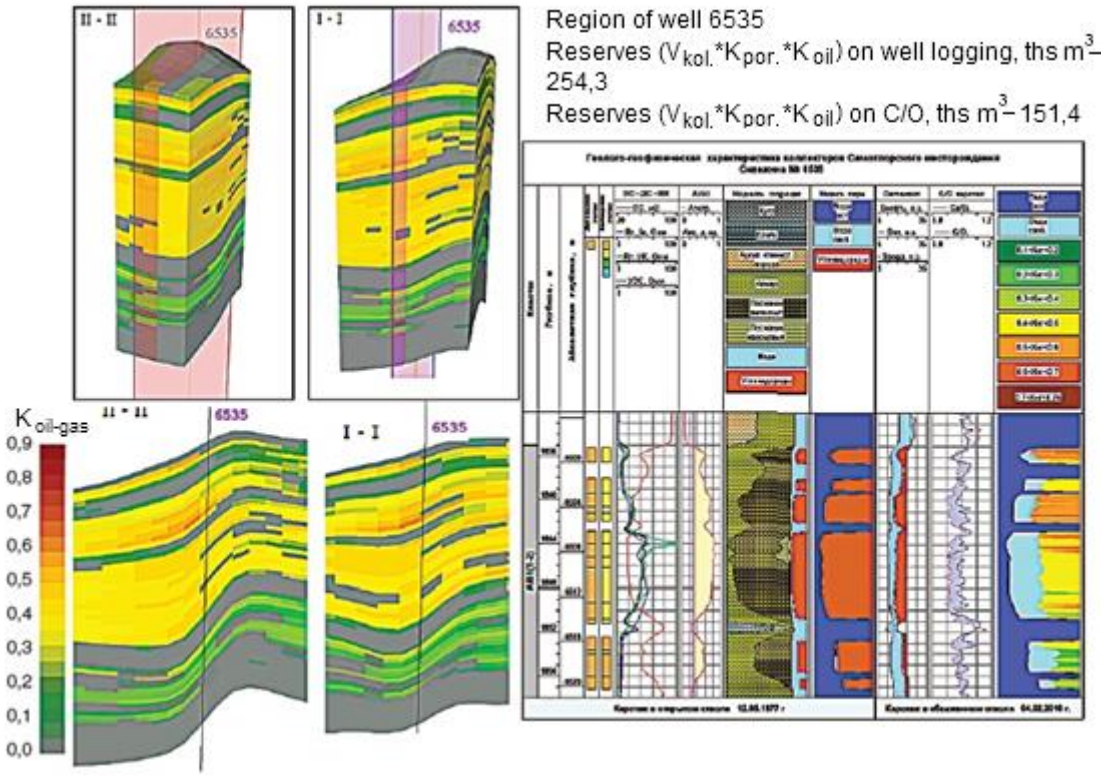

Fig. 9 Evaluation of the hydrocarbon reserves potential of the plot of well 6535.

3. CONCLUSIONS

Enhanced On the basis of the integrated analysis of the available cased well nuclear logs and open hole logs, 2D and 3D geomodeling corrected for C/O logs, hydrocarbon saturation changes in time and space was studied in the block 42 formation AB1(1–2) under development in Samotlor field. The stated technique for the sequential integrated analysis of the nuclear and other logs and geomodeling of the fields under development (starting from a general analysis on the field under consideration and finishing with a detailed analysis within the limits of individual deposit elements) allows widening the information basis necessary for a more effective control over field development in general and quick making decisions about taking different geological and engineering measures on deposit plots with perspective amounts of residual reserves.

For a more effective solution of the problems stated, it is necessary to considerably enlarge the volume of the nuclear logging in the field with a periodical relogging in monitor wells.

Table 1. Distribution of the original and current reserves on the chosen plots of the formation $AB_{1(1-2)}$ deposit.

Deposit plot	Reserves ($V*Por*S_{hc}$) K m3, from open hole logs	Residual reserves ($V*Por*S_{hc}$) K m3, from nuclear logs	Map K_{disp} , min-max
40412; 40398; 6535; 5443; 38020; 38022	5642.68	3654.63	0.204 — 0.650 0.419
6578; 6579; 10907	2604.161	1538.184	0.316 — 0.526 0.414
26339; 38339; 7415	2901.59	1487.82	0.244 — 0.526 0.414

REFERENCES

Aliev R.A., Guirimov B.G. (2014). "Type-2 Fuzzy Neural Networks and Their Applications". http://www.springer.com/us/book/9783319090719

Bezdek J.C., Ehrlich R., Full. W. (1984). FCM: "The fuzzy c-means clustering algorithm". *Computers & Geosciences*, 10 (2-3), 191-203

Efendiyev G.M., Mammadov P.Z., Piriverdiyev I.A., Mammadov V.N. (2016). "Clustering of geological objects using FCM-algorithm and evaluation of the rate of lost circulation". *Procedia Computer Science*, Volume 102, 159-162

Hassan S. Naji, Mohammed Khalil Khalil (2012). 3D geomodeling of the Lower Cretaceous oil reservoir, Masila oil field, Yemen. *Arabian Journal of Geosciences*, Volume 5, Issue 4, July, 723–746

Jian-Gu Qian, Qian Gao, Jian-feng Xue, Hong-Wei Chen and Mao-Song Huang (2017). "Soil and ribbed concrete slab interface modeling using large shear box and 3D FEM". *Geomechanics and Engineering, An Int'l Journal,* Vol. 12, No. 2

Yajun Wang (2017). "A novel story on rock slope reliability, by an initiative model that incorporated the harmony of damage, probability and fuzziness". *Geomechanics and Engineering*, Vol. 12, No. 2

Zadeh L. A (1965). "Fuzzy Sets". *Information and Control*, Vol. 8, 338-353