



## **Influence of Soil Moisture on Landslide Occurrence in the Fushan Experimental Forest of Taiwan**

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Landslide is a serious disaster worldwide, threatening life and property of people. To examine the relationship between landslide occurrence and soil moisture, we selected the Fushan experimental forest as our study area, because it is a natural area with limited human disturbance, which can help eliminate the complex influence from the anthropogenic activities. We constructed a model using STELLA Architect, a system dynamics software, to simulate the soil moisture across the Fushan experimental forest based on physically-based equations. Moreover, we considered field soil classification data (i.e. soil types, soil division, and soil texture) in our soil moisture model based on a soil inventory conducted in 1996. In addition to factors of basic soil physical properties, inputs of the model included the observed daily precipitation and daily temperature from the Shuanglianpi weather station. After that, results of the simulated soil moisture were used to pair with the associated landslide occurrence information to investigate their relationships, and mapped in the Arc-GIS (Geographic Information System) for visualization. Based on the soil moisture simulation results, it showed a trend of greater variations at the top layer than at the bottom layer. We also revealed that those of the top layers containing loam usually associated with higher risks of landslide occurrence. Our results indicated that higher soil moisture could contribute to more landslide occurrence. The provided visualization maps can be used as useful information for governments to make better adaptation strategies.