Williams, G., and Rhodes, D., eds., River channel changes: London, Allen and Unwin, p. 333–350.
1985 Topologic properties of delta distributary networks, *in* Woldenberg, M., ed., Models in Geomorphology: London, Allen and Unwin, p. 239–268.
—— Development of quantitative geomorphology, *in* Drake, E. T., ed., Geologists and ideas: Geological Society of America Decade of North American Geology Centennial Special Volume 1, p. 79–107.
—— (with Hack, J. T.) (editor) Tectonic geomorphology: London, Allen and Unwin, 390 p.
—— Rivers: Form and process: London and New York, Longman, 222 p.

The Geological Society of America
3300 Penrose Place • P.O. Box 9140 • Boulder, Colorado 80301
Printed in U.S.A. on Recycled Paper 10/95