

BRIDGING HYDROLOGIC THEORY AND PRACTICE: A REFLECTION ON PROFESSOR YEVJEVICH'S CONTRIBUTIONS

Vijay P. Singh
Department of Biological & Agricultural Engineering &
Department of Civil & Environmental Engineering
Texas A & M University
College Station, Texas 77843-2117, USA
[e-mail: vsingh@tamu.edu]

Abstract: Professor V. Yevjevich's contributions to the theory and practice of hydrology, hydraulics and water resources engineering are monumental. It is therefore difficult to summarize them in a short note. Hydrologic theory and hydrologic practice are complimentary and they feed each other. Using hydrology in a broad sense encompassing hydraulics and water resources, Dr. Yevjevich's contributions can be summarized, for purposes of discussion, into three categories: (1) research, (2) education, and (3) technology transfer and practice. His theoretical or research contributions dealt with all major elements of the hydrologic cycle. More specifically, his contributions to modeling of droughts (regional and continental), modeling of monthly and annual precipitation, stochastic analyses of streamflows, storage theory, and stochastic simulation in water resources are widely recognized. He is also noted for his work on analyses of trends, intermittency, periodicity, and stochasticity in precipitation and streamflow time series. His leadership in the 1960s and 1970s greatly contributed to the development of the field of stochastic hydrology as we know today. On the other hand, he also contributed to the deterministic side of hydrology: open channel flow, flood routing, and karst aquifers.

Many of Dr. Yevjevich's theoretical contributions have found their way in hydrologic practice. For example, his work on droughts is now a standard practice in defining and characterizing droughts. His work on storage theory contributed to the current practice of sizing reservoirs. He contributed to the practice of water resources engineering in a multitude of projects undertaken by the U.S. Army Corps of Engineers, the U.S. Bureau of Reclamation (USBR), the U.S. Geological Survey, the U.S. Department of Agriculture, and the Federal Highway Administration, and a number of consulting companies worldwide. He worked on flood analysis for the Tulsa Corps of Engineers Office; he introduced statistical and stochastic methods in planning and management activities of the USBR, Denver; he evaluated annual flows of the Colorado River; he developed dual cavity for mining of Potash in the Saskatchewan region of Canada for Kalium Chemicals Consortium; redesigned limestone kilns in Corpus Christy, Texas, to extend the life of brick walls; analyzed extreme floods for Santa Clara County, California; and estimated flooding in urban watersheds of the Washington D.C. area. Dr. Yevjevich's professional work took him to many countries, including Brazil, Canada, Italy, Peru, Portugal, Spain, Turkey, USA, and Yugoslavia.

In the education area, his contributions span the development of a graduate program in hydrology and water resources at Colorado State University, development of graduate level courses in statistical and stochastic hydrology, teaching, and advising a large number of graduate

students (more than 130), and mentoring junior faculty members. Many of his students have become leaders in their own right. He shared his knowledge through publication of books (23), and professional articles (>200). He also contributed to the furtherance of hydrology through the founding of Water Resources Publications, a company that publishes and distributes texts in the water resources area. He organized international conferences, chaired sessions, gave keynote addresses, taught at short courses and institutes and gave invited lectures all over the world. He was a man of unique attributes-he was highly disciplined, knew a lot of languages-French, German, Italian, Russian, Spanish, besides, of course, English and his mother tongues, Serbian and Yugoslavian. He was sophisticated and well mannered. He spoke his mind fearlessly and forcefully, and made his presence known. With his passing an era has gone, but his place in hydrology is preserved for a long time to come.