Form and content of reports

Remote operational diagnostics - prospecting Detailed remote investigation - exploration

Introduction

Oil, gas and other mineral exploration and production are very expensive. Any information on geological formations that can help to optimize the cost of exploration and development of mineral deposits, reduce the cost of drilling wells, is of great value.

Our innovative technology for hydrocarbon and mineral prospecting and exploration, based on the physical effect of nuclear magnetic resonance for processing analog infrared satellite images, meets these requirements.

This technology refers to **direct geophysical methods**. **With its help, minerals are detected directly and not their geological structure**. It can be used on **any land surface and maritime continental shelf**.

This technology covers all customer requirements, **from exploration of a specific drilling point to mapping of mineral resources in the region**.

The services we offer are distinguished by their **maximum efficiency, speed of implementation, application to any region, lower cost and absolute respect for the environment**.

Our research strategy is always the same: to achieve results in the most efficient and cost-effective way for the client.

The working tactics depend on the size of the study area, the amount of data provided for the research and the client's specific request.

Remote operational diagnostics - prospecting

Operational diagnosis - *prospecting* - is used in large areas.

At this stage, it is important to determine quickly and at the lowest financial cost the very fact of the presence of hydrocarbons and minerals and to evaluate their occurrence.

If the presence of hydrocarbons and minerals is not discovered in the study area, then there is no need to continue with remote prospecting, which provides

Detailed remote survey - exploration

If the presence of hydrocarbons or other minerals is discovered, then we proceed with a detailed remote survey - *exploration*. In this case, the exploration is reduced to the area of discovered deposits.

At this stage of the work, data on deposits and their layers are specified and supplemented, and the expected resources are calculated. If necessary, the optimal drilling point is determined.

If the Client has a relatively small study area (100 - 400 km2), we suggest carrying out directly the second stage of the study: detailed studies or exploration.

The data provided in the report

The amount of data on the results diagnosed during prospecting and exploration, which we provide in the report, depends on the tasks set by the client, their details, the format of the study area.

1. Operational diagnostics - prospecting

At the stage of ***operational diagnostics (prospecting)***, the aim is to identify deposits of hydrocarbons and other minerals in medium and large under-explored areas of a few tens of thousands of square kilometers. After this prospecting we provide the following data:

- Ground contours identified oil, gas, gas condensate and other mineral deposits
- Number of horizons,
- Approximate depth of horizons,
- Approximate thickness of horizons,

The last three items are performed at one or more control points for each of the oil fields (deposits).

See an example in Figures 1, 2 and 3.

2. Remote sensing - exploration

At the stage of ***detailed remote sensing*** over areas of tens or hundreds of square kilometers, we provide the following data:

- Ground contours of potential reservoirs identified in the area, or previously identified in the territory at the stage of prospecting,
- The number of horizons in each deposit,
- The depth of horizons,
- Study of transversal and longitudinal sections,
- Effective thickness of horizons,

- The presence of a gas cap above the oil horizon,
- The estimated capacity of the gas cap,
- Indicative of gas pressure in the gas cap,
- The presence of water in the horizons,
- Determination of the optimal point for well-drilling,
- Preliminary calculation of forecasted hydrocarbon and mineral resources.

For gas reservoirs, determined surface contours of occurrence, the number of horizons and the depth of their occurrence, power horizons and the gas pressure in them, as well as the transverse and longitudinal sections of deposits.

At points selected for well-drilling, built deep column indicating the depth horizons, and their effective capacity, parameters of gas caps, and watering horizons.

See an example in Figures 4 and 5.

3. Levantamiento remoto de puntos

3. Remote inspection points

For remote exploration of points, presumed to lay well, we give the following information:

- The presence or absence of the desired hydrocarbons at depths of up to 5 km,
- The number of horizons of their thickness and depth in the presence of falling into the pool,
- Recommendations for the correction of drilling point when the product is no point in the survey,

Important:
- the works do not need geological data on the area and seismography survey data, since we work straight with the desired mineral, not with spatial anomalies in geological structures.
- It is welcome to provide data on the presence of drilled or drilling wells in the region, as it allows to calibrate the equipment complex through examining this item.
- For oil exploration, it is desirable to obtain an oil sample from the search region to record its characteristics (100 - 200 ml). This will speed up the process. However, we can work in the absence of a priori information on our oil sample.

See an example in Figures 6-9.

Form of reports:

Reports are performed in English (and Russian if necessary).

The contours of the area with the discovered deposits are indicated on the map.

An explanatory note given to research data, their analysis and recommendations.

Estimated content of the explanatory note:

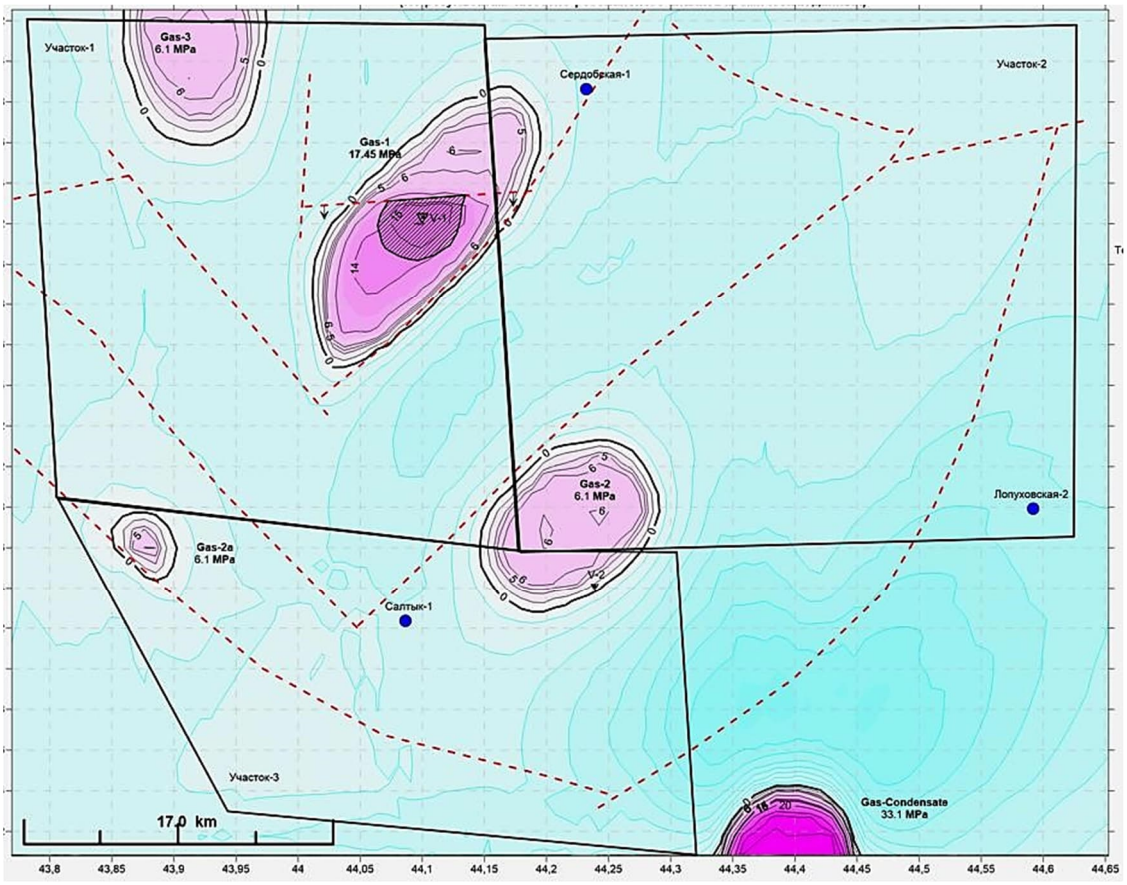


Fig. 1. Diagnosis of four blocks with a total area of 2000 km sq. Three gas deposits and one oil and gas deposit were identified. The red dashed line denotes the fault zones.

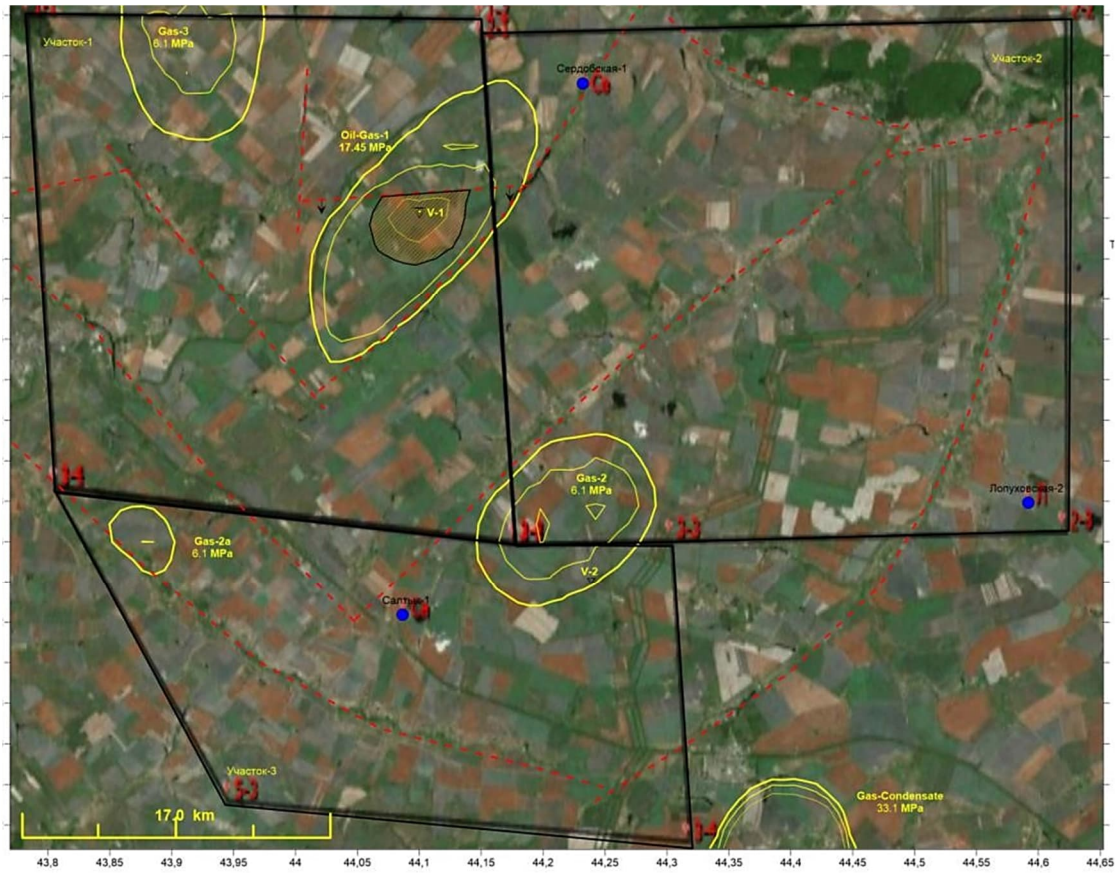


Fig. 2. Contours of deposits, plotted on a map of the area.

