



Understanding Americans: a focus on the transition from traditional to digital soil mapping

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The USA has had arguably the strongest and certainly the most extensive soil mapping program in the world. Yet many of the developments in digital soil mapping (DSM) occurred outside the USA from the late 1970s through the 1990s. This presentation attempts to explore why the USA has differed from many of the international trends in DSM. Much of the work on DSM in the USA has focused on the extraction of expert knowledge to formulate spatial prediction models for soil classes. Although DSM approaches are quickly evolving in American academia, the adoption of DSM methods have been slow and cautious in the National Cooperative Soil Survey (NCSS) mapping efforts. The great majority of soil maps available in the USA are digitized maps that were originally produced by traditional methods with some manual updating. Work attempting to implement more DSM techniques in the NCSS has been underway in select areas of California, Minnesota, Utah, Texas, and Wyoming. However, the only official NCSS product considered to be fully DSM-based thus far is in Essex County, Vermont. It is noteworthy that the Essex County Soil Survey map is still heavily dependent upon expert knowledge. Why the attachment to expert knowledge as opposed to data mining techniques for identifying new patterns in soil variability? We argue that this is because of the exceptional soil maps that were produced for the USA using traditional methods. Despite the limitations of traditional methods, it is difficult to improve upon the amount of field investigation and verification done to create the existing NCSS maps. Along with that comes a deep attachment to soil series as map units and all the data associated with those soil series.