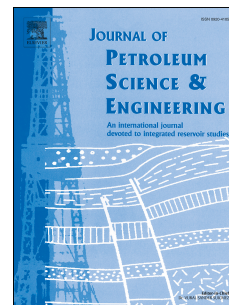


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Application of gamma deviation log (GDL) in sequence stratigraphy of carbonate strata, an example from offshore Persian Gulf, Iran

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Application of Gamma Deviation Log (GDL) in sequence stratigraphy of carbonate strata, an example from offshore Persian Gulf, Iran

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## Abstract

The application of gamma ray data as a non-destructive, inexpensive geophysical survey tool with a very high resolution and coverage provides the potential for a better understanding of sequence stratigraphic boundaries in carbonate strata in this study. Three wells' GR data from Permian–Triassic Kangan and upper Dalan formations in one of the central Persian Gulf Iranian hydrocarbon fields have been used for this purpose. The difference between each data point with the well average GR shows the deviation of each measurement from the base value. Regarding the same physical, chemical and biological conditions (genetic relationship) in each sequence, GR deviations show the same deviation trend within each sequence. The cumulative distribution of these deviations is therefore increasing or decreasing constantly in each sequence. Calculation of GR deviation cumulative distribution exactly showed the Kangan-Dalan (Permian–Triassic) boundary. The average GR value of each sequence then used for the new deviation calculation and new boundaries detected in second level analysis. The turnovers determined in this method were correlated with the sequence stratigraphic boundaries of the studied formations provided by the core analysis, sedimentological methods. The new method applied successfully to the 10

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