

Soils are at the crossroads of many existential issues that humanity is currently facing. The establishment of the soil landscape map (Figure 23) allowed us to identify 07 soil units. DSM and monitoring have become operational thanks to the harmonization of soil databases, advances in spatial modeling and machine learning, and the increasing availability of spatiotemporal covariates, including the exponential increase in freely available remote sensing (RS) data. The soils are often young and poorly evolved, still linked to the parent rock and most often possessing the properties of the latter. The soils formed on the marls (the marls cover large areas) are essentially vertic soils: brown calcareous, poorly evolved, regosols and vertisols. The map was built with 20 samples distributed in the watersheds of the study area located in north western Algeria with the use of several environmental variables such as soil parameters (organic matter and clay), remote sensing indices (band 1, band 2, band 3). Over the last four decades, major research efforts in the field of geometrics have led to the development of methods allowing to .capture the complex nature of soils