Modeling the hydrological response of different tree line vegetation in Central Himalaya, India

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Abstract

In this study rainfall-runoff-soil loss relationship were modeled for three prominent vegetation types in tree line zone of Central Himalaya in India. Nine experimental plots (10mx5m) were delineated on three prominent vegetation types, viz; Coniferous forests, Krumholz, and alpine grassland. Using stochastic and soft computing models, an empirical relationship was developed to simulate rainfall-runoff- soil loss and hence to estimate soil erosion from tree line vegetation in central Himalaya; these findings will lead towards devising better conservation and management strategies.

Keywords: Hydrological response, Tree line vegetation, Central Himalaya, Stochastic and soft computing models.