HIGH RESOLUTION CHEMICAL STRATIGRAPHY OF SANDSTONES: A CASE-STUDY FROM CAMPOS BASIN, SOUTHEAST BRAZIL

[1]RODRIGUES, R. and [1]RODRIGUES, E.B.
[1]PETROBRAS/CENPES, RJ, Brazil.

High resolution chemical stratigraphy has been applied to Tertiary and Cretaceous turbidite sandstone successions of Campos Basin, southeast Brazil, in order to test the potential use of chemical stratigraphy in local correlations and identification of compositional changes in sedimentary sources areas.

Stratigraphic correlation of reservoir sandstones is generally determined on the basis of wireline log characteristics and biostratigraphic data. However, if the intervals lack sufficiently diagnostic features, other less conventional techniques must be used in order to identify consistent differences between the stratigraphic units of interest. Obviously, properties that depend solely on provenance variations are more reliable than properties determined by depositional or diagenetic processes. Both cases will be discussed.

In this study, inorganic geochemical data have been acquired from bulk chemical analyses of a detailed core sampling from oil reservoirs, in which 30 chemical elements were determined. Consistent stratigraphic variations in elemental concentrations allowed to recognize several chemostratigraphic units normally not detected by other stratigraphic methods. Based on these findings it was possible to correlate each of these units and through the integration with petrographic studies, to propose climatic and/or tectonic changes in the sedimentary source area.