Guelph permeameter results are probably affected by climatic variation in the tropics

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Saturated field hydraulic conductivity was measured, using a Guelph permeameter, at the depths of 10, 20 and 60 cm, to verify the effect of intensively managed, compared to extensively managed ones, beef cattle production systems on pastures grown on three soils (Hapludox, Eutrudox, Paleudalf), in São Carlos, SP, Brazil, under tropical altitude climate. Significant differences occurred within depths ($P<0.05$). However, differences decreased with years and, therefore, differences among soils and between management systems were also reduced. These intensive decreases with the consecutive years, mainly at the 60-cm depth, where the highest mean conductivity occurred, suggested that some factors were influencing the data, not explained by other soil properties or management conditions. Preliminary analysis of the atmospheric conditions at the measurement periods, pointed to the influence of air temperature variation. Further laboratory studies are needed to establish possible correction factors for the Guelph permeameter measurements in tropical conditions.