

The changing rainfall–runoff dynamics and sediment response of small mountainous rivers in Taiwan under a warming climate

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Abstract A warming climate increases tropical cyclone intensity, causing more intense rainfall. This creates problems for soil and water conservation and management, particularly for countries in the western tropical-subtropical Pacific region, where cyclones (typhoons) frequently occur. Taiwan is located on a typhoon track and frequently suffers from devastating floods and landslides generated by typhoons. Here we present qualitative and quantitative evidence from Taiwan for the changing characteristics of rainfall–runoff patterns and the associated geomorphic response under a changing climate. We speculate regarding the impact of global warming on the hydrological cycle and associated processes and the threats posed to the inhabitants of the mountainous island of Taiwan.

Key words rainfall; runoff; erosion; sediment yield; landslides; typhoon; Taiwan