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**Application of induction logging**

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Application of induction logging to exploration of kimberlites

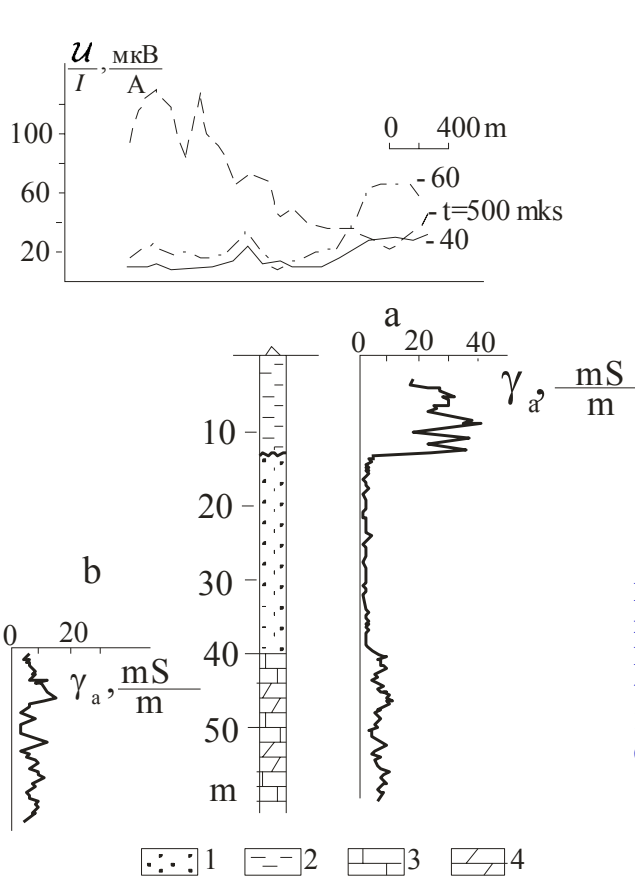


Fig. 1. Study of electromagnetic anomaly at exploration of kimberlites. On data of induction logging is mapped the conductive siltstone layer in the upper part of cross section. Conductivity of carbonate rocks in the interval of 40-60 m has the same level compare to normal cross section (shown in the left part of the figure).  
1 - sand, 2 - siltstone, 3 - limestone, 4 - dolomite.

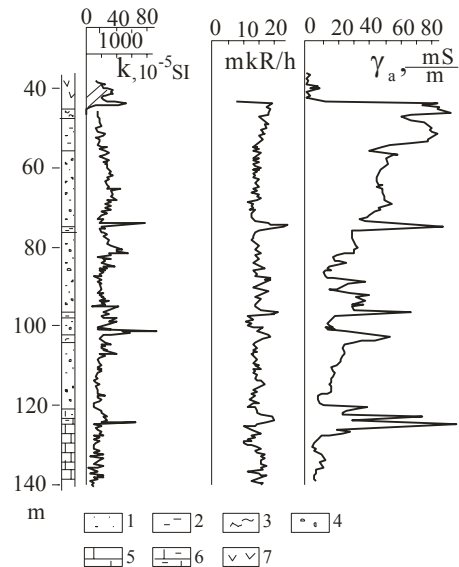


Fig. 2. Differentiation of kimberlite covering rocks using magnetic susceptibility, gamma ray and induction logging data. Plot of the induction logging is the most contrasting compare to the other methods data (sedimentation cycles are reflected).  
1 - sand, 2 - siltstone, 3 - clay, 4 - pebbles, 5 - limestone, 6 - marble, 7 - dolerite.

