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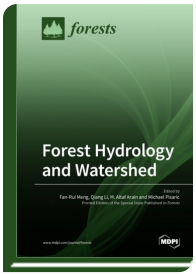
Forest Hydrology and Watershed



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Hydrological processes in forested watersheds are influenced by environmental, physiological, and biometric factors such as precipitation, radiation, temperature, species type, leaf area, and extent and structure of forest ecosystems. Over the past two centuries, forest coverage and forest structures have been impacted globally by anthropogenic activities, for example, forest harvesting, and conversion of forested landscapes for plantations and urbanization. In addition, since the industrial revolution, climate change has resulted in profound impacts on forest ecosystems due to higher carbon dioxide (CO_2) concentration or CO_2 fertilization, warmer temperatures, changes in frequency and intensity of extreme weather events and natural disturbances. As a result, hydrological processes in forested watersheds have been altered by these natural and anthropogenic factors and these changes are expected to accelerate due to future changing climatic conditions. Hence, understanding how various environmental, physiological, and physical drivers interactively influence hydrological and biogeochemical processes in forest ecosystems is critical for sustainable water supply in forested watersheds. About 21% of the global population depends on water sources that originate in forested catchments where forest coverage larger than 30%. Furthermore, there are knowledge gaps in our understanding of the mechanism of hydrological and hydrochemical cycles in forested watersheds. This Special Issue addresses these gaps in our knowledge and includes twelve papers in the major research themes in forest watershed areas.

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