Geophysical Research Abstracts,
Vol. 11, EGU2009-5410, 2009
EGU General Assembly 2009

Continental-scale digital soil mapping: Which parameters can be used for regionalisation of soil pH

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We used a compilation of around 12000 soil pH measurements from 11 different sources to create a quantitative map of estimated soil pH values across Europe using a geostatistical framework based on regression-kriging. We investigated which of 54 auxiliary variables generated from DEMs, satellite imagery and other information in the form of raster maps at 1km resolution explained the differences in the distribution of soil pHCaCl2 most. Based on our selection we generated a soil ph map. The goodness of fit of the regression model was satisfactory (R2adj = 0.43) and its residuals follow a Gaussian distribution. The map results agree with our previous knowledge about this soil property. The lowest values correspond to the soils developed on acid rock (granites, quartzite's, sandstones, etc), while the higher values are related to the presence of calcareous sediments and basic rocks. The validation of the model also shows that our models is quite accurate (R2adj = 0.56).