

COMPARISON OF TOPSOIL WATER CONTENT BY TIME DOMAIN REFLECTOMETRY AND GRAVIMETRIC METHOD

S.S. Garusingha^{1*}, Y.N.S. Wijewardana² and D.T. Udagedara¹

¹*Department of Applied Earth Science, Uva Wellassa University, Badulla, Sri Lanka*

²*Department of Engineering Technology, Uva Wellassa University, Badulla, Sri Lanka*

**sawbhaggya10@gmail.com*

Soil water content (SWC) is an important ecological element in natural ecosystems. The objective of this research is to measure and compare the SWC in topsoil (0-10 cm) using time domain reflectometry (TDR) and gravimetric method. Soil samples were collected from Uva Wellassa University premises (N 6^o 58' 52.53708, E 81^o 4' 30.26964). The measurements were obtained along the five survey lines in the selected area (L1 to L5). The study was carried out in March 2022, with the parallel use of the TDR and gravimetric method. TDR measurements were taken as *in-situ* measurements, and oven-dry water content was measured using disturbed soil samples. The soil bulk density and soil texture were measured using the soil core method and the hydrometer method, respectively. Finally, the correlation coefficients of measured parameters were analyzed. The coefficient correlation indicates a strong relationship ($r=0.9$) between TDR values and gravimetric measurements, which exhibit a 1:1 relationship. The study concludes that the two methods used in measuring SWC give some comparable results.

Keywords: Gravimetric method, Soil water content (SWC), Time domain reflectometry (TDR) method, Topsoil