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On the crossroads between science and engineering: transferability and applicability of concepts in flood hydrology (Henry Darcy Medal Lecture)

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Several engineering hydrology concepts typically emerged under specific historical and regional settings often as answers to water resources problems. Flood hydrology in the Carpathian basin, not only being at the intersection between science and engineering but also geographically located on the borders between East and West and North and South, has undergone interesting development in the last fifty years. It became a place for confrontation between the traditional hydrological concepts from the Central European area, with engineering hydrology methodsdeveloped in response to the requirements of centrally planned economies on water resources development and modern modeling concepts recently imported from the West. A few interesting conceptsemerged in the stochastic and flood hydrology of the Carpathians in the past. These concepts, having been borne in a technologically less developed and politically isolated world, have not found broader acceptance elsewhere. Since important water resources planning exercises were classified as secret,data, methods and results were often hidden from outsiders.By the end of the last century, these concepts were confronted with the import of methodsincluding sophisticated logistics in software, hardware and backed by financial support. So the region has become a test bed for problem solving approaches. This presents the opportunity to examine the evolution, transferability and applicability of concepts from a regional and user perspective and to discuss the chances of introducingalmost forgotten regional ideas through new technological tools for global hydrology.The talk attempts to critically evaluate the development, acceptance and chance of survival of local and global concepts in engineering and flood hydrology from a regional and historical perspective.