



Mapping and monitoring Himalayan glacial lakes using remote sensing techniques

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Himalayan glaciers are believed to be receding in response to recent climatic changes, which has led accordingly to an increase in glacier-related hazards. However, rigorous field assessment and monitoring of glacier hazard development in high-mountain areas has often been hindered by remote locations, difficult terrain and, occasionally, restricted access to politically sensitive regions. For these reasons, remote sensing and GIS are increasingly important tools for mapping and monitoring this type of terrain, particularly as new analytical techniques are being developed in line with emerging sensor technologies.

This poster will draw on a number of glacier-hazard based studies to show the potential of remote sensing and GIS for mapping and monitoring glacial environments. For example, detailed mapping of glacial lake evolution will be shown that employs different methods to delineate glacier and lake extents. Terrain visualisations will be demonstrated that facilitate a preliminary hazard analysis where field investigation is not possible. Topographic and surface displacement data will be presented that offer a proxy for assessing glacier health, and ultimately glacier susceptibility to lake development in the future. Finally, a conceptual GIS will be offered, which integrates a range of data types to demonstrate how a comprehensive terrain analysis may be used to complement and, in many cases, improve field-based assessments. Such methods, although demonstrated for glacierised areas, can also be applied across the wider Himalayan region as well as be employed in a range of other environmental disciplines.