

TRANSCURRENT TECTONICS ANALYSIS: A USEFUL TOOL FOR OIL EXPLORATION IN CENTRAL BASIN REGION, CUBA

CAPOTE, C.R. Instituto de Geología y Paleontología, Havana, Cuba.

Petroleum reservoirs of Central Basin Fields occur within Cretaceous arch and orogenic sedimentary rocks as a result of complex vertical and subhorizontal migrations of fluids from source rocks in the North American margin sequences. For subhorizontal migration, present knowledge of thrust tectonics provides easy explanations for current oil exploration model. However, the geologic factors involved in vertical migration are not as clearly established and, consequently, are not taken into account. An essential factor into the vertical migration may be transcurrent tectonics. To investigate this possibility, regional fault patterns were reinterpreted using remote sensing, geologic and geophysical information. The resulting 1:250,000 map suggests that the faulting history of region was not as simple as previously believed. During the North Caribbean Orogeny (Late Cretaceous-Middle Eocene), NNE principal forces resulted in longitudinal thrust traces and a transcurrent system formed by NE and N-S elements, some of which already existed in the first Cuban island arc, earlier in the Cretaceous. From Late Eocene to Recent a transtensional system developed involving NE and E-W elements probably under ENE principal forces. Plotted on the new structural map, known oil occurrences show more than 90% coincidence with NE and N-S transcurrent faults, which may have acted as excellent paths for fluid migration from source rocks in underlying thrust sheets. Other zones of Map, with similar structural settings, are now likely targets for detailed studies.