



Multifractal Analysis as a tool to measure soil surface rugosity.

M. Rosario Garcia(1), A. Saa(1), **A.M. Tarquis**(2) and M. Cruz Díaz(1)

(1)Dpto. Edafología - E.T.S. Ing. Agrónomos - Polytechnic University of Madrid, Ciudad Universitaria sn, Madrid, 28040, Spain, (2)Dpto. Matemática Aplicada - E.T.S. Ing. Agrónomos - Polytechnic University of Madrid, Ciudad Universitaria s.n., Madrid, 28040, Spain

Topographic measurements made on several 1x2 m² experimental plots after four different techniques of soil management (chissel, rotovator, rodillo and muela) enable the multifractal analysis (MFA) of soil roughness. These plots are located in Comunidad de Madrid and their texture is described as sandy loam and silty. The MFA was based on the singularity spectrum of the soil topography. The four spectrums obtained for each treatment are compared with a singularity spectrum obtained from a random topography measure with the same mean and standard deviation calculated in each case. Different indexes from the spectrum and the comparison with a random structure were calculated to establish a comparison of the soil roughness obtained among the treatments. These comparisons gave an statistic significant differences between some of the treatments.