V1 - point of vertical sounding of oil and gas deposit «Oil-Gas-1»

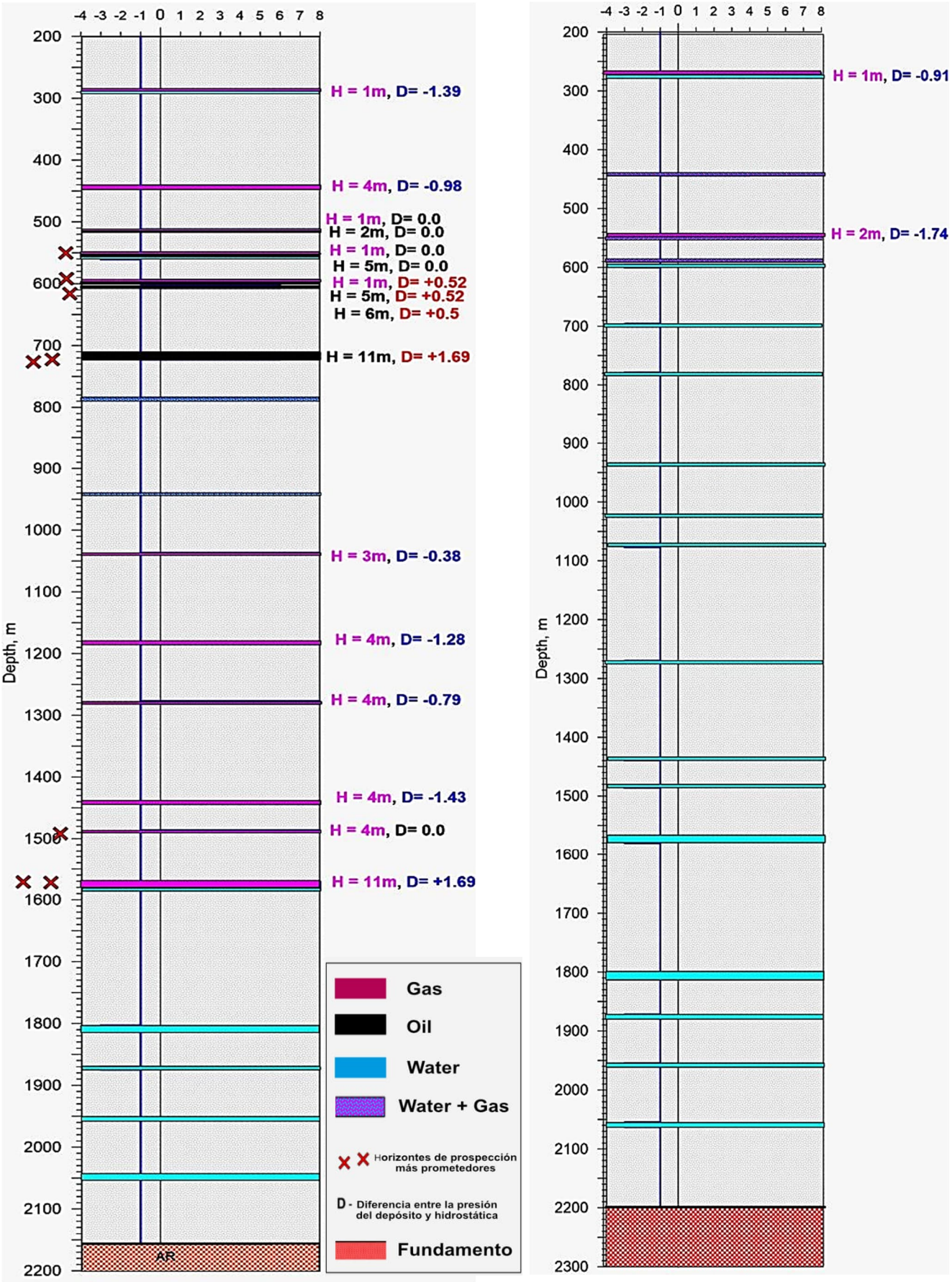


Fig. 3. Depth columns at points of vertical sounding V1 and V2

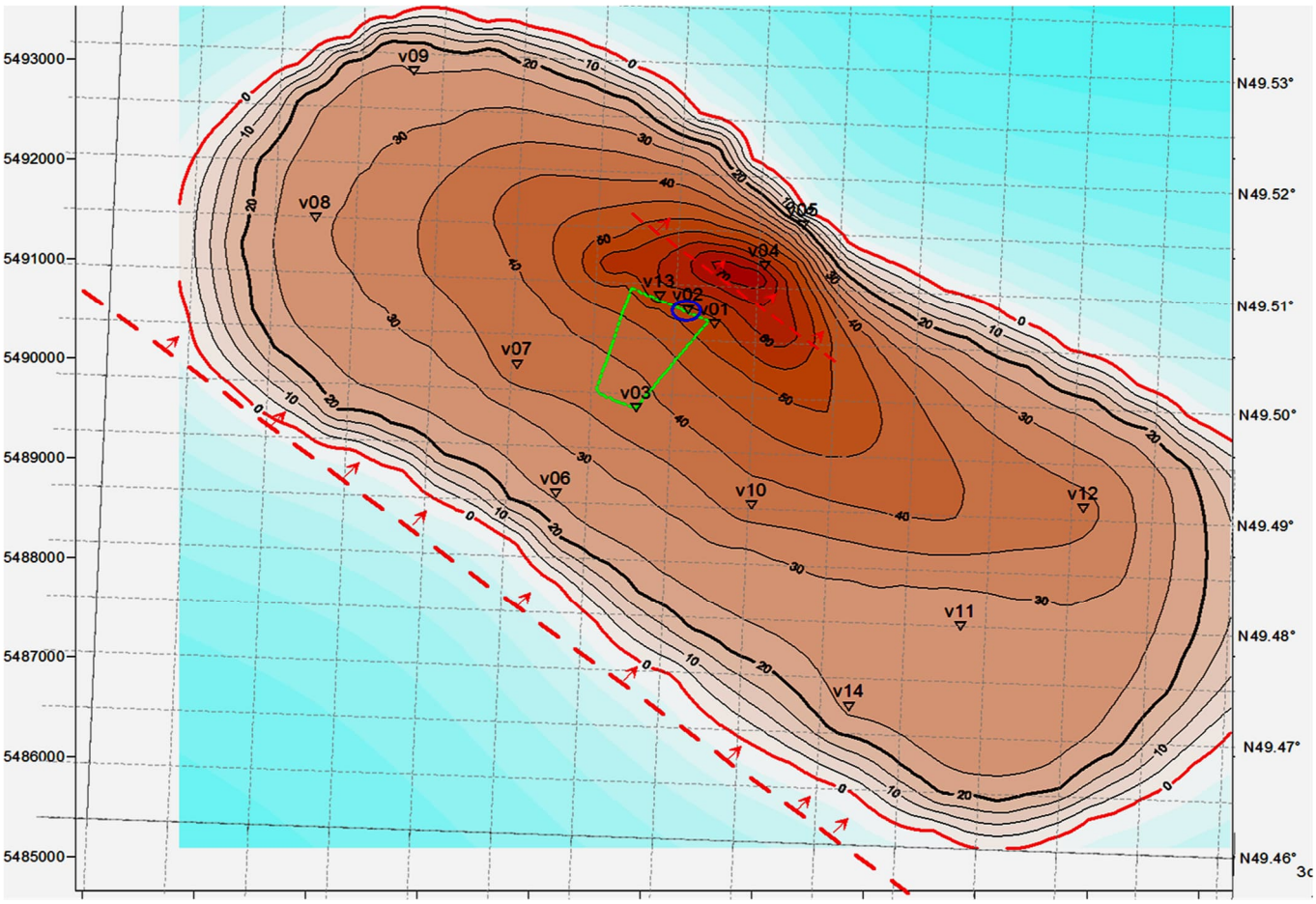


Fig. 4. Ground contours of oil and gas deposit with lines of signal response levels

