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>> SYNTHESIZE MOUNTAINS OF KNOWLEDGE <<

Submitted Abstract

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Abstract

Once a mountain glacier begins retreating, discharge at the watershed outlet increases until a peak known as peak water. Passed this point, glaciers start losing hydrological influence as their volume becomes insufficient to sustain the release of high meltwater volumes.

Beyond that macroscopic and coarse description, the ongoing cryospheric losses produce numerous, complex, and multifaced impacts on water resources. We here propose an overview of the main learnings arising from the research we conducted in a glacierized catchment in the tropical Andes and in the Canadian Subarctic over the past 15 years.

Through different examples, covering water quality and quantity, we illustrate how mountainous glacierized catchments are complex multicomponent systems in which numerous cryospheric, hydrological, and hydrogeological components interact with each other in spatially and timely variable ways. Those components differ from region to region and their level of contribution varies from watershed to watershed within a given region. The relative contribution of the non-glacial sources generally increases as glaciers lose mass and hydrological influence at the watershed scale.

We explore

We conclude that water availability for human, economic, and ecological uses within and downstream of glacierized watersheds remains site-specific.

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