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Temporal stability of the soil water content in an Rhodic Eutrudox consolidated no tillage

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Soil water content is important for plant development, choice of cropping time and agricultural practices improvement. Since, it varies considerably in space and time. It is known that the use and management change the distribution of soil water content across the landscape. The technique of temporal stability represents a breakthrough because it allows identification of the most suitable locations for field sampling of water content in soil, which have values similar to the average value. The objective of this study was to determine the stability of soil water content in a Rhodic Eutrudox cultivated with long-term tillage in Campinas (São Paulo, Brazil). The study was conducted in an area of 3.42 hectares of the experimental station of the Instituto Agronomico in Campinas (São Paulo State, Brazil). The soil of the study area is an Rhodic Eutrudox (clay texture). Measurements of soil water content were performed using the TDR unit in the topsoil (0.0 to 0.1 m deep), at the following sampling dates: 16/07/2010, 27/07/2010, 12/08/2010, 14/09/2010 and 22/09/2010, in 302 sampling points spaced 10.00 x 10.00 m. Data were initially evaluated by descriptive statistics and geostatistics. Temporal stability was determined using the relative difference and the Pearson correlation test. It is concluded that all sampling dates were distributed normally and the dependence index spatial moderate / low. The soil water content sampled at 27/07/2010 showed the highest range (a = 80.00 m). The use of temporal stability allowed identification of the points 33 and 285 as being stable and representative of the average soil water content during the study period. The anomalous behavior of the standard deviation and the mean relative difference for the 302 sampling points among the dates is due to the variation in water storage capacity and the rainfall oscillation over the study area.