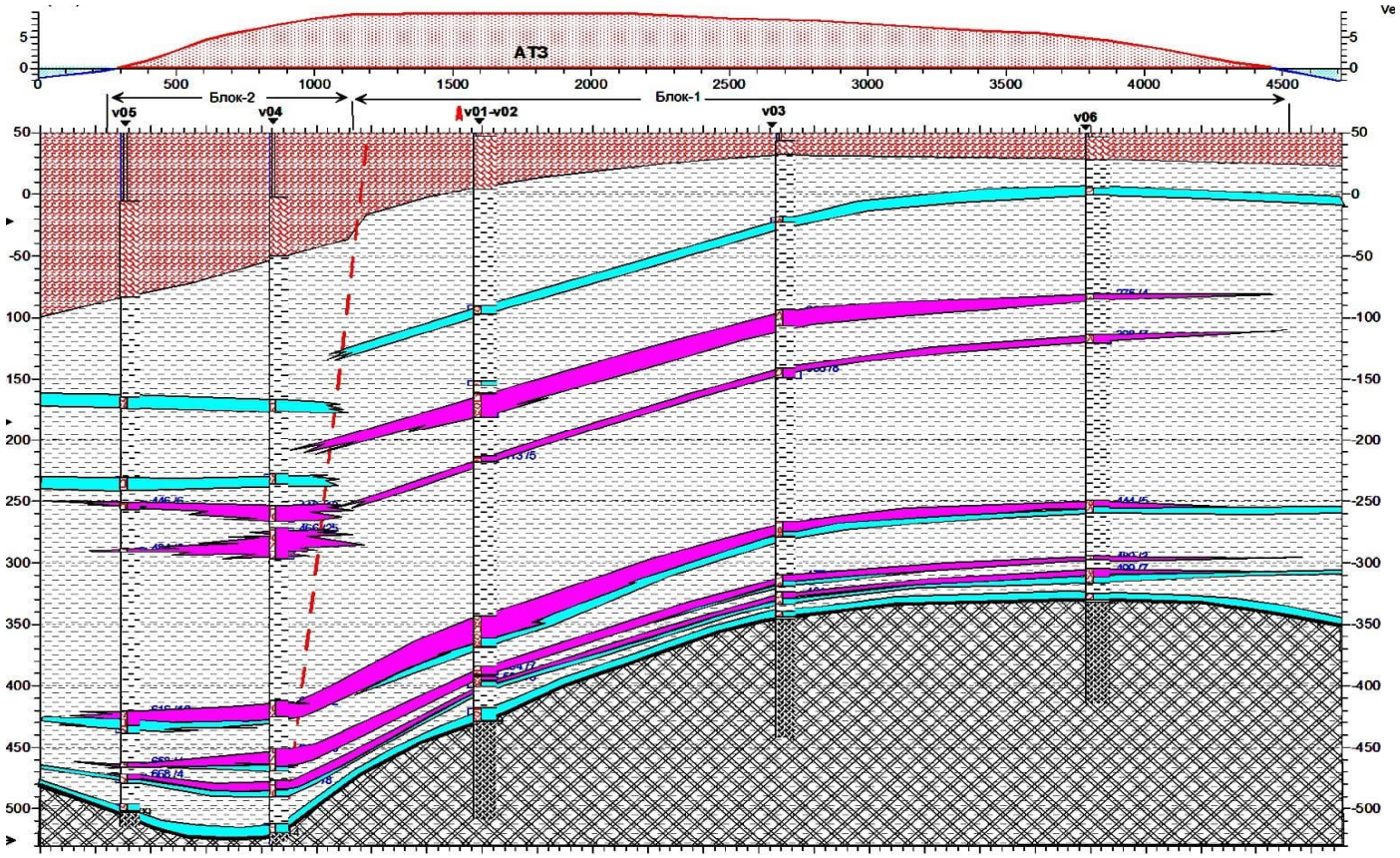


Fig. 5. Cross Section of Deposit

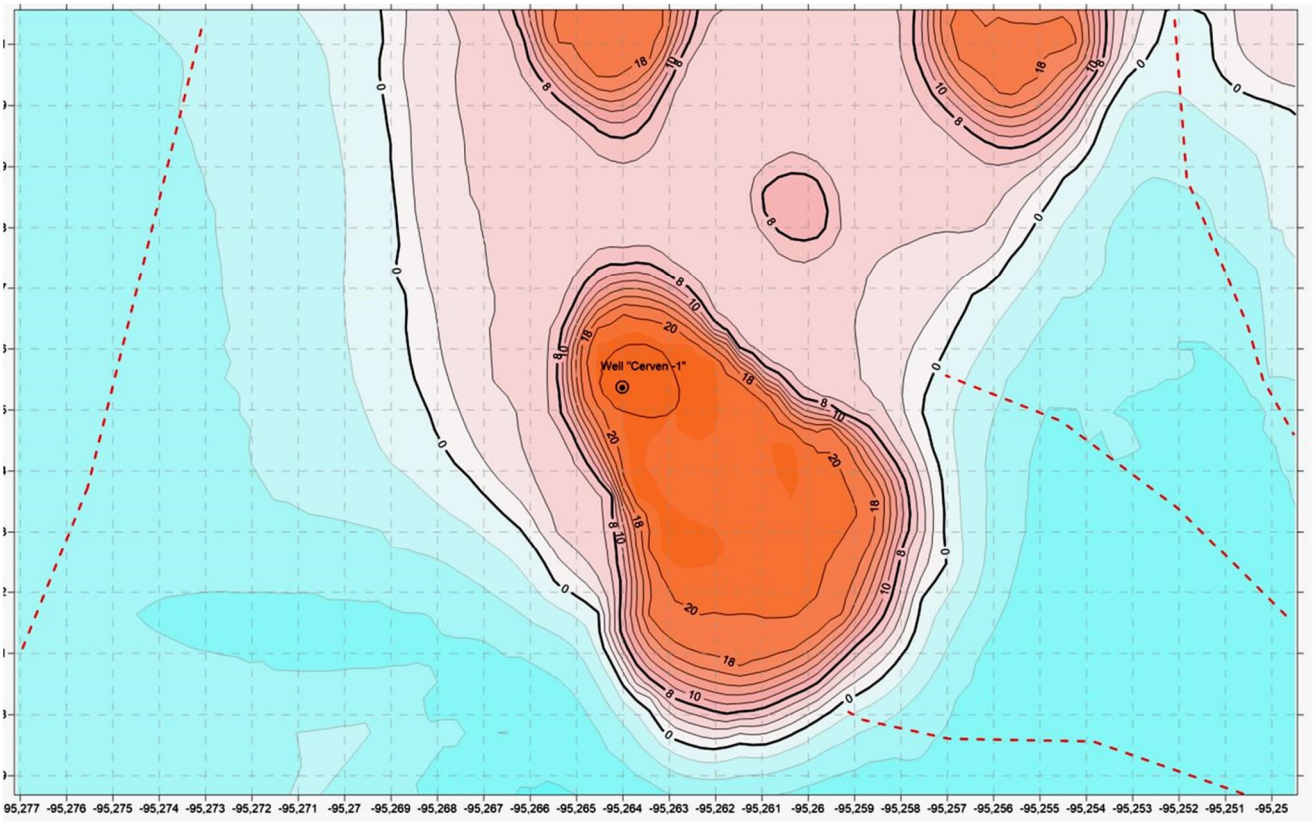


Fig. 6. Monitoring of the drilling point

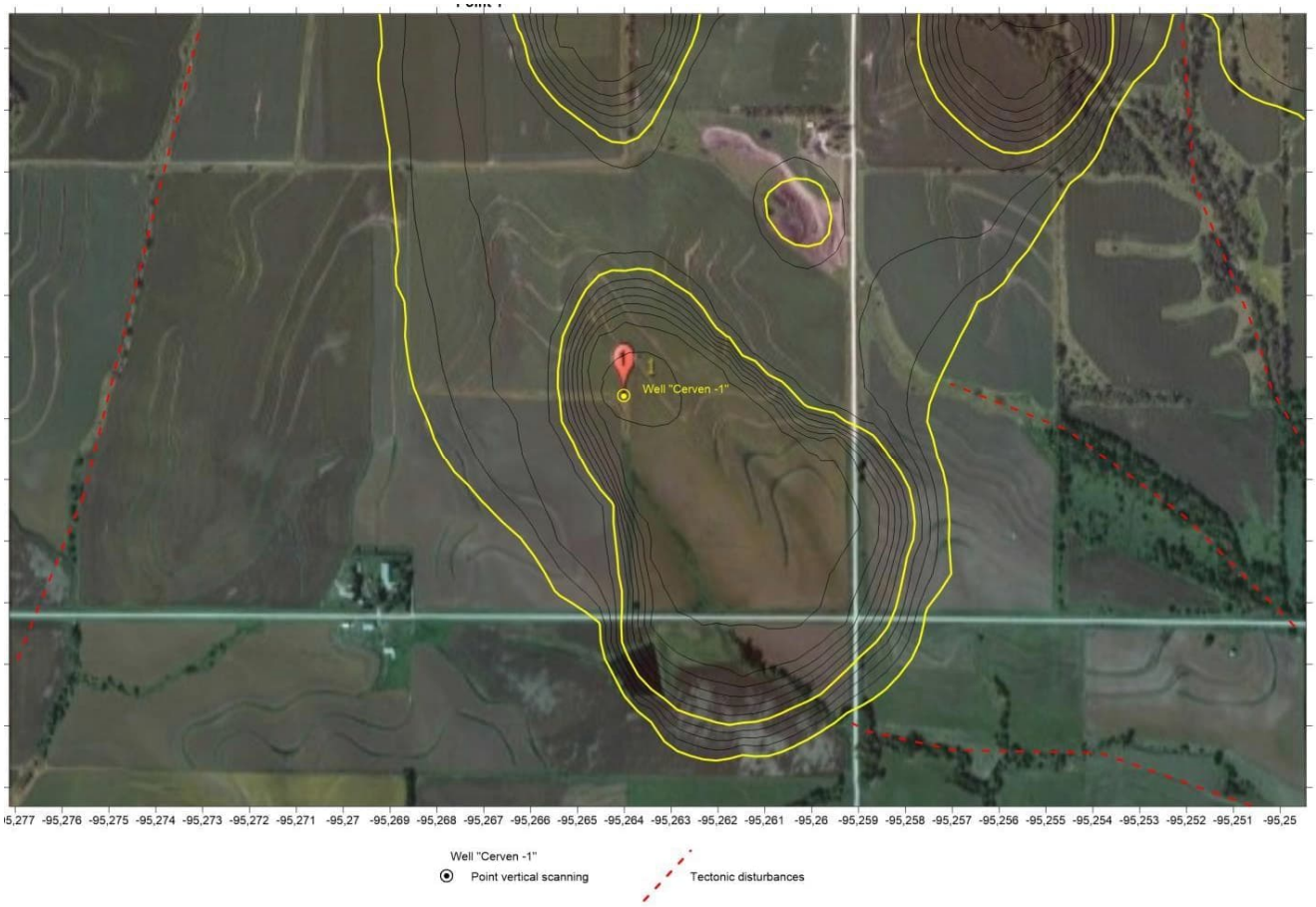


Fig. 7. Monitoring of the drilling point.
The drilling point and contours of the revealing deposit on the map

