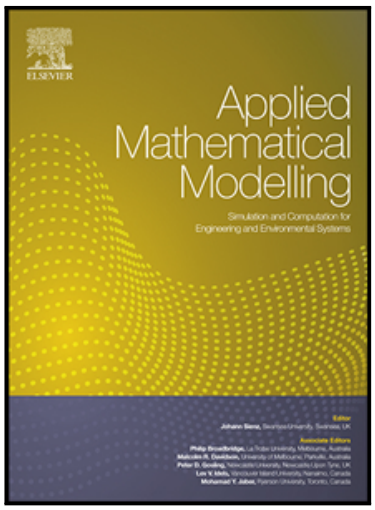

Modelling of spatial variability of soil undrained shear strength by conditional random fields for slope reliability analysis

Shui-Hua Jiang , Jinsong Huang , Faming Huang , Jianhua Yang , Chi Yao , Chuang-Bing Zhou

PII: S0307-904X(18)30283-X
DOI: 10.1016/j.apm.2018.06.030
Reference: APM 12329

To appear in: *Applied Mathematical Modelling*

Received date: 30 December 2017
Revised date: 7 June 2018
Accepted date: 14 June 2018

Please cite this article as: Shui-Hua Jiang , Jinsong Huang , Faming Huang , Jianhua Yang , Chi Yao , Chuang-Bing Zhou , Modelling of spatial variability of soil undrained shear strength by conditional random fields for slope reliability analysis, *Applied Mathematical Modelling* (2018), doi: 10.1016/j.apm.2018.06.030

Highlights

- A simplified approach for generating conditional random field is proposed.
- Analytical posterior statistics can be derived using the proposed approach.
- The proposed approach is more efficient and accurate than adaptive Bayesian updating with structural reliability methods.
- The actual spatial variation can be well characterized by conditional random field.
- Borehole layout scheme affects the probability of slope failure significantly.