



Hydrology education in a changing world: challenges and future directions

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The last century witnessed a tremendous growth in hydrology. On one hand, population explosion and its many associated effects (e.g. increase in water demands, degradation in water quality, increase in human and economic costs of floods and droughts) have necessitated better education, research, and practice in hydrology. On the other hand, technological advancements and methodological developments have not only offered useful means to further hydrology but also led to a certain level of curiosity in studying hydrologic systems. Notwithstanding the progress thus far, there remain numerous deficiencies/challenges in hydrologic teaching, research, and practice. For instance: (1) hydrology education continues to ignore some topics of water that are vital to the security and well-being of our society, such as water crisis, conflicts, and policies; (2) we have a tendency for gaining 'specialization' in certain aspects of hydrologic systems/mathematical techniques rather than looking at the 'big picture' of hydrology; (3) there is not yet a well-established generic framework for hydrologic modeling, such as a 'classification framework' that is so fundamental in many other fields; and (4) climate change is anticipated to have threatening consequences for global, regional, and local hydrology (e.g. increase in the frequency and magnitude of floods and droughts), but we have no clear-cut ways to study such. The present study discusses these issues and some other related ones. Potential directions to overcome these challenges as well as new strategies for developing/supporting hydrology education, especially in developing countries, are also highlighted.