NEW TOOLS IN MODERN ANALOGUE TECHNIQUES: THE NUMBER OF ANALOGUES

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For estimating paleoenvironmental parameters from fossil assemblages starting from the knowledge of modern data sets, the Modern Analogue Techniques (MAT) is broadly applied. A key stone of MAT is the decision of the number of modern analogues to be used. Most studies have applied a threshold value based on a distance metric or a threshold value assessed from a Receiver Operating Characteristic (ROC) curve. In this work we introduce new tools for selecting the number of analogues. These tools must take into account when the modern data are a grouped or ungrouped data set. In both situations we propose to calculate numerical indices commonly used in multivariate scenarios: correlation matrix, STRESS, MSD, and misclassification rate. Since each modern data consists of percentages of different specimens all of these indices must be coherent with the compositional nature of the data. Therefore, recent advances of log-ratio analysis are properly incorporated to our study.

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