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Petroleum prospecting problems in the base plate and hydrocarbons migration channels definition

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As the expected assets of hydrocarbon reserves decrease, it is necessary to develop an alternative theory of facts, which describe additional feeding of oil fields. Hydrocarbon accumulation and migration outlook should be built according to indications of geophysical methods, which are more sensitive to dynamic processes. The position of such channels should be identified on the sections of crystal base, confined to overlapping zones of geophysical electrical and seismic field anomalous parameters maximum dynamics. Such estimations are possible according to results of measurements during continuous monitoring of crystal base, which are more exposed to internal agencies (in rift zones and their enumeration).

Electromagnetic exploration methods stand out from among other technologies as having a direct detection capability in identifying hydrocarbon reserves. Well-established techniques in electromagnetic exploration have the following characteristics: the presence of hydrocarbons is marked by a sharp increase of reservoir electrical resistance and the presence of high-amplitude polarization anomaly in zones of hydrocarbon saturation. The following technologies and methodologies have been developed: TDEM sounding for oil exploration, processing and interpretation capabilities to contour hydrocarbons which are connected to reserve extensions based on structural interpretations.

