

复杂景观区土壤有机质预测模型的尺度效应

Effect of scale of model on prediction of soil organic matter in complex landscape region

DOI:10.11766/trxb201203300100

中文关键词: [土壤有机质](#) [尺度效应](#) [趋势](#) [残差](#)

Key words: [Soil organic matter](#) [Scale effect](#) [Trend value](#) [Residual value](#)

基金项目: 国家自然科学基金项目(40801080)和国家自然科学基金项目(40971128)资助

作者	单位	E-mail
巫振富	郑州大学水利与环境学院	wfjt1988@163.com
赵彦锋	郑州大学水利与环境学院	yfzhao@zzu.edu.cn
齐力	郑州大学水利与环境学院	
陈杰	郑州大学水利与环境学院	

中文摘要:

为研究复杂景观区土壤有机质预测模型的尺度效应,探讨不同空间尺度数据综合利用的问题,本文运用回归Kriging方法对河南省登封市土壤有机质预测,分析了不同空间尺度数据在建模过程中的作用和影响。结果表明:土壤有机质关于高程因子的趋势属于宏观趋势,以大尺度数据拟合该趋势值效果最优,小尺度数据不适合用于拟合土壤有机质的趋势值,但揭示了小尺度残差值的空间变异细节,增强了大尺度残差值的空间结构性,能够有效提高土壤有机质预测精度。因此,景观复杂区土壤有机质预测中,应基于大尺度数据模拟趋势值,大尺度数据和小尺度数据相结合拟合残差值的空间变异函数以预测残差值,最后加上残差值得到土壤有机质预测值。

英文摘要:

Taking Dengfeng County as a case for study, effects of scale of the model on prediction of soil organic matter in complex landscape region were studied and at the same time the issue of how to comprehensively utilize spatial data of various scales explored. Soil organic matter of Dengfeng was predicted using the Regression Kriging method for analysis of roles and effects of spatial data of various scale modeling. It was found that the soil organic matter was macroscopically related to elevation factor and large scale spatial data were the most optimal for use in fitting the trend value, while small scale spatial data were not proper for use in fitting. However, they revealed details of the spatial variability of small scale residual value and enhanced the spatial structure of large scale residual value, which effect improved precision of the prediction. Therefore, in predicting soil organic matter in complex landscape, it is necessary to use large scale data in combination with small scale data to fit spatial variogram of residual value based on simulated trend value of large scale data and hence to predict residual value. Then by adding the trend value onto the residual value, soil organic matter predicted value is thus obtained.

巫振富,赵彦锋,齐力,陈杰.复杂景观区土壤有机质预测模型的尺度效应[J].土壤学报,2013,50(2):296-305. Wu Zhenfu, Zhao Yanfeng, Qi Li and Chen Jie. Effect of scale of model on prediction of soil organic matter in complex landscape region[J]. Acta Pedologica Sinica, 2013, 50(2): 296-305.

摘要点击次数: 425

全文下载次数: 167

[查看全文](#) [查看/发表评论](#) [下载PDF阅读器](#)

关闭