

A. Data acquisition & reduction

3.1 Topographic surveys

2.2 Landslide surveys

3.2 Soil engineering properties

*Pre- & Post-storm lidar DEMs,
Detailed landslide mapping,
Source depths and slopes,
Soils database*

C. Model potential landslides on pre-storm topography

*Pre-storm lidar DEM tiles,
Refined parameter zones,
Best soil model, h_{σ} , H_{max} , d_c , R_d*

B. Calibration

3.3 Parameter analysis, c' , ϕ'

3.4. Fit soil-depth models to source depths, H

3.5 Pressure head, ψ 1-D Factor of Safety, F_1 & ROC analysis

Best-performing combination of c' , ϕ' , soil model, h_{σ} , H_{max} , d_c , R_d for each terrane

3.6 3-D Factor of Safety, F_3 & ROC analysis

Best-performing c' , ϕ' , R

3.7 Geologic mapping

Refined parameter-zones

3.8 Soil depth, H

H grid, best c' , ϕ'

3.9 Pressure head, ψ 1-D Factor of Safety, F_1

*ψ grid, F_1 grid
 H grid, best c' , ϕ' , R*

3.9 3-D Factor of Safety, F_3

3.10 True Positive Rate (TPR) & ROC analysis

F_3 values at TPR thresholds

D. Model potential landslides on post-storm topography

*Post-storm lidar DEM tiles,
Refined parameter zones,
Best soil model, h_{σ} , H_{max} , d_c , R_d ,
 c' , ϕ' , R*

3.11 Soil depth, H Pressure head, ψ 1-D Factor of Safety, F_1 3-D Factor of Safety, F_3

Post-storm H , ψ , F_1 , F_3 grids

3.12 Combine tiles, remove edge effects, add F_3 ranks

Susceptibility map