



Can stratification based on soil type or spectral similarities improve the prediction of soil organic carbon by visible-near infrared spectroscopy at national scale?

Marco Nocita (1), Antoine Stevens (2), Luca Montanarella (1), and Bas van Wesemael (2)

(1) Joint Research Centre - European Commission, Ispra, Italy (marco.nocita@jrc.ec.europa.eu), (2) Universite' Catholique de Louvain

Visible and near infrared diffuse reflectance spectroscopy (Vis-NIR DRS) showed to be a fast and cheap tool to infer soil organic carbon using calibration equations based on spectral libraries collected at fine scales. However, when applied to large and diverse soil spectral libraries, spectroscopic calibrations did not provide sufficient accuracy as an alternative to standard laboratory SOC analysis. The aim of this study is to test whether the stratification of a dataset based on soil type or spectral similarities might improve the accuracy of SOC prediction by Vis-NIR DRS. We will use European Commission's LUCAS spectral library samples coming from Denmark, Finland and Slovakia, due to the availability of very detailed soil maps. For the three case studies we will compare the prediction accuracies obtained (i) without stratification, (ii) applying a stratification based on soil type maps, and (iii) sub-setting the datasets using a spectral classification. The stratification built on spectral reflectance will be set-up using a local algorithm able to group sample based on spectral similarities.