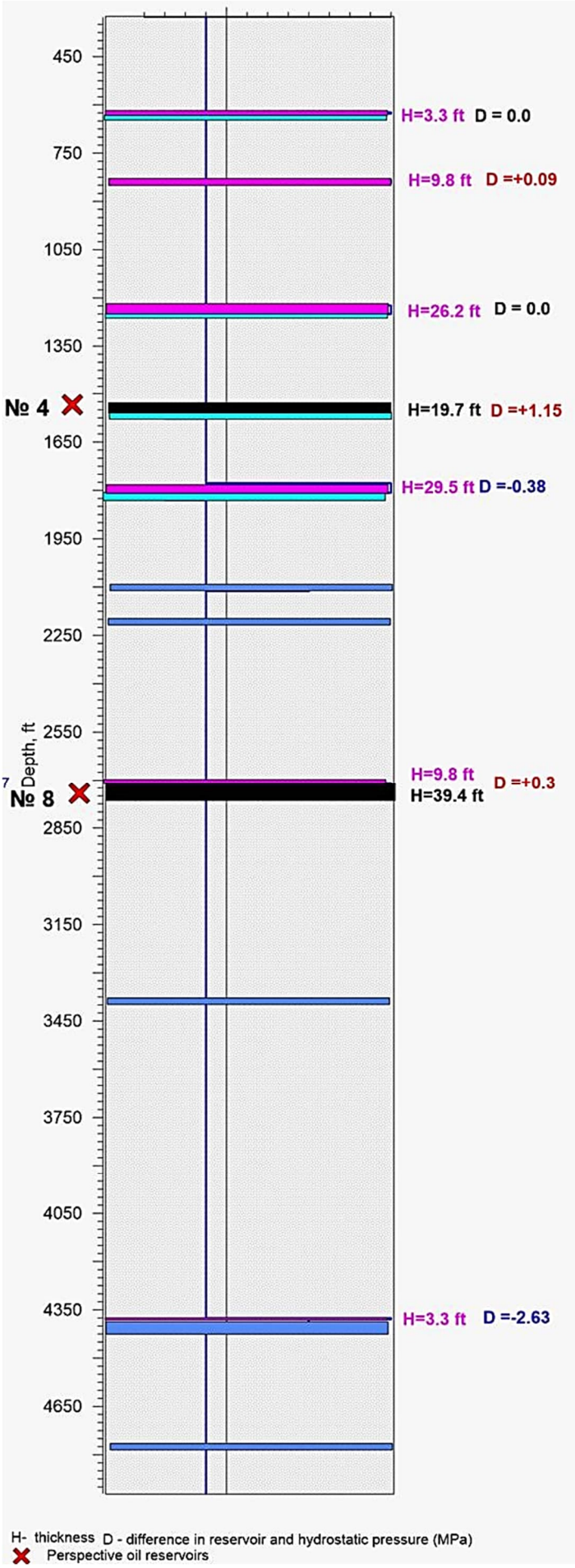


Fig. 8. Depth column at point «1» of vertical sounding

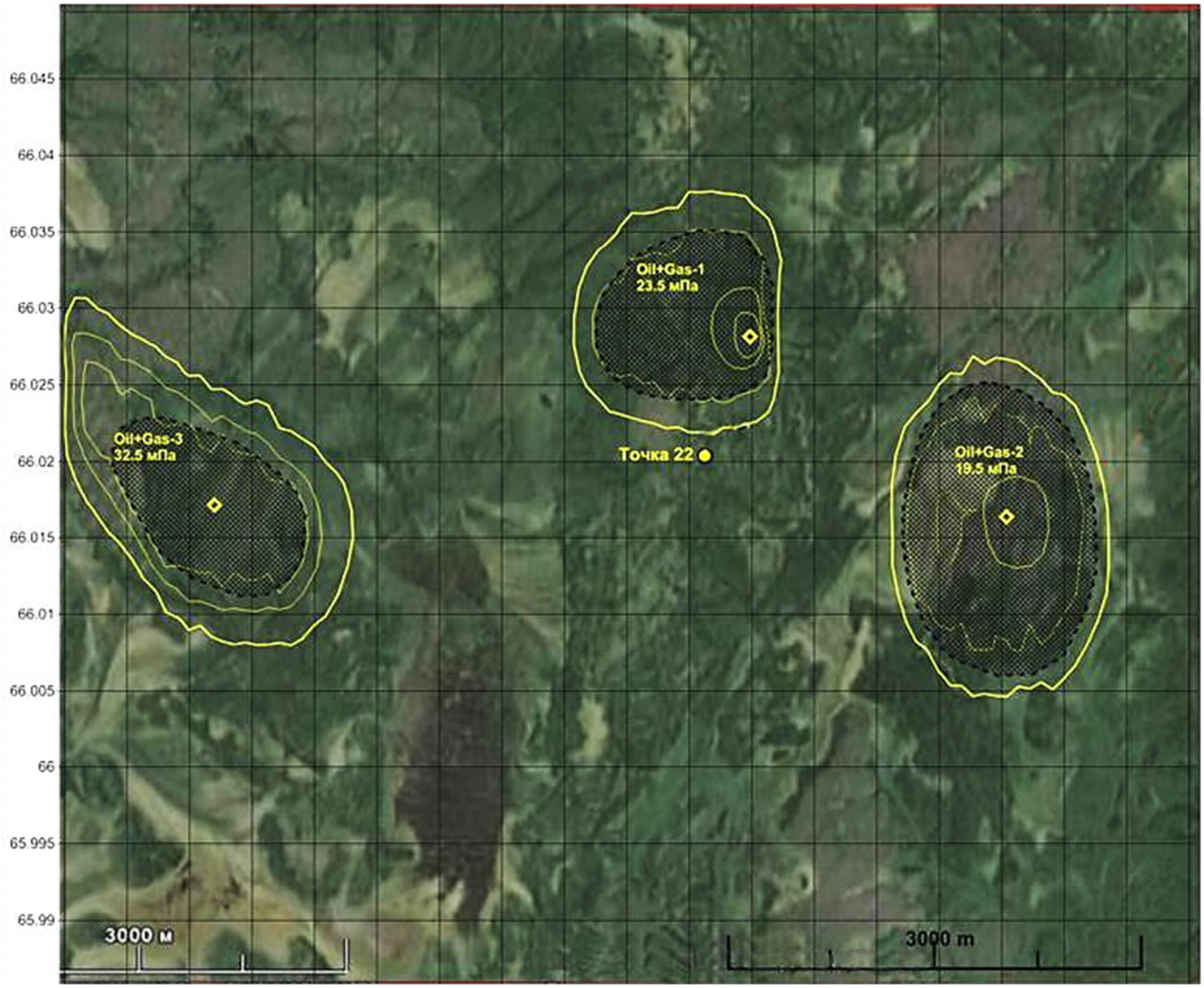


Fig. 9. The drilling point "22" was selected according to the seismic data unsuccessfully.

Examples of the results of work on the search for and examination of minerals (copper, gold of different genesis) are shown in Fig. 10 -16

