

## Abstract

The presence of Sedimentary Residual Magnetic (SRM) anomalies over hydrocarbon accumulations and their contribution to exploration remain somewhat controversial despite encouraging results and an improved understanding of genetic links between hydrocarbon seepage-induced alterations and near-surface magnetic minerals. These uncertainties still exist because shallow-sourced SRM anomalies are not associated exclusively with hydrocarbon. The cause of these anomalies may well be microseepage related, but could also result from others sources such as cultural features or detrital magnetite. To deal with this particular purpose, we explore the spatial association between known hydrocarbon fields within the Algerian Triassic province basin and SRM anomalies using GIS-based weights of evidence statistical approach. The results indicate that the known hydrocarbon fields are strongly associated with particular classes of anomalies. These results are significantly useful for further exploration in the case of the study region, and can also be extended to regions with similar characteristics