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TRANSMISSION LINE THEORY BASED TWO LAYER MODEL FOR DETERMINING SOIL MOISTURE

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Abstract. Present paper deals with the task of estimating soil moisture under vegetation cover by using transmission line theory based two layer model. The two layer model measures the impedance of both the layers namely, soil and vegetation. This impedance is the function of dielectric constant and thickness of both the layers. For known dielectric constant and height of vegetation layer, dielectric constant of soil was determined for certain thickness of soil layer using genetic algorithm (GA). The soil moisture value was retrieved from dielectric constant of soil by using Topp et al., (1980) relationship. Retrieved soil moisture values were in good agreement with observed values.

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