**Exploring the Applicability of Low-Cost Capacitive and Resistive Water Content Sensors on Compacted Soils**

Soil water content measurement is crucial during compaction control of embankments. The current techniques used to measure the soil water content in the field are outlined, and their advantages and limitations are indicated. Most techniques require destructive sampling and yields late results, or involve expensive equipment and are hard to set up. Low-cost capacitive and resistive moisture sensors entered successfully in last decades in agronomy applications to automatize crops irrigation. The purpose of this study is to identify whether these sensors are reliable to be used in geotechnical engineering and, in particular, to what extent can they aid compaction control of embankments. Three resistive sensors and two capacitive sensors are tested on five types of soils prepared with a wide range of water contents. The experimental procedures are described, and the sensors output data are compared with water contents obtained from the oven-drying technique. A new device that allows calibration of the sensors on compacted soils is developed. Soils characteristics that can influence moisture measurement using capacitive and resistive sensors are also explored. Test results suggest that some of the sensors can estimate the soil water content on compacted fine grained soils, when proper calibration procedure is successfully achieved. Sensors accuracy tend to increase as the soil void ratio decreases. Such sensors may be useful for expedite measurements, especially, when later counter-prof is available, or when a wide interval for the water content is acceptable.