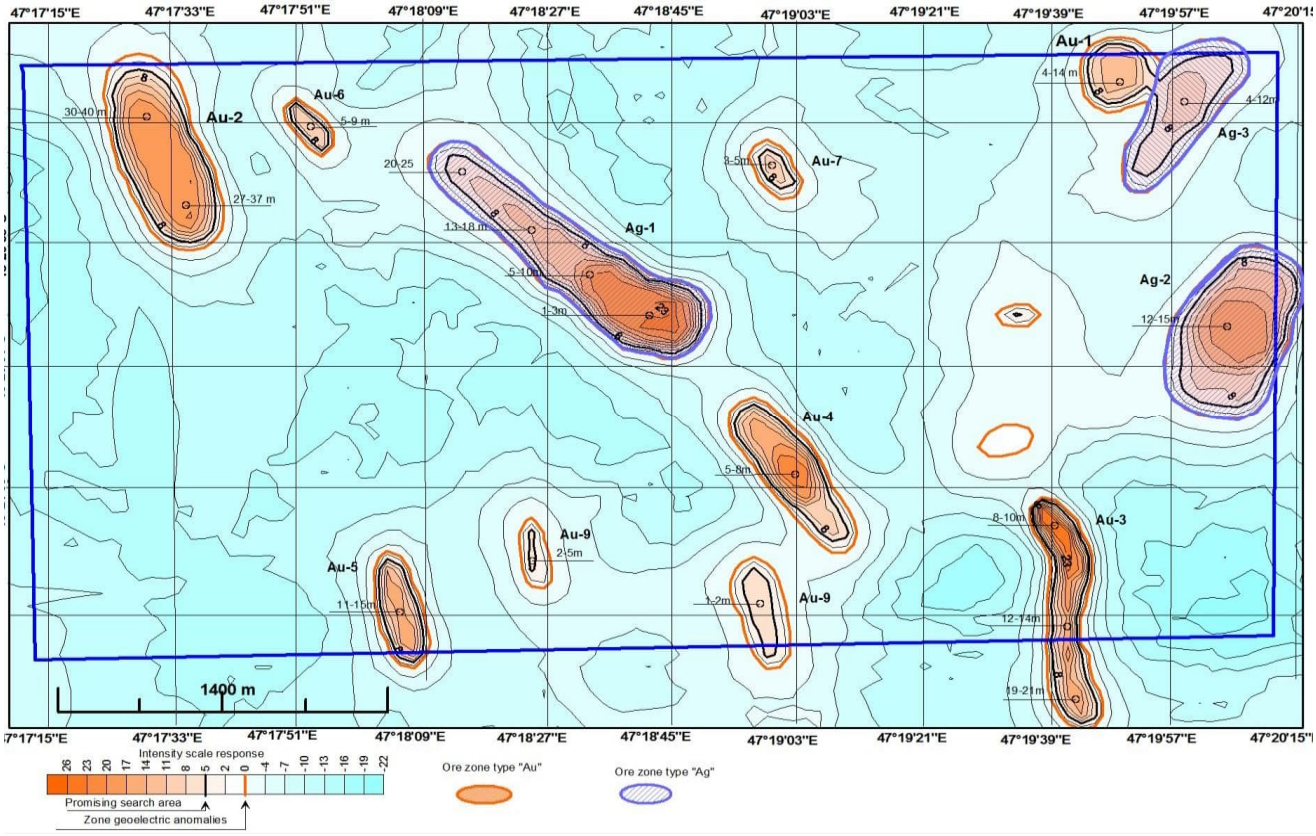


Fig. 10. Madagascar

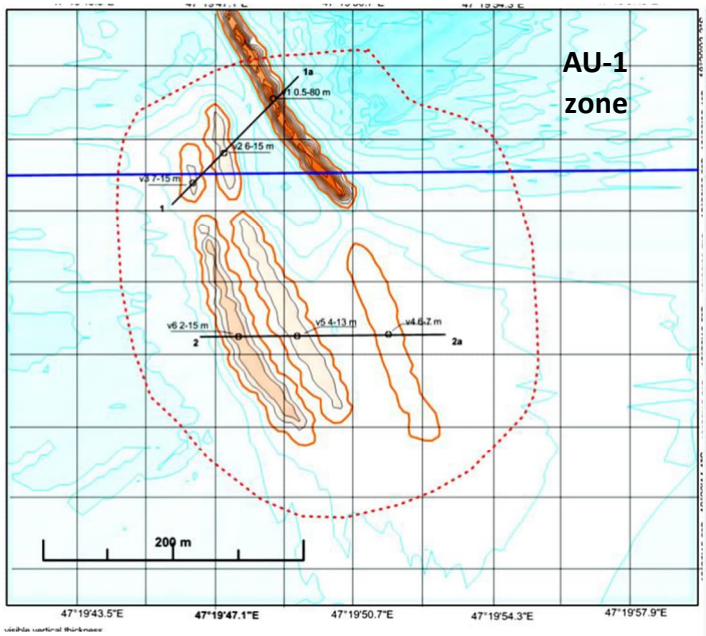


Fig. 11. Zona AU-1

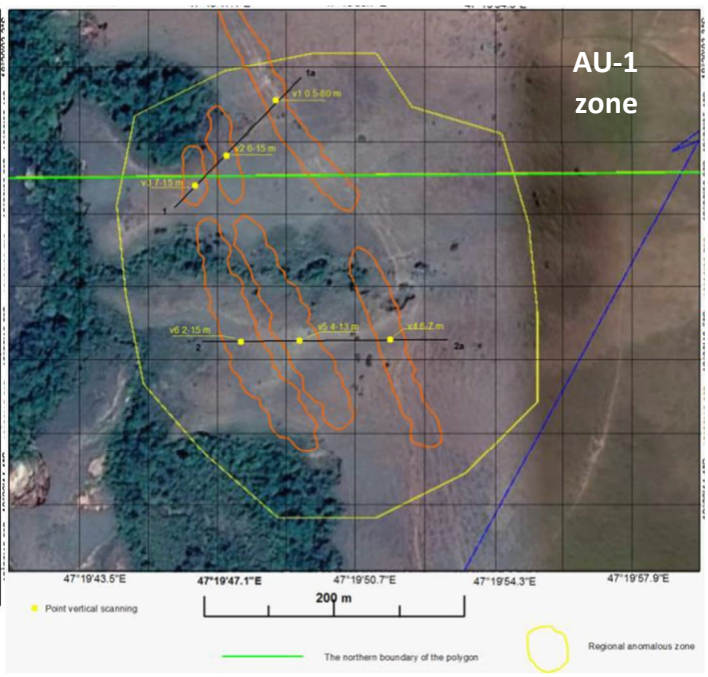


Fig. 12. AU-1 en el mapa

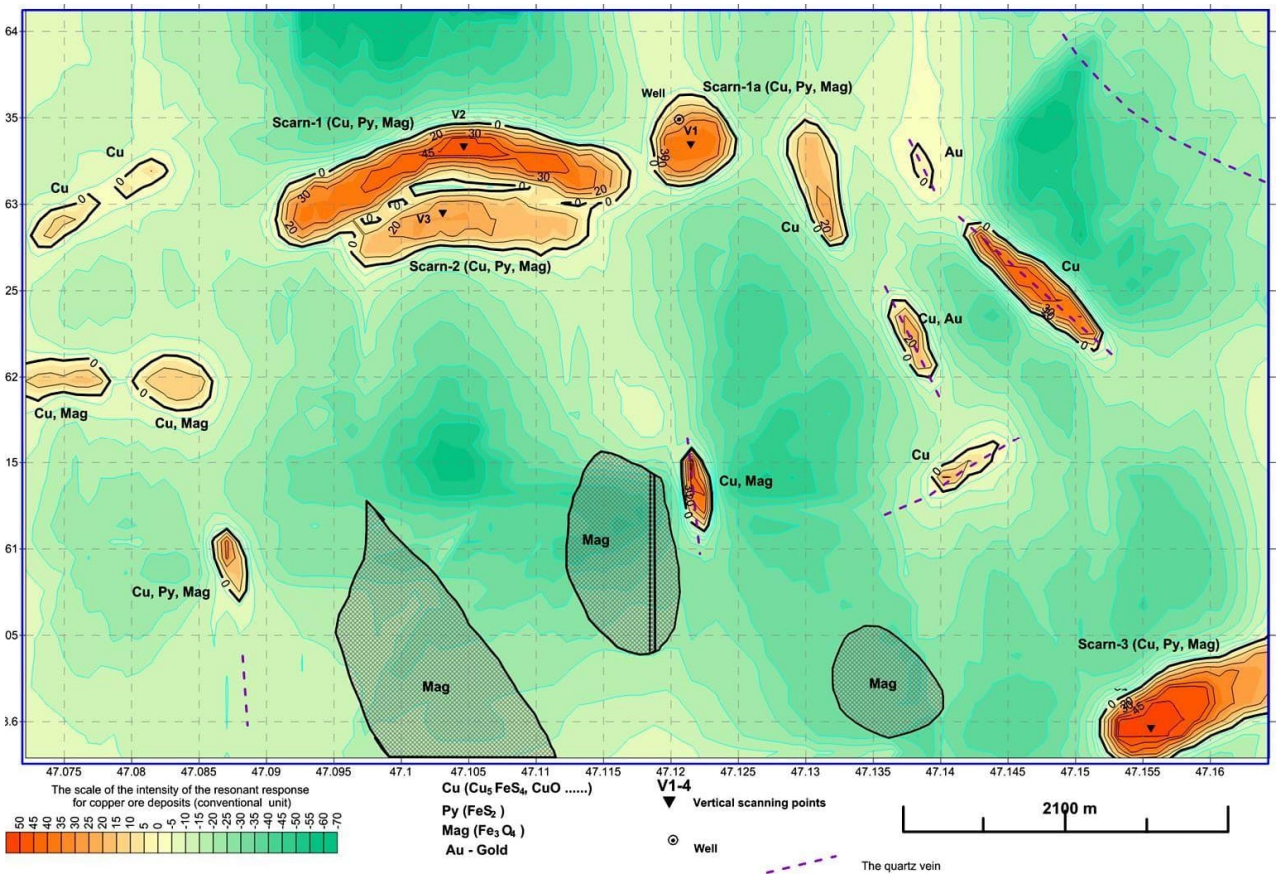


Fig. 13 Copper

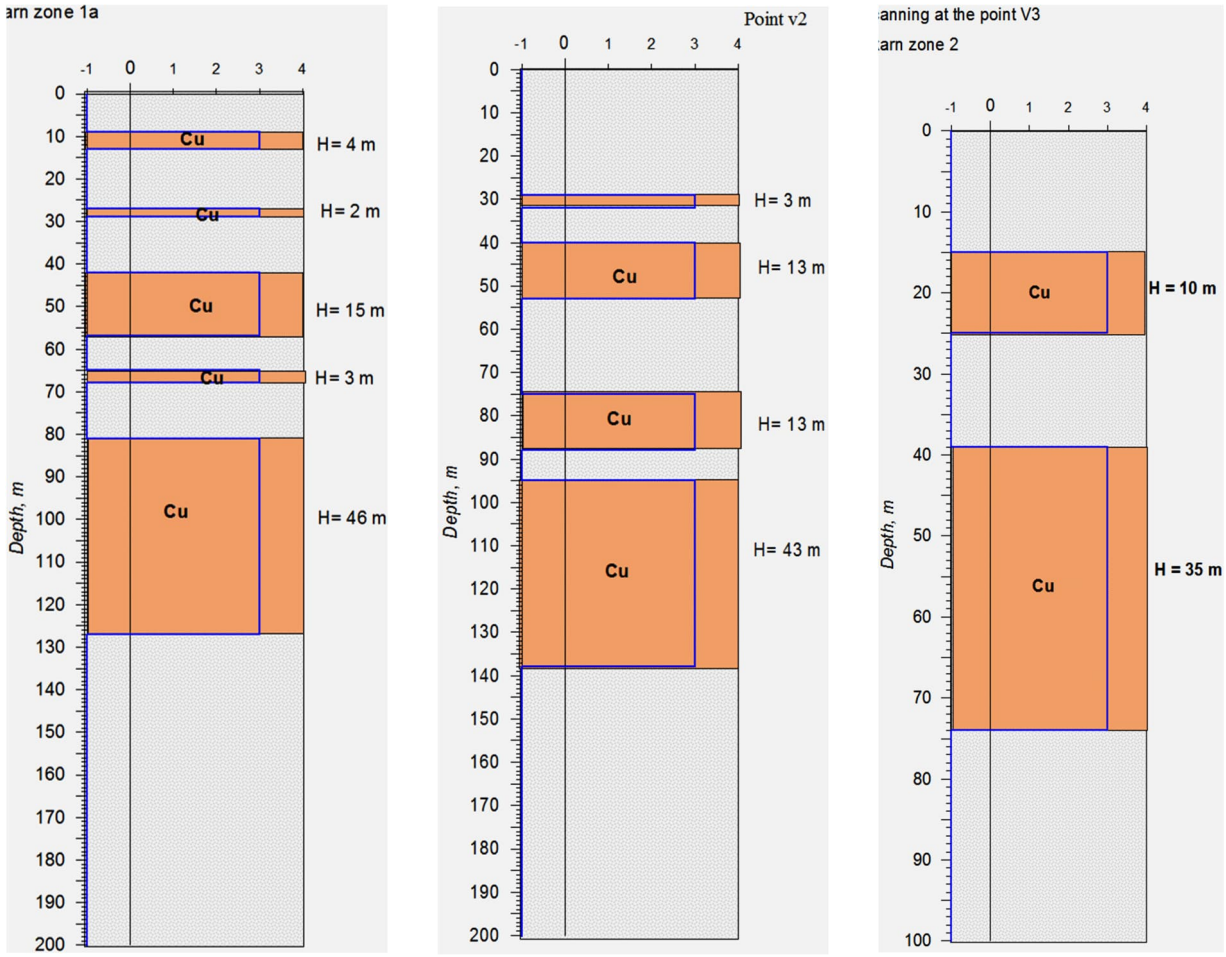


Fig. 14. Depth columns at points of vertical sounding

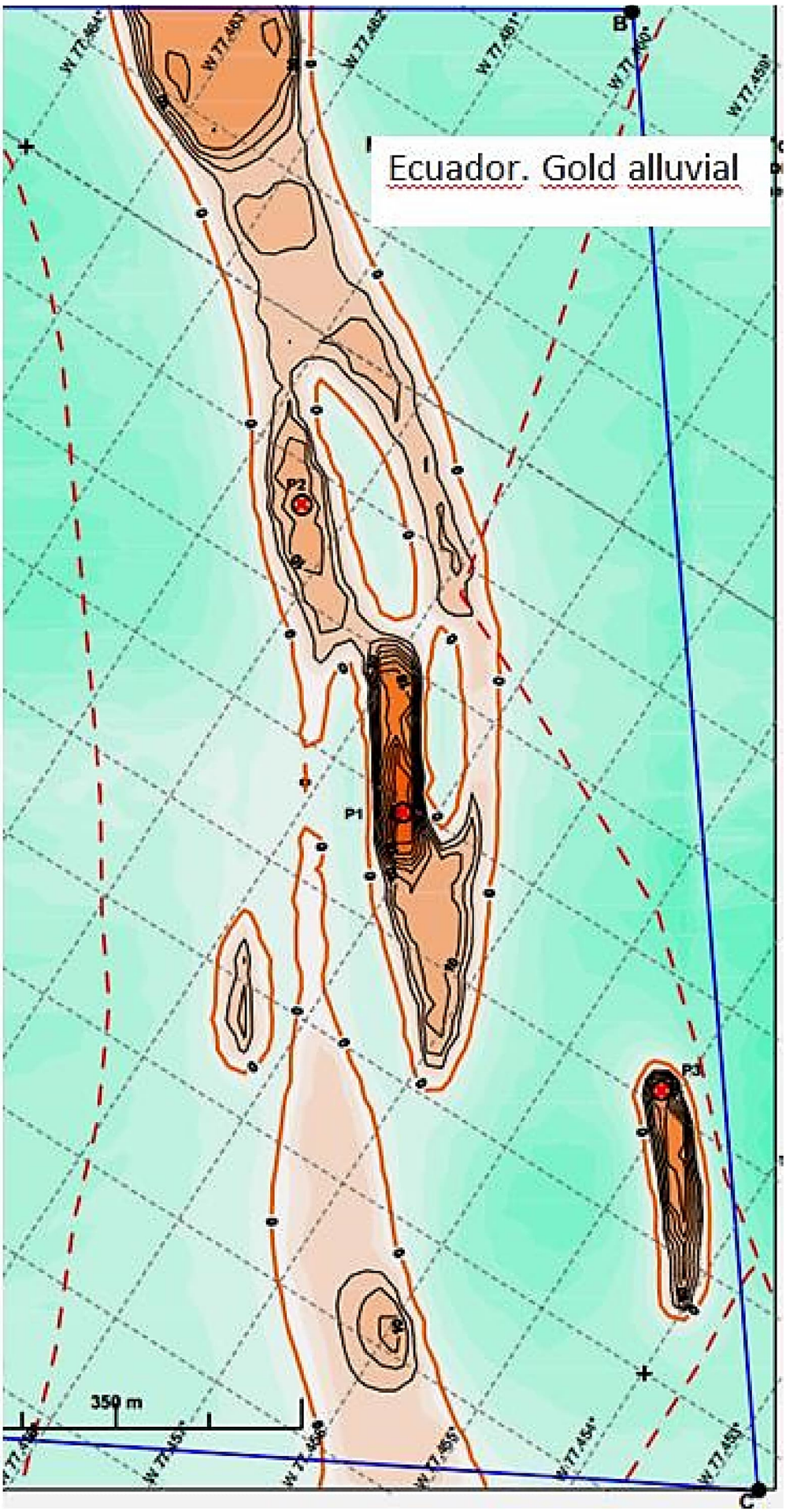


Fig. 15 Ecuador. Gold alluvial.

