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Quantifying the reinforcing effects of tree roots within soils and the evaluation of hillslope stability using geomechanical and numerical models relies on a realistic representation of the characteristics of tree roots distribution within the hillslope and the mechanical strength of those roots. The variety of experimental methods that have been developed since the 1960s and are used to generate these root strength and rooted-soil shear-strength data are reviewed. An Evaluation of Tree-Root Effect on Slope Stability by Tree-Root Strength. Article. Dec 1986. The tensile root strength properties of vetiver grass in association with its inherited morphological root characteristics improve the resistance of soil slopes to shallow mass stability and surface erosion. The tensile strength of vetiver roots is as strong as, or even stronger than, that of many hardwood roots which have been proven positive for root reinforcement in soil slopes. The root tensile strength of vetiver decreases with the increase of root diameter as in the case of hardwood roots. 1986. An evaluation of tree root effect on slope stability by tree root. strength. J. Japanese Forest. The tree roots, therefore, increased the factor of safety against sliding 9-fold, in this case. Based on observations of many landslides of various thicknesses in the Cincinnati area, Mary has tentatively concluded that tree roots can significantly increase the resistance to sliding for soil masses up to about two meters thick. Here we will briefly review her theoretical analysis, in order to determine the effect of tree roots on resistance to sliding for very long slopes. Further data on root strength is given by Turner (in Turner & Schuster 1996, p. 538, tables 20-1 & 20-2) and Hall