

GIS Applications of Slope Stability

Slope stability represents a category of liability and risk management to protect both life and property. Critical to knowing how to address potential problems with slope stability is knowing where to look. Geographic information systems (GIS) allow large regions to be mapped with identifiers for higher risk areas based on the slope angle, soil type, and land use. Where it would be impractical to perform case studies over an entire region to identify all unstable slopes, GIS allows for the creation of maps to characterize regions with the highest risk for slope instability. Slope stability risk maps were created for both Hong Kong and Ecuador in different case studies to help identify specific risk areas and evaluate the impact of land use changes, respectively.

References

David N Rowbotham, Douglas Dudycha, GIS modelling of slope stability in Phewa Tal watershed, Nepal, *Geomorphology*, Volume 26, Issues 1–3, December 1998, Pages 151-170, ISSN 0169-555X, [http://doi.org/10.1016/S0169-555X\(98\)00056-7](http://doi.org/10.1016/S0169-555X(98)00056-7).
(<http://www.sciencedirect.com/science/article/pii/S0169555X98000567>)

F.C Dai, C.F Lee, Landslide characteristics and slope instability modeling using GIS, Lantau Island, Hong Kong, *Geomorphology*, Volume 42, Issues 3–4, 15 January 2002, Pages 213-228, ISSN 0169-555X, [http://doi.org/10.1016/S0169-555X\(01\)00087-3](http://doi.org/10.1016/S0169-555X(01)00087-3).
(<http://www.sciencedirect.com/science/article/pii/S0169555X01000873>)

G. Brancucci and G. Paliaga, "The Hazard Assessment in a Terraced Landscape: Preliminary Result of the Liguria (Italy) Case Study in the Interreg III Alpter Project" in "Geohazards", Professor Farrokh Nadim, International Centre for Geohazards, Oslo, Norway; Dr. Rudolf Pöttler, Managing Director, ILF - Consulting Engineers, Innsbruck, Austria; Professor Herbert Einstein, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA; Professor Herbert Klapperich, TU Bergakademie Freiberg, Institut für Geotechnik, Freiberg, Germany; Professor Steven Kramer, University of Washington, Seattle, Washington, USA Eds, ECI Symposium Series, (2006). <http://dc.engconfintl.org/geohazards/16>

Veerle Vanacker, Michiel Vanderschaeghe, Gerard Govers, Edith Willems, Jean Poesen, Jozef Deckers, Bert De Bievre, Linking hydrological, infinite slope stability and land-use change models through GIS for assessing the impact of deforestation on slope stability in high Andean watersheds, *Geomorphology*, Volume 52, Issues 3–4, 16 June 2003, Pages 299-315, ISSN 0169-555X, [http://doi.org/10.1016/S0169-555X\(02\)00263-5](http://doi.org/10.1016/S0169-555X(02)00263-5).
(<http://www.sciencedirect.com/science/article/pii/S0169555X02002635>)