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Indicators of gas in the sediments of Kara Sea. Complex seismic-acoustic and gas-geochemical analyses.

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Studied area is located in South-West Kara Sea in the area perspective for oil and gas structures occurrence. Research work included the interpretation of more tan 3000 km of seismic-acoustic profiles, obtained in 2005-2006 and the results of gas-geochemical analyses (about 200 geological stations) within the same area. Geophysics and gas-geochemistry is a priority complex of methods for hydrocarbon prospective exploration.

Gas saturation influences the seismic-acoustic wave train, causes seismic-acoustic anomalies of different types. But each region is characterized but specific conditions, connected with the types of the sediments, geological features. Four types of seismic-acoustic anomalies were indicated in the South-West Kara Sea:
[U+F0FC] Columnar acoustic turbidity"or "gas chimneys"
[U+F0FC] "Bright spots"
[U+F0FC] "Acoustic turbidity" zones
[U+F0FC] "U-like structures"
The last ones are specific seismic-acoustic anomalies for South-Kara sea. They are characterized by a high-amplitude U-like reflector in the upper part and an acoustically transparent unit below, which simulates the areas of "acoustic turbidity". After the detailed seismic-acoustic data interpretation a map of seismic-acoustic anomalies distribution was correlated with the results of gas-geochemical analyses. Three zones of anomaly concentration of methane in the bottom sediments were indicated that is proved by the seismic data.