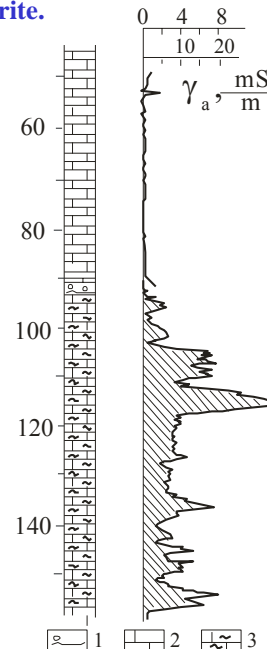
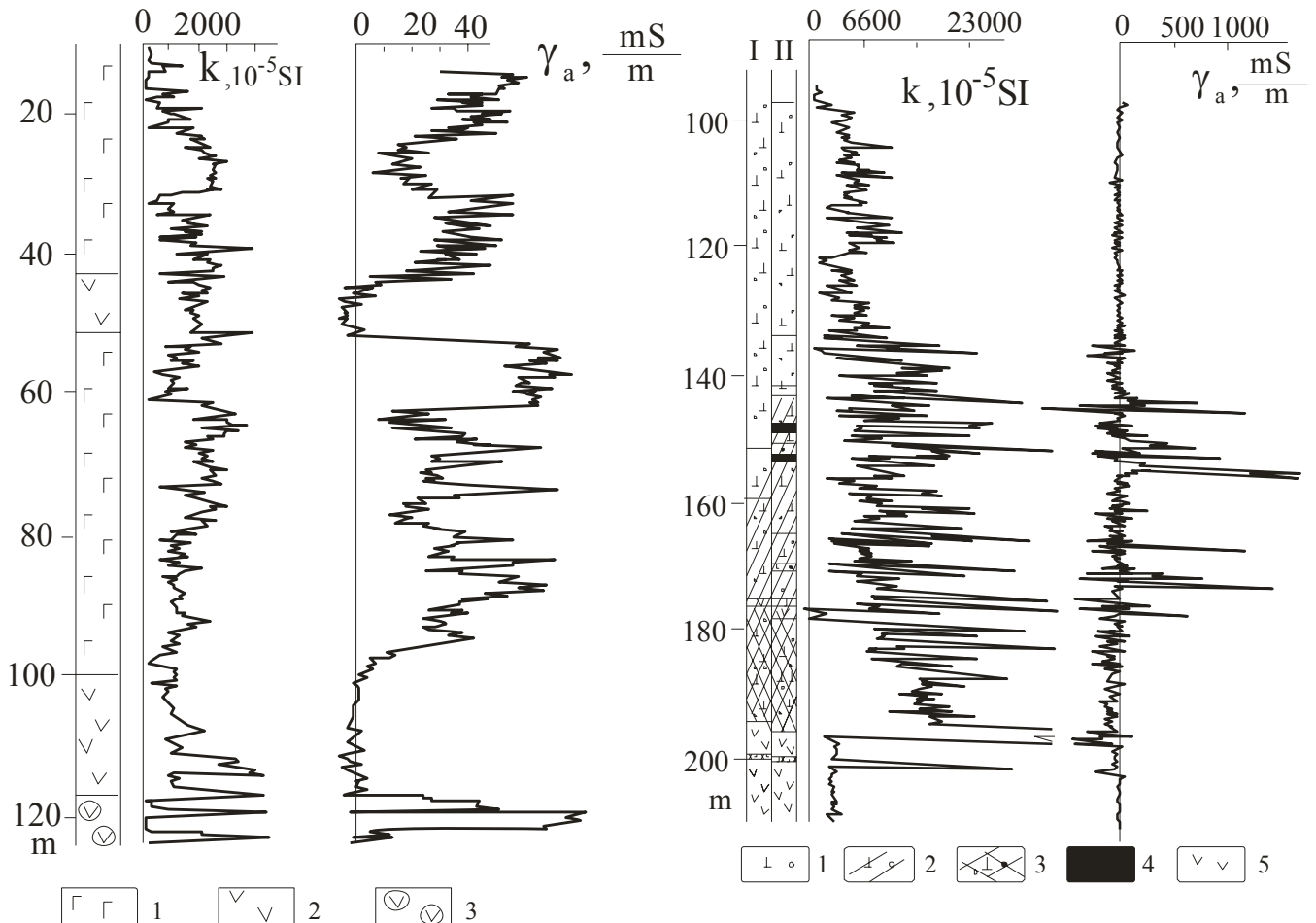


Fig. 3. Differentiation of limestones and marbles into kimberlite hosting rocks using induction logging data.  
1- pebbles, 2 - limestone, 3 - marble.

