

Some result of geophysical survey along projected gas pipeline “South Stream”

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The “Peter Gaz” Ltd carried out reconnaissance survey along the projected gas pipeline “South Stream” in IIZ of Russia and Bulgaria in 2009 year.

The scope of work included the choosing of the trace of pipeline from Anapa and Beregovaya region (Russia) to Varna region (Bulgaria). The objective of work included performing of bathymetry survey along projected gas pipeline and sub-bottom profiling. The work was carried out on the science vessel “Professor Shtokman”, owned by Institute of oceanology of P.P. Shirshova RAS.

Multi beam echo sounder (MBES) Reson SeaBat 8160 (50 kHz) was used for bathymetry survey. Seismic survey was performed by parametric sub-bottom profiler Innomar SES-2000 Medium (primary frequency 100 kHz, secondary frequency was 10 kHz, which provided maximum signal to noise ratio, maximum penetration in ground and optimal resolution).

The depth range on trace was from 20 to 2200 meters. Accuracy of depth was 0.5-1.75 m for depth range 20-150 m, 1.75-8 m for depth range 150-2200 m. Ground penetration was from 2 to 45 meters, layer resolution was near 0.3 m. Maximum ground penetration in Russian sector was on the foot of the continental slope, in Bulgarian sector – on the edge of the shelf. Several anomalies in the upper part of the section were detected with MBES and sub-bottom profiling during survey. In Russian sector is:

- Underwater extension of the Kuban River;
- Presented and buried landslide structure on the foot of the continental slope;
- Sediment waves on the continental slope;
- Gas-saturated sediments on the shelf;
- Structure on the slope similar to the mud volcano.

Many landslide structures on the edge of the shelf and continental slope, underwater swells on the shelf, buried erosion valley were detected in Bulgarian sector. Also 60m scarp of unknown nature was determined at the transition from the abyssal plain to the continental slope foot in Bulgarian sector.