

>> SYNTHESIZE MOUNTAINS OF KNOWLEDGE <<

Submitted Abstract

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Abstract

Glacial lake outburst floods (GLOFs) - sudden releases of water from glacial lakes - are often characterized by substantial geomorphological imprints, some of which are process-specific. Analysis of these - so called "GLOF diagnostic features" - can be exploited for the reconstructions of GLOF occurrence in space and time, and so enhance our understanding to GLOF frequencies under changing conditions on longer timescales. However, similar to other landforms in dynamic high mountain environments, also GLOF diagnostic features are a subject to degradational processes and further geomorphic / biogeomorphic reworking, possibly blurring their recognizability and attributability to GLOFs. In this contribution, the longevity of different types of GLOF diagnostic features ranging from breached moraine dams, preserved evidence of pre-GLOF lake water levels, various erosional features and landforms, outwash fans and depositions of large boulders is explored. Using examples of dated GLOFs from different parts of the world (Andes, Alps, High Asia), the ability to identify GLOF diagnostic features of certain age is linked to a GLOF magnitude as well as other characteristics such as lake dam type and GLOF mechanism. It is shown that the longevity of the GLOF diagnostic features is in decades (low magnitude events) to centuries (high magnitude events), suggesting good applicability and reliability for building and enhancing GLOF inventories.