**Application of induction logging  
at exploration and prospecting of kimberlites**



**Fig. 4. Differentiation of kimberlite covering rocks using magnetic susceptibility, gamma-ray and induction logging data. Plot of induction logging is the most contrasting compare to the other methods data (sedimentation cycles are reflected).**

1 - sand, 2 - siltstone, 3 - clay, 4 - pebbles, 5 - limestone, 6 - marble, 7 - dolerite.

**Fig. 5. Allocation of skarn kimberlites and differentiation them on the skarn extent. Skarn kimberlites differ from strongly skarn ones on the presence of sulphide mineralization zones, which are appeared in induction logging plots by intensive maxima.**

1 - kimberlite, 2 - skarn kimberlite, 3 - strongly skarn kimberlite, 4-sulphide mineralization, 5-dolerite.

Cross sections on geology data (I) and taking into account logging data (II).

## Application of induction logging to development of uranium deposits

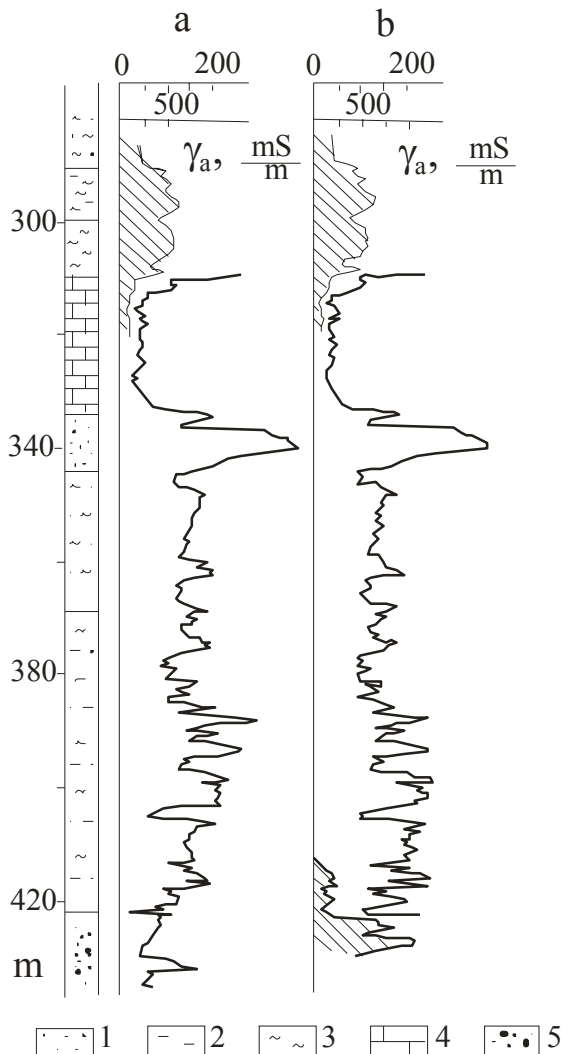


Fig. 1. Comparison of induction logging data before (a) and after (b) treatment by acid solution. Conductivity was noticeably increased in the productive horizon.

1 - sand, 2 - siltstone, 3 - clay, 4 - limestone,  
5 - sand-pebbles sediments of productive horizon.

