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$\varepsilon = 0,00001$. An analysