

Water Penetration Problems in Irrigated Soils

Statement of Research Interest

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Mineral composition of soils is considered to be one of the contributory factors towards the problem of water penetration into soils. The characteristics of the minerals, their weathering rates, and the exchangeable ions - among other properties, influence soil physical properties such as particle orientation and crusting. Several studies have recognized the influence of these factors on infiltration rates. Optical and electron microscopic observations have shown that aggregate breakdown and movement of fine particles cause noticeable retardation of water infiltration into soils. I am proposing a study on the soil mineralogical basis- specifically, the characteristics of minerals, weathering rates, soil pollution-mineral interactions as related to the soil physical properties that cause infiltration problems.

The Mineralogy laboratory at U.C. Riverside is equipped with a Siemens D500 automated XRD unit. We have access to IR spectrometers, SEM and TEM with energy dispersive x-ray spectrometers, and various other analytical equipment that are necessary to carry out these types of studies.

A three-year study has been envisioned with an annual budget of approximately \$22,000.

I am willing to collaborate with other researchers whose studies may share significant commonality with these studies.