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The Contribution of Integrated HRAM and Remote-Sensing Data Analysis to Exploration of the Zag Basin, Morocco

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Abstract
The Zag Basin is the westernmost Paleozoic intra-cratonic basin of the North African Platform. It is a large asymmetrical basin with a gentle, monoclinal dip to north and northwest. The northern margin of the Zag Basin is steepened as a result of Late Hercynian folding. The basin contains several potential hydrocarbon plays including: 1) Upper Ordovician sandstone charged by middle Ordovician shales; 2) Silurian carbonate reservoir rock charged by Silurian source rocks; and 3) Upper Devonian to Lower Carboniferous sandstone charged by Frasnian source rocks. These plays are dependent on the presence of effective structural closures that may have developed along the highly deformed faulted edges of the basin.

San Leon Energy has recently acquired an exploration license along the southern edge of the Zag Basin. As part of a program of reconnaissance mapping in the basin, the company collected HRAM data over the entire license area and conducted an integrated structural interpretation of the HRAM data. This included the analysis of Landsat Imagery, digital topography, and other pertinent geological information. The results of this study lead to the recognition of two types of prospective structural features in the license area. The first consists of several detached anticlines that were detected along the northern thrusted edge of the basin and the second type consists of a series of basement involved en-echelon folds that were detected at the southern edge of the basin. Both of these structures could become an attractive target for exploration in this basin.