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An application of the diffusion and advection equations for the evolution of a gravel slope

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The diffusion and advection equations were manually coupled to model the evolution of a gravel slope in Da-keng, Taichung, Taiwan. The two equations were discretized using finite difference method and coded in Matlab environment. Field topographical surveys of the gravel slope and previous digital terrain data were used for calibrating the diffusion and advection coefficients used in the equations. We show that the evolution of slope decline and parallel retreat can be well described the gravel slope evolution in Da-keng. A non-homogeneous slope was simulated by varying the corresponding diffusion and advection coefficients for the non-homogeneous slope.

: Slope evolution, diffusion model, advection model
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