



geosciences



Special Issue Reprint

Natural and Artificial Unsaturated Soil Slopes

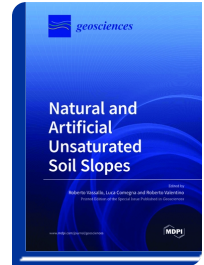
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Mechanical and hydraulic soil properties are strongly affected by the degree of saturation, with important consequences for earthen embankments, soil–vegetation–atmosphere interactions, geoenvironmental applications, and risk mitigation. The presence of sloping ground surfaces is common. In slightly inclined natural slopes, susceptible to deep landslides, the unsaturated condition of shallow soil horizons affects deep pore water pressures and, therefore, global stability. The stability of steep mountains covered by shallow deposits is often guaranteed by a shear strength contribution related to the unsaturated condition. In this case, the degree of saturation plays a key role in determining which rainfall events can act as landslide triggers, consequently controlling the post-failure evolution. Partial saturation is the basic characteristic of soils used as construction materials of geo-structures such as levees, dikes, and dams. It governs the structure behavior during construction phases, in serviceability, and in extreme scenarios. Hoping to provide a bridge between theoretical research and practical applications, this Special Issue collects quality contributions related to natural and artificial slopes under unsaturated conditions, focusing on aspects such as: water retention and transport properties, mechanical behavior, advances in experimental methods, laboratory and in situ characterization, field monitoring, geotechnical and geophysical field tests, landslide investigation and prevention, the design and maintenance of engineered slopes, and the constitutive and numerical modeling of hydro-mechanical behavior.



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