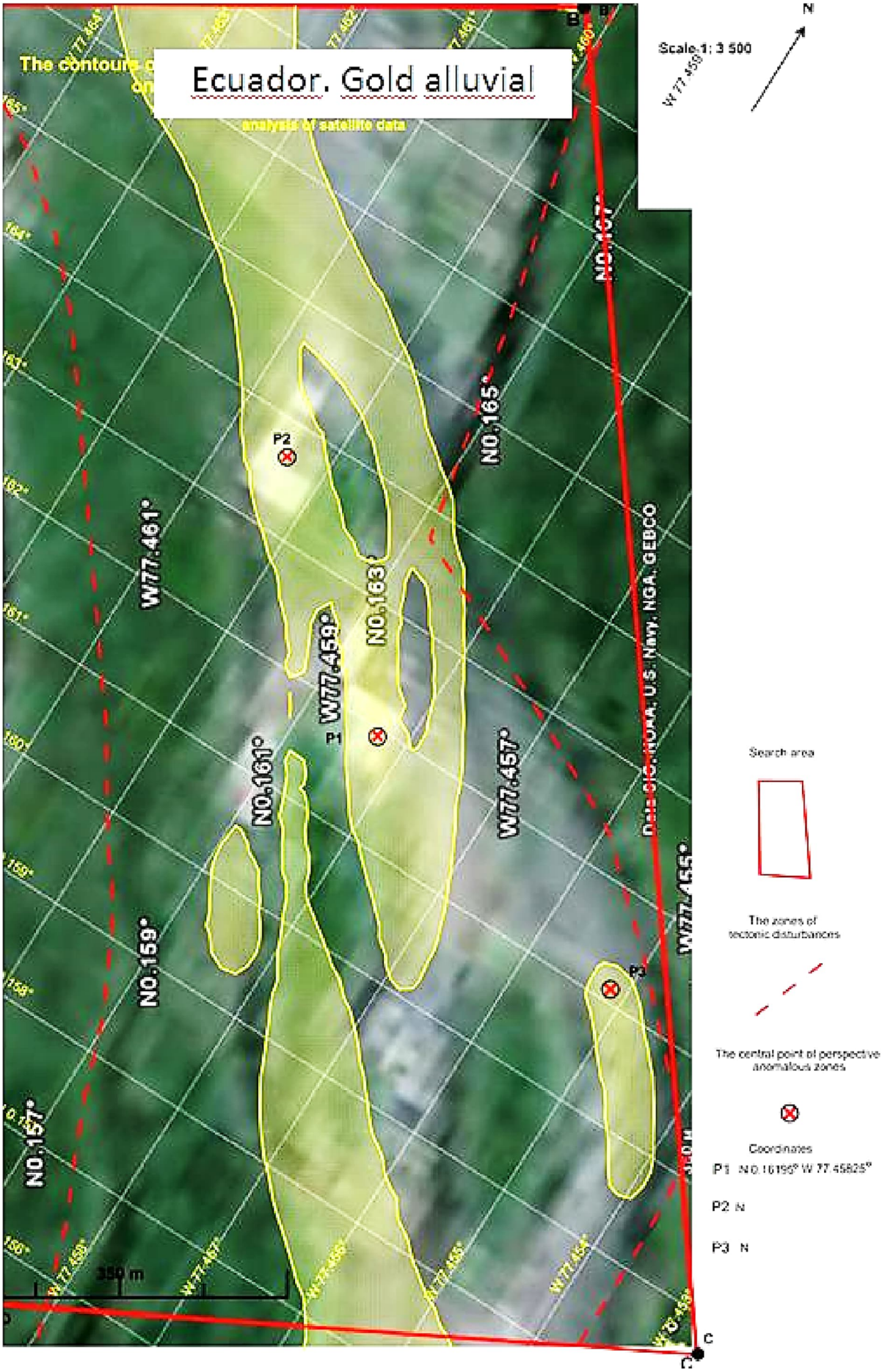


Fig. 16. Ecuador. Gold alluvial

Detailed report on the 45 sq.km. site

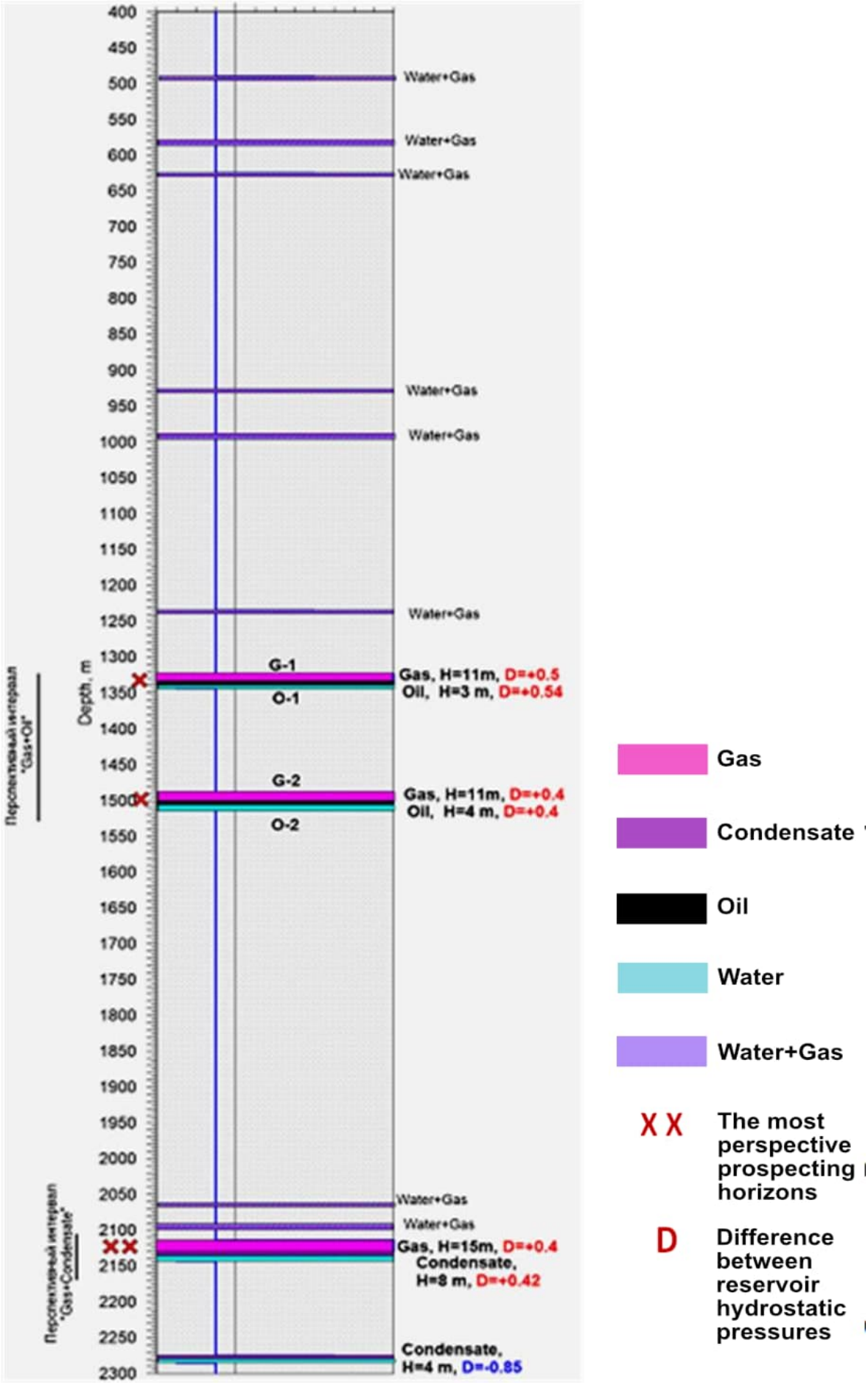
Point V-1

Coordinates: X = 70,30555367
Y = 44,30522383
Alt = 335m
Scanning intervals: 400 - 2500 m

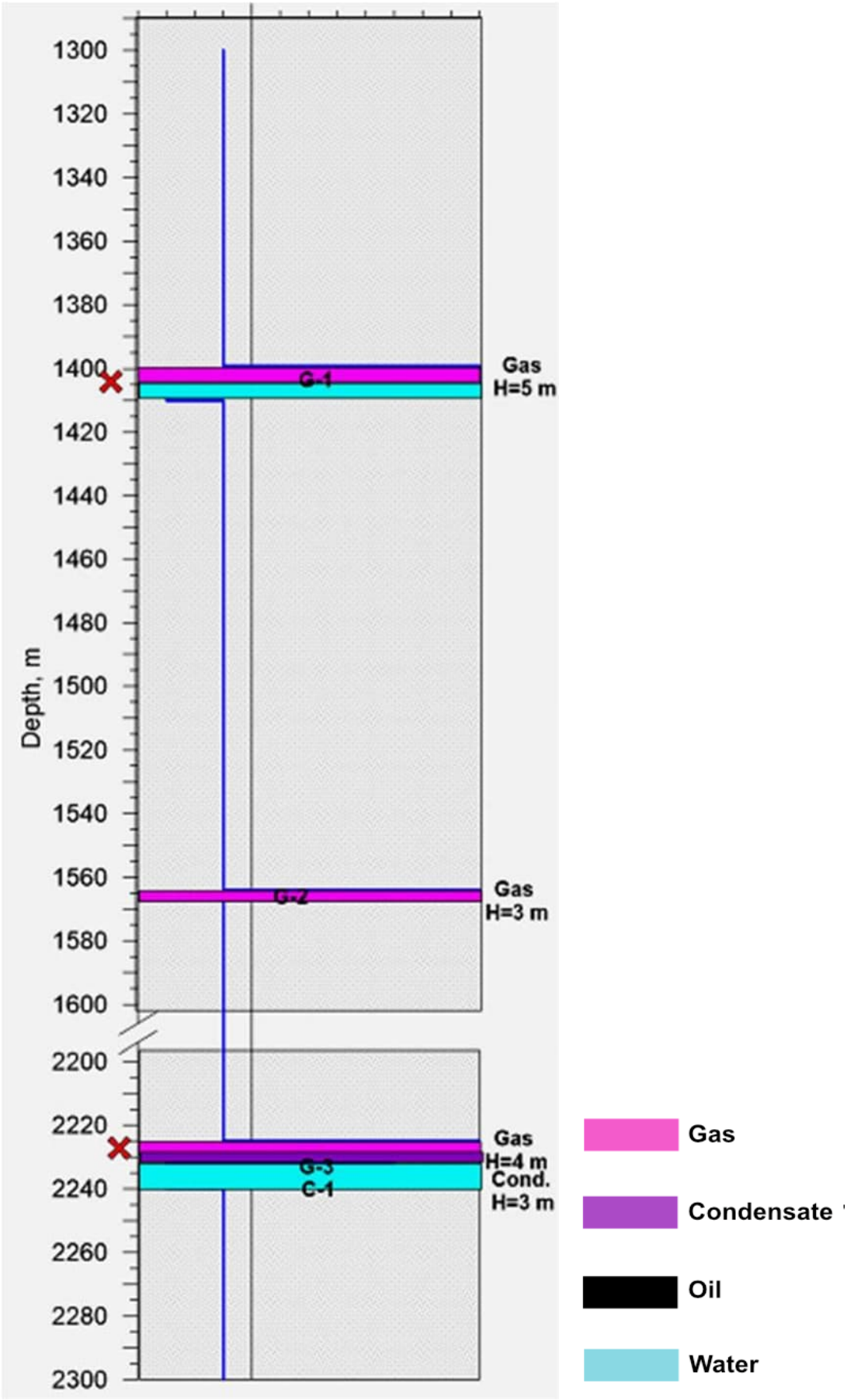
Horizon №	Deposits	Roof, meters	Bottom, meters	Thickness, meters	Pressure, MPa	D, MPa	Porosity %	Notes
1 w	Water+Gas	490	494	4	-----			Not promising
2 w	Water+Gas	579	584	5	-----			Not promising
3 w	Water+Gas	625	627	2	-----			Not promising
4 w	Water+Gas	927	929	2	-----			Not promising
5 w	Water+Gas	989	994	5	-----			Not promising
6 w	Water+Gas	1235	1238	3	-----			Not promising
7(G-1)	*Gas*	1324	1335	11	13.8	+0.5	15%	*Perspective interval*
7a(O-1)	Oil	1335	1338	3	13.9	+0.54	15%	Search interval
7b w	Water	1338	1344	6	------	------	15%	
8(G-2)	*Gas*	1490	1501	11	15.35	+0.4	18%	*Perspective interval*
8a(O-2)	Oil	1501	1505	4	15.35	+0.4	18%	Search interval
8b w	Water	1505	1512	7	------	-----	18%	
9 w	Water+Gas	2064	2065	1	-----			
10 w	Water+Gas	2094	2098	4	-----			
11(G-3)	*Gas*	2114 (-1779)	2129	15	21.7	+0.4	20%	*Main perspective horizon*
11a C-1	*Condensate*	2129	2137	8	21.75	+0.42	20%	*Main perspective horizon*
11b w	Water	2137	2143	6	-----	------	20%	
12 C-2	Condensate	2275	2279	4	21.9	-0.85	11%	Weak perspective
12a w	Water	2279	2285	6	------			

