



## **Modeling shallow landslides. A case study from the Moulin catchment, Draix, South French Alps**

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Due to the high frequency and low impact of shallow landslides, their occurrence and characteristics are difficult to study. In general they are not recorded in landslide inventories and the assessment of their influence in other physical processes such as erosion or change in the relief are usually taken for granted. This work attempts to provide with an assessment of contributing factors and their incidence in the occurrence of shallow landslides in black marls, or "terres noires" through the study of a small experimental test; the Moulin catchment located at Draix, Southern France. To achieve this goal, the influence of different physical factors was analysed, existing data and new measurements were optimized for producing basis data maps; and a comprehensive methodology was applied to assess landslide hazard integrating spatial and temporal data. Two different approaches were investigated by using two different models: (i) Statistic approach: it was applied to estimate the relative contributions of the factors responsible for instability and assess the landslide susceptibility (ii) Deterministic/dynamic approach: A dynamic model was undertaken incorporating the temporal dimension in the analysis and hence evaluate the landslide hazard. The study was divided in seven main stages: landslide inventory update, geological characterization, relief characterization, soil depth modelling, statistical and deterministic susceptibility modelling and finally, the models are validated by comparing the results with the landslide inventory.