# Remote Sensing, Fuzzy Logic and GIS in Petroleum Exploration

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The changing nature of the Earth's surface and its environment makes the remote sensing approach most suited for monitoring many aspects of energy exploration, distribution, and consumption. Although oil and gas reservoirs are deep below the surface, they have some indicators, which can be detected on the ground. Hazy patches in Landsat MSS images were considered by Collins (1973) as a clue to explore oil due to their high correlation with existing oil and gas fields but since the phenomenon was never explained it fell out of favor.

This research will try to identify more of these surface phenomena (e.g. surface temperature derived from satellite data, vegetation cover, alteration zones and any other available surface data ) and study their correlation with the presence of oil and gas regardless of the fact that they can be explained or not. By employing GIS and fuzzy logic a dynamic model will be introduced which can be applied to any new petroleum exploration target using variable input data of that particular exploration target.

The selected study area consists of almost 50 existing petroleum reservoirs onshore Iran. Following fieldwork in the project area, other valuable layers of information were collected. 20 ASTER scenes over the study area have been purchased from NASA and data are being retrieved from these satellite images. These data will finally be integrated with all the other available data layers to produce the dynamic model. The probability of applicability of the new model within the "Gondwana" continent will be extremely high when it is approved to be applicable in the pilot area.