

ARTÍCULO CIENTÍFICO

VALIDACIÓN DE MODELOS GEO-ESPACIALES PARA CUANTIFICAR LA FIJACIÓN DE CARBONO EN EL SUELO. SUBCUENCA DEL RÍO GUAYLLABAMBA-ECUADOR

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SPATIAL MODELS VALIDATION FOR CALCULATE CARBON FIXATION IN THE SOIL. GUAYLLABAMBA RIVER SUB-BASIN (ECUADOR)

Abstract

The research validated geo-spatial models of organic carbon (CO) and bulk density (DA) in the Guayllabamba river sub-basin -Ecuador- (8 200 km²), obtained from different interpolation methods (trend surface, moving average and moving surface) -each one with different parameters-, based on information from 462 soil profiles, to calculate carbon fixation (t ha⁻¹) within the first 20 cm of topsoil; for which, was extracted, of the total soil profiles, 399 to interpolate and 63 to validate. Determining, through the coefficient of determination (r^2), analysis of variance (F test) and significance tests (Tukey at 5%), that the moving surface method, with parameters: parabolic second degree (as polynomial surface) and inverse distance (as weight function), was the most suitable for producing geo-spatial models close to reality upper 90%, for both organic carbon and bulk density; with the which ones the carbon fixation in the soil was calculated, resulting that nearly three-quarters of the study area has a high setting (above 50 t ha⁻¹).

Keywords: Soil carbon, interpolation, validation.

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