

Spatial Patterns and Temporal Evolution of Octopus Abundance in the Mauritanian Zone

Authors : Dedah Ahmed Babou, Nicolas Bez

Abstract : The Min-Max autocorrelation factor (MAF) approach makes it possible to express in a space formed by spatially independent factors, spatiotemporal observations. These factors are ordered in decreasing order of spatial autocorrelation. The starting observations are thus expressed in the space formed by these factors according to temporal coordinates. Each vector of temporal coefficients expresses the temporal evolution of the weight of the corresponding factor. Applying this approach has enabled us to achieve the following results: (i) Define a spatially orthogonal space in which the projections of the raw data are determined; (ii) Define a limit threshold for the factors with the strongest structures in order to analyze the weight, and the temporal evolution of these different structures (iii) Study the correlation between the temporal evolution of the persistent spatial structures and that of the observed average abundance (iv) Propose prototypes of campaigns reflecting a high vs. low abundance (v) Propose a classification of campaigns that highlights seasonal and/or temporal similarities. These results were obtained by analyzing the octopus yield during the scientific campaigns of the oceanographic vessel Al Awam during the period 1989-2017 in the Mauritanian exclusive economic zone.

Keywords : spatiotemporal , autocorrelation, kriging, variogram, Octopus vulgaris

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020