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ABSTRACT BOOK

739 - RELATIONSHIP BETWEEN HYDRAULIC CONDUCTIVITY AND SPECIFIC CAPACITY IN THE GUARANI AND BAURU AQUIFER SYSTEMS: STATE OF SAO PAULO (BRAZIL)

Alexandra Suhogusoff

Institute of Geosciences, University of São Paulo, São Paulo, Brazil

Luiz Carlos Kauffman Ferrari

Institute of Geosciences, University of São Paulo, São Paulo, Brazil

Vitor Ribeiro De Sá

Institute of Geosciences, University of São Paulo, São Paulo, Brazil

The Bauru Aquifer System (BAS) and Guarani Aquifer System (GAS) supply total or partially around 6 million people in the State of São Paulo (Brazil), through private and public wells. Despite the importance of these two aquifers, there is a considerable lack of information about their specific capacity (Q/s) and hydraulic conductivity (K): from 12,000 wells catalogued by Water and Electric Power Department, 61% show Q/s values and only 9% present K values.

In this study classical statistical methods were applied to well data from the municipalities of Araraquara, Bauru, Marília and São Carlos to determine how the values of Q/s (most abundant data) can be used to estimate values of K (more limited data). The data processed were related to the semi-confined portion of BAS and to the unconfined and semi-confined portions of GAS.

Shapiro-Wilk and Kolmogorov-Smirnov normality tests ($\alpha = 0.05$) indicate that K is lognormal for BAS and unconfined and semi-confined GAS, while Q/s is lognormal for BAS, but normal for unconfined and semi-confined GAS. Despite the similar behavior between unconfined and semi-confined GAS, the t-test for independence ($\alpha = 0.05$) shows that even though the log (K) values from these two aquifers could be samples of a single random variable, the same cannot be said about Q/s. Thus, one considers that the semi-confined and unconfined portions of the GAS must be treated separately.

Significance tests applied to coefficients of linear correlation between variables log (K) and log (Q/s) (BAS), log (K) and Q/s (semi-confined GAS) and log (K) and Q/s (unconfined GAS) indicate the existence of linear correlation ($\alpha = 0.05$) for all three cases, which allowed to fit a linear relationship between the variables for each group, with RMS error in determining log (K) of less than 0.55. Therefore it is understood that the lines fitted to each group can be used to increase knowledge of K through Q/s values.