D – The difference between reservoir and hydrostatic pressure.
Gas – Total 37m.

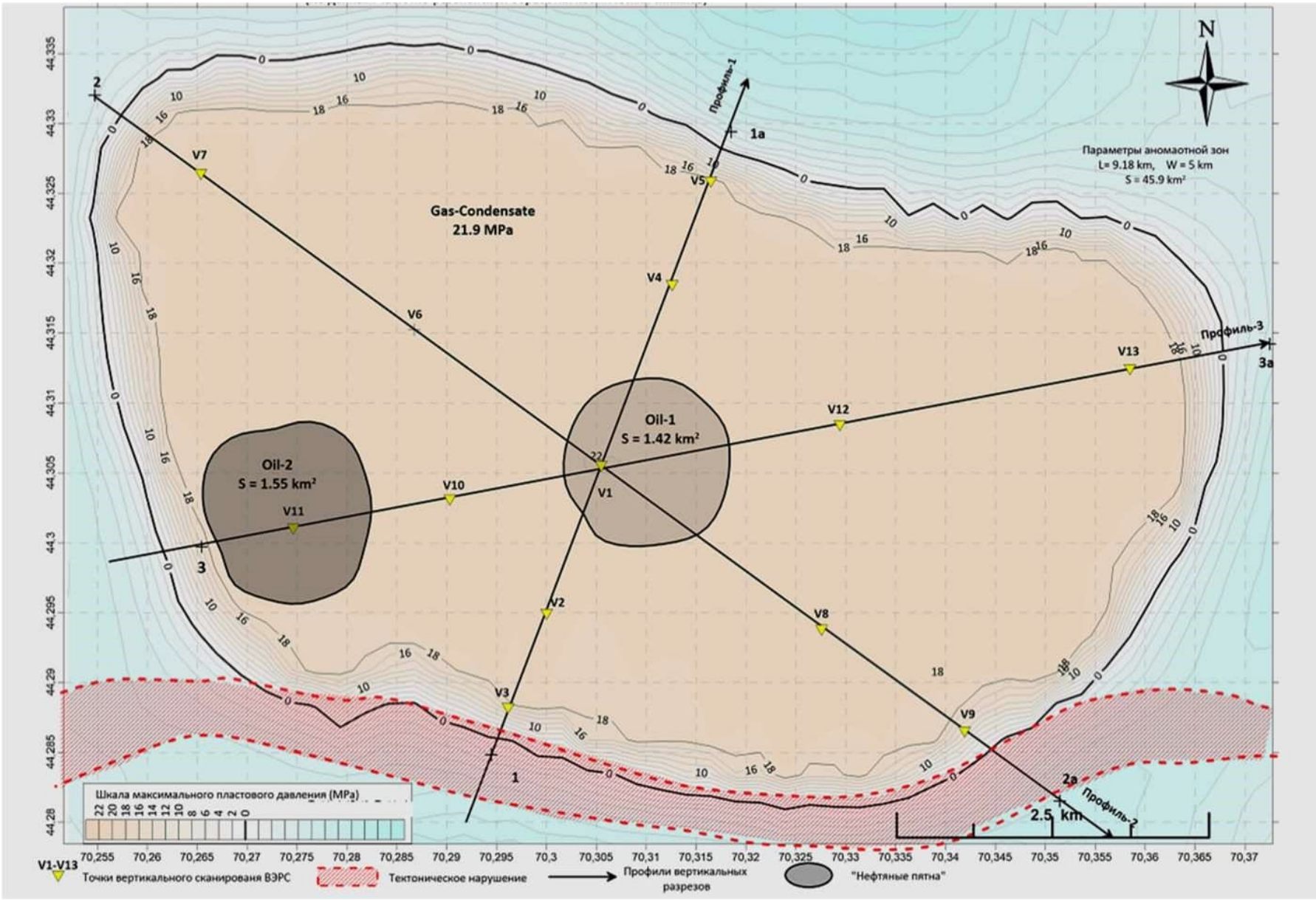
Depth column at the V-1 sounding point



Depth column at the V-13 sounding point

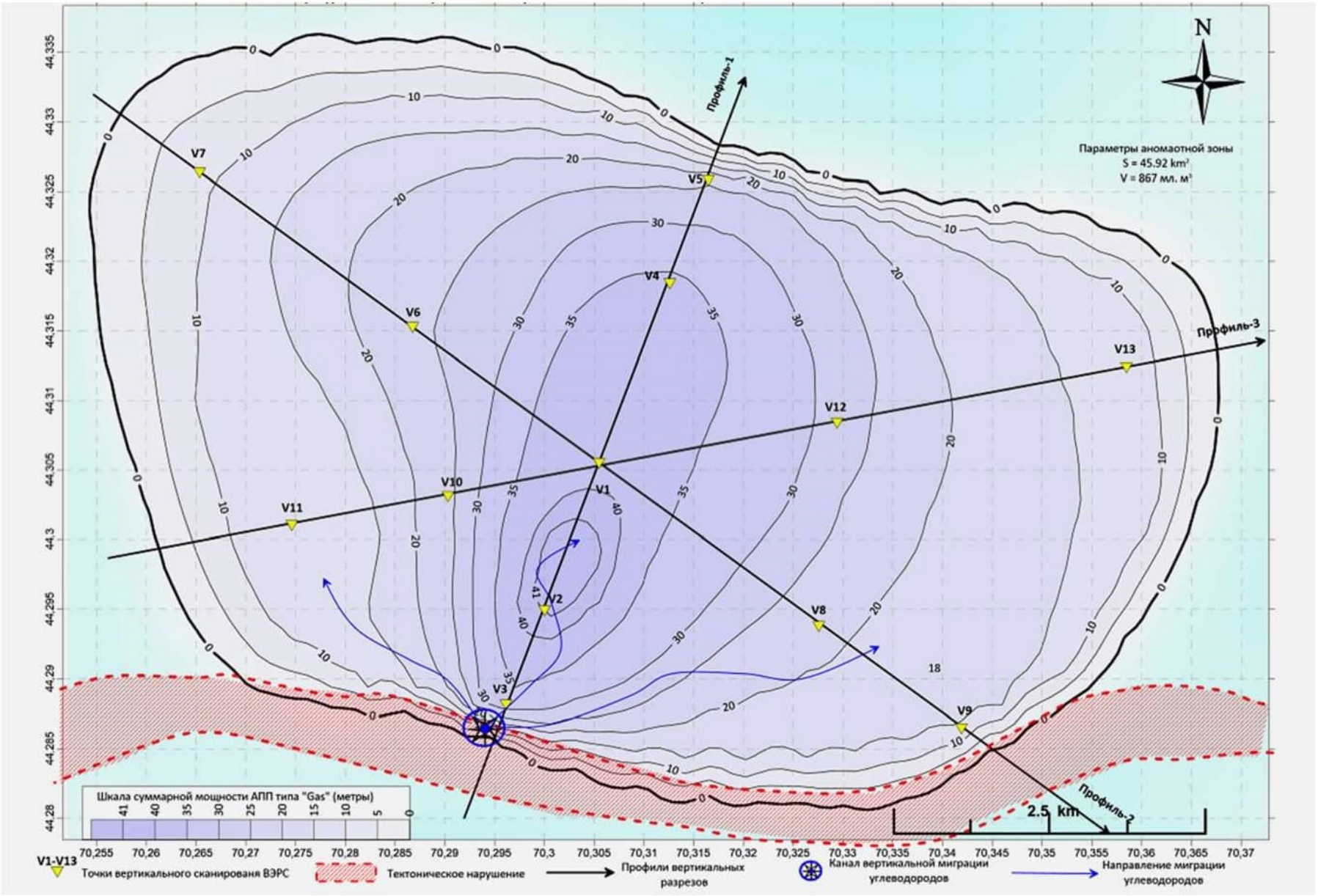


Overground contours of «Gas+Oil+Condensate» deposit Scale 1:25 000



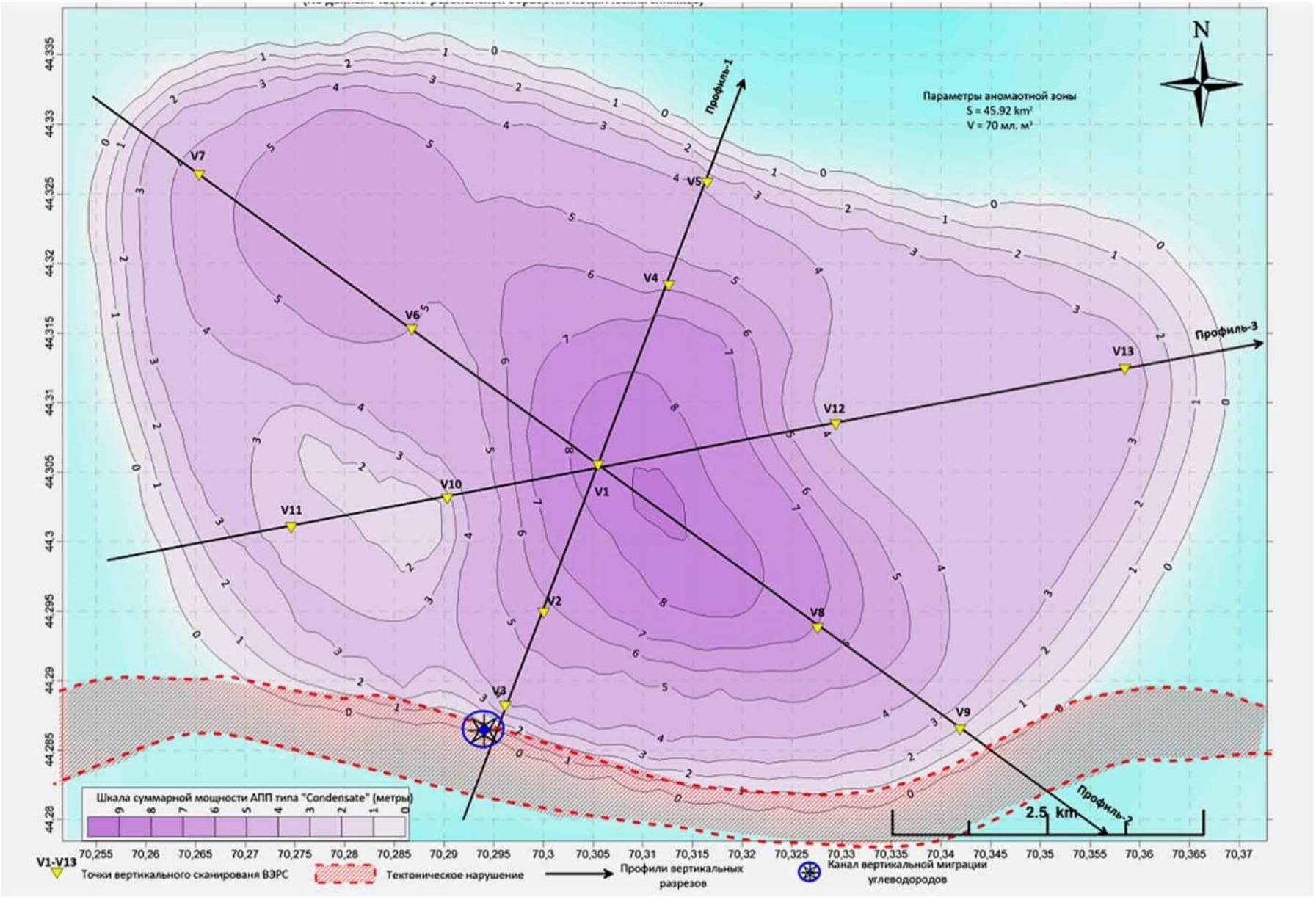
Overground contours of G-1+G-2+G-3 gas beds

