Abstract

Nowadays, many people in the world still live in mountainous areas, and many infrastructures such as roads and railways also need to pass through mountains and valleys. Therefore, slope instability is a major problem faced by people all over the world. Many researches have shown that rainfall infiltration is one of the important factors leading to landslide. Therefore, it is necessary to analyze the slope stability behavior and the instability mechanism during rainfall infiltration. Based on the background above, a rainfall infiltration test model which enables the measurement of the volumetric water content of soil is designed. The distribution and variation of the water content under rainfall infiltration are obtained through the test. Based on these results, a novel method for shallow stability analysis of soil slopes subject to rainfall infiltration is proposed by combining the unsaturated shear strength theory and the assumption of planar potential sliding surface.