Hydrocarbon exploration in the Middle East and North Africa began essentially as an exploration for giant oil fields. Therefore, several exploration wells may have been suspended, plugged and abandoned and declared "dry" under giant-prone early exploration strategies, obsolete logistics, drilling technology, production methods, economical reserves limits, risk evaluation or political climate, (IBRAHIM 2000). Global hydrocarbon exploration records attest to many early "dry holes" or "dry" anomalies becoming hydrocarbon producers or oil fields with advancement in seismic, gravity, magnetic,
geochemical, risk analysis, logistics, exploration, drilling and/or production methods. Wells classified as “dry holes” at completion dates, then proved to be producers at later dates could be described as “un-discovery wells”, (e.g. DeMis, 2007, AAPG Bul).

Anomalous geothermal gradients are known in rocks overlying hydrocarbon traps. The anomalies are mainly caused by focused migration of heat-convective subsurface fluids into shallow reservoir closures. This paper presents a case study using a quick-look method to spot potential "un-discovery wells" among a large number of genuine dry holes.

Target’s CGG-ESTI © is a quick-look analysis and mapping software and analysis of the geothermal gradient was tested on databases of two exploration time-frames of the Hagfa Area of central Sirte Basin, Libya found that high geothermal gradient anomalies to be associated with most of the known oil and gas fields in the two exploration time frames, as well as some anomalous "dry holes". Analysis of the pre-1970 database delineated several geothermally anomalous "dry hole"; one of them was then recognised, as "un-discovery well" i.e. became a producer in 1987.

Examples of un-discovery wells from Sirte Basin are "dry holes" K1-13 of Mobil Oil Libya (now K1-NC149 a producer in Wadi Field, Block NC149 of Sirt Oil), and J1-85 of Aquitaine (now a new discovery via re-entry in Block NC177 of Red Sea Oil).

Target Exploration Consultants published studied and research on recognising missed and bypassed hydrocarbon traps using associated geothermal gradient anomalies of Hydrocarbon entrapment in Offshore Nigeria, Offshore and Onshore Louisiana, UKCS, Iraq, Libya, Saudi Arabia and Syria. (See location map of studied areas above, and abstracts, list of Target’s nonexclusive reports and external publications below).

1. Missed, By-Passed, and Underestimated Hydrocarbon Traps: Analysis of Basic Exploration Records Reveals “Un-Discovery” Wells in Libya.

2. Missed Bypassed and Under-Estimated Hydrocarbon Traps: Analysis Of Basic Exploration Records Reveals

4. Non Exclusive Target’s Reports on Geothermal Gradient Anomalies of Missed, By-Passed or Un-Reached Hydrocarbon Traps.


5. Geothermal Gradient Anomalies of Hydrocarbon Entrapments in Iraq (and adjacent areas in Iran, Jordan; Kuwait, Saudi Arabia and Syria), Non-Exclusive Report, Target Exploration, London, UK, 121 p, 178 figures, 7 enclosures. TAR5.PDF
5. Published Target's Papers and Posters on Geothermal Gradient Mapping, Geothermal Gradient Anomalies of Hydrocarbon Entrapments, Basins Rejuvenation and Geothermal Energy Exploration and Prospects Generation


Target Exploration has lists of undeveloped petroleum discoveries, undrilled anomalies and prospects (including stratigraphic prospects) supported by well, seismic and test data, and delineated prospective geothermal energy sites as well as low risks high Solar radiation sites at several countries.

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