

Variability of dielectric constant of dry soil with its physical constituents at microwave frequencies and validation of the CVCG model

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Abstract

In the designing of active and passive sensors for microwave remote sensing of soil, its electrical parameters like scattering coefficient and emissivity play a vital role. One of the important parameters on which these two depend is the value of the dielectric constant that again varies with the physical constituents of the soil. In this paper, an attempt has been made to study the variability of the dielectric constant of dry soil with its physical constituents. The soil samples are taken from different parts of northern India and variations of dielectric constant as observed in the X-band are presented here. The CVCG model, generated to compute the dielectric constant for dry soil from its physical constituents has also been validated.