Soil apparent electrical conductivity and geographically weighted regression for mapping soil

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Abstract To resolve the spatial variation in soil properties intensively is expensive, but such knowledge is essential to manage the soil better and to achieve greater economic and environmental benefits. The objective of this study was to determine whether the soil apparent electrical conductivity (EC_a), alone or combined with other variables, is a useful alternative for providing detailed information on the soil in the Extremadura region of Spain. Apparent soil electrical conductivity was measured and geographically weighted regression was used to characterize the spatial variation in soil properties, which in turn can be used for soil management. This study shows that soil cation exchange capacity, calcium content, clay percentage and pH have a relatively strong spatial correlation with EC_a in the soil of the study area.

Keywords Soil apparent electrical conductivity (Ec_a) · Clay soil · Soil mapping · Site-specific management

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