

Intermediate scale soil moisture estimation using cosmic-ray soil moisture sensors: static and mobile opportunities

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Abstract: Cosmic-ray soil moisture sensors continuously measure spatially averaged soil moisture over an area of ~30ha. The sensor is non-invasive and operates at a scale large enough to capture the heterogeneity that is present in natural landscapes. In this paper we will describe the technique and introduce the Australian cosmic-ray soil moisture probe network which is known as CosmOz. We will also describe a transportable cosmic ray sensor, known as a 'Rover' and describe some potential applications of this device in the production of detailed soil moisture maps and in the calibration/validation of remotely sensed soil moisture.