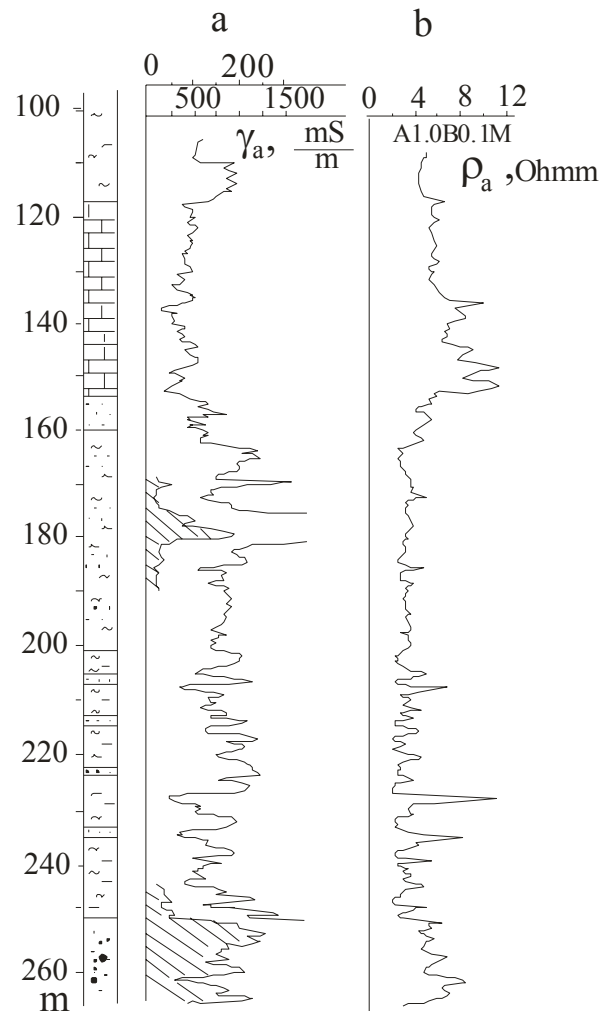


Fig. 2. Determination of break zone in the plastic case. At the depth of 180 m is appeared the high conductive zone (a), connected with flow of acid solution into the sand-clay layer. Before pumping of the acid solution there were no anomalies on the resistivity logging plot.

Application of induction logging to development of uranium deposits

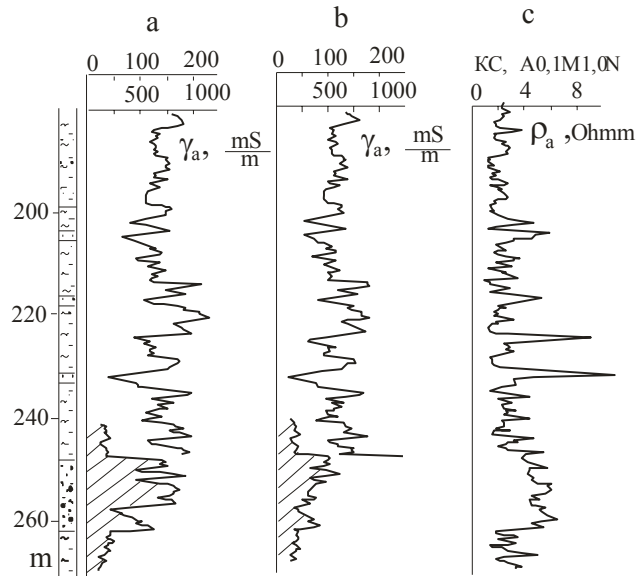


Fig. 3. Study of conductivity changes of productive horizon using induction logging data in the process of the well exploitation: a - and b - measured primary and in one year plots, c - primary plot of resistivity logging before pumping of the acid solution.

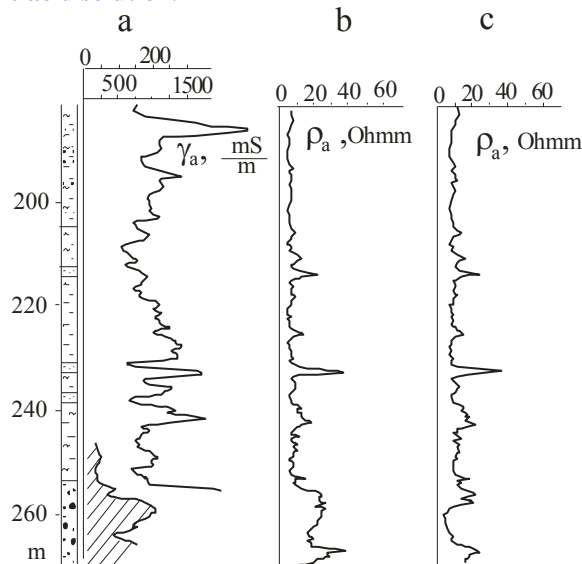


Fig. 4. Comparison of induction logging plot after pumping of acid solution and resistivity logging one (b) before pumping into well 1. b - resistivity logging plot in the well 2, drilled after closing-down of the well 1.