

# **Creation of high resolution soil parameter data by use of artificial neural network technology (advangeo®)**

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Artificial neural networks (ANN) are an excellent tool for the analysis of soil point data and the creation of high resolution grid data. The methodology is based on the ability of ANN to “learn from examples” and transfer the “knowledge” to a larger area with similar conditions.

In this case study, soil point data (profile documentation) were regionalised to generate high resolution grid data of single soil parameters, such as humus classes, soil moisture classes, TOC and erosion susceptibility. The modelling was based completely on available data, such as the digital soil map, the digital elevation model and its derivations, land use data and climate parameters. The ANN models were calibrated by existing documented profiles and samples. In contrast to the vector soil maps, the high resolution soil parameter grids represent their local variations and make them available for precision farming and other applications.

The paper presents the background of the ANN based advangeo ® software, the methodology and reliability of soil parameter modelling and the potential use of the data.