



## **Digital mapping of WRB-soil classes in Iran using random forest prediction model**

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Digital soil mapping is not a commonly used technique for acquiring soil data in Iran, and instead, the available legacy soil maps are the main sources of soil data. Therefore, at present research, we tried to create a digital map (DSM) of soil classes across the country. Here, a well-known machine learning algorithm, random forest model (RF), was applied to correlate soil legacy data with a suite of environmental covariates (i.e. representative of soil forming factors). To test the accuracy we established a calibration and validation set (70:30%). The validation results indicated that RF could predict 15 defined WRB soil classes with overall accuracy and kappa of 58% and 0.49, respectively. Of the 15 soil classes, the highest and lowest producer's accuracy obtained for Calcisols and Chernozems, respectively. Overall, we could recommend the use of random forest model for the spatial prediction of soil classes in Iran.