

GEO-KARDS : AN INTELLIGENT SYSTEM FOR ECONOMIC AND GEOLOGIC EVALUATION OF A SEDIMENTARY BASIN.

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The evaluation of the possible economic outcome and geologic characterization of a probable oil or gas field is a very important issue in order to decide for exploration of an area. This evaluation is very complex, since it depends on some qualitative parameters learned by the expert during the exploitation of the different reservoirs composing a basin, besides depending on many numerical, geological and economical parameters. The system described here uses artificial intelligence techniques to handle these different types of data of a selected area of a basin. This analysis will consider reservoir thickness, depth, porosity and permeability, to calculate the quality maps of each reservoir in the selected area. Porosity and permeability values will be estimated by cross plotting curves of these parameters versus depth obtained by information of all hydrocarbon accumulation of the referred basin. The total attractiveness of the selected area will be the sum of the attractiveness of each reservoir, taking into consideration quality maps of each reservoir, the contribution of each reservoir of the basin in its equivalent oil in place volume, oil and gas shows, the ratio of hydrocarbon volume per well drilled and success index. The simple economic results for each reservoir will be estimated by the minimum hydrocarbon volume that will allow the achievement of pay-out. GEO-KARDS was successfully tested with real and historical data from Petrobrás Recôncavo Basin.