Special Issue

Effects of Climate Change on Hydrology

Message from the Guest Editors

Climate change poses unprecedented challenges to hydrology, affecting global precipitation patterns, river flows, groundwater levels, storm surges, and water quality. First, rising global temperatures alter the temporal and spatial distribution of precipitation, increasing the intensity and frequency of rainfall, especially of extreme events such as heavy rains and droughts. These changes directly impact surface runoff and river flow, causing some areas to face increased flood risks, while others suffer from more severe droughts.

Second, glaciers and permanent snow cover in mountainous regions are melting faster due to global warming, potentially increasing river flows in the short term but leading to long-term decreases, particularly in areas that are reliant on snowmelt. Groundwater systems are similarly affected. Additionally, due to rising sea levels, coastal regions may experience saltwater intrusion into both surface and groundwater systems, further affecting the availability of freshwater resources. Understanding these changes is crucial for managing water resources, mitigating natural disasters, and planning for sustainable development.

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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