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Roughness spatial variability in agricultural parcels in Provincia de Buenos Aires, Argentina

Use of SAR images for soil surface moisture estimation requires taking into account the other factors that influence the radar backscattering signal, among which the surface cover roughness at centimetre scale is very important. Quantitative measures of the roughness are required as input in the backscattering models. There are diverse methods to determine the roughness, but many are expensive or of complex field operation. A versatile and economic method that uses a photographic camera and a gridded screen is presented. The camera is oriented azimuth and vertically according to the point of view of the satellite. The screen is useful to improve the contrast, to enhance the borders and to calibrate metrically the picture. A GPS receiver is used to positioning the photographs. Each picture is numerically processed obtaining the RMS height, as parameter of the crop-soil complex roughness. By means of krigging geostatistics techniques was estimated and draw the maps of spatial distribution of roughness. Experiences in parcels with of stubble of corn, soybean and wheat coverings, located in the hill agricultural area of the Provincia de Buenos Aires, Argentina are shown.