Scale 1:25 000



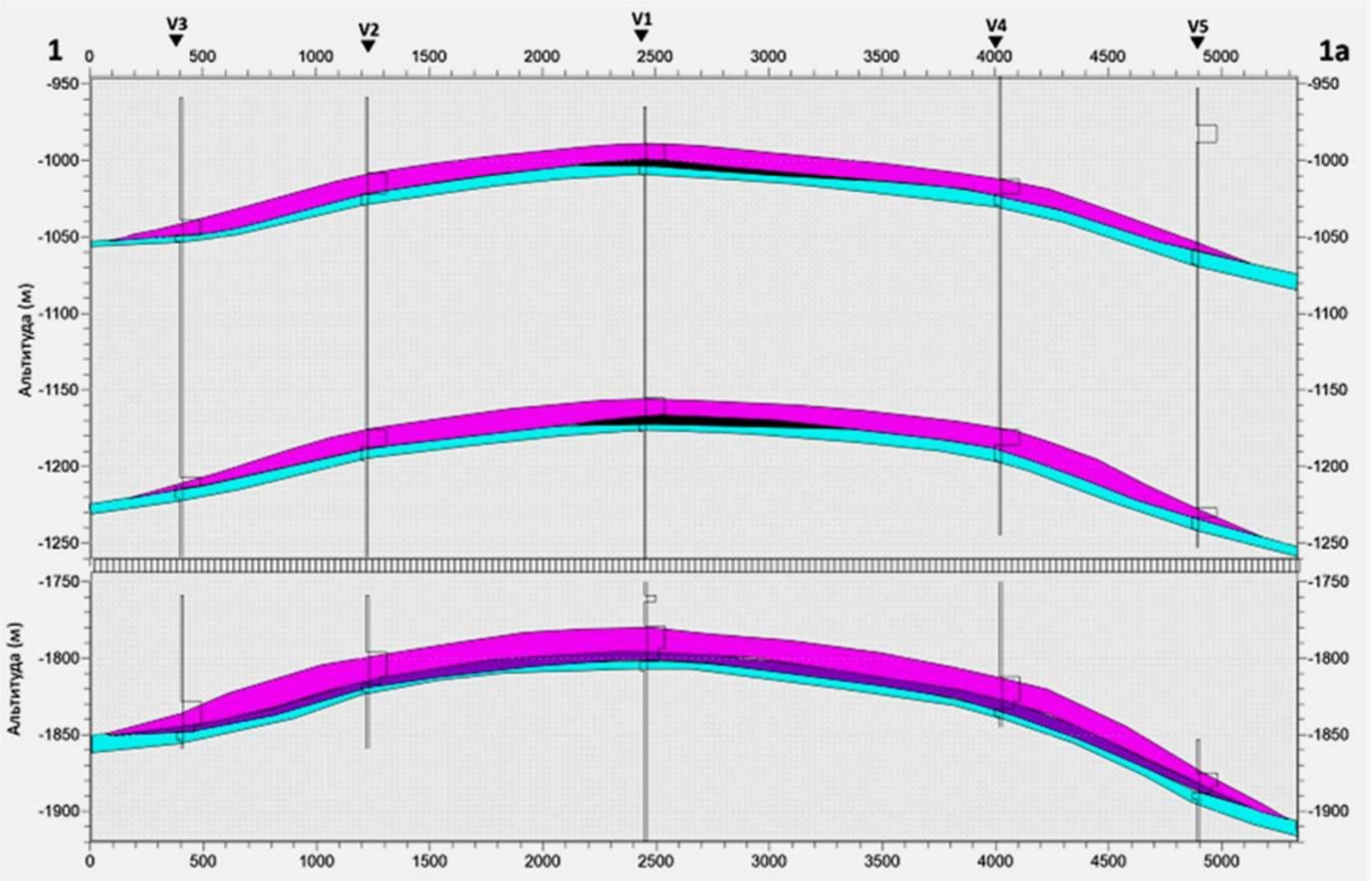
Overground contours of gas (G-3) condensate bed

Scale 1:25 000



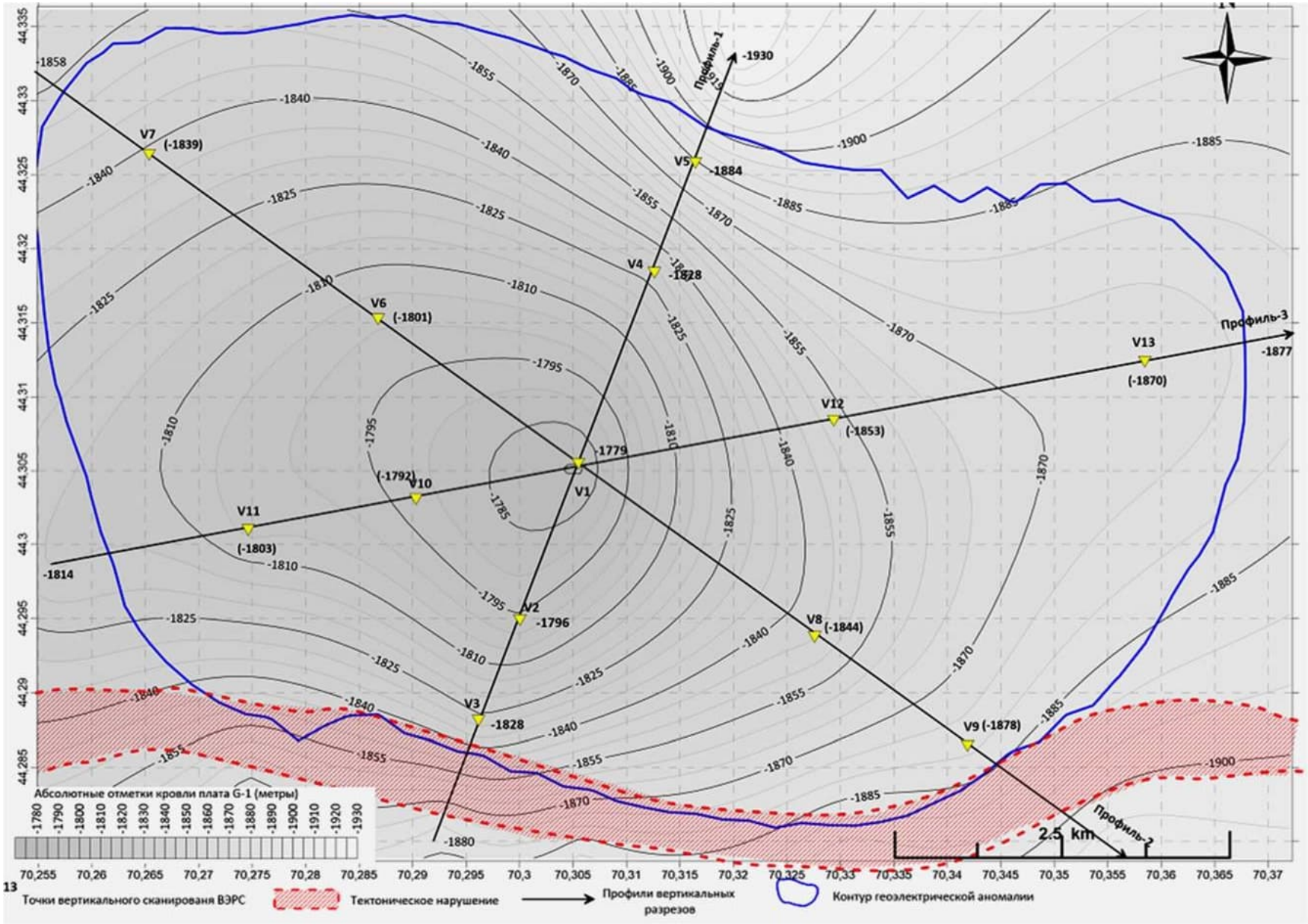
Axial section 1-1A

Sounding points V3 – V2 – V1 – V4 – V5



Contours of prospective top of gas (Gas-3/G-3) bed

Scale 1:25 000



Three-dimensional model of the brachy-anticlinal fold along the top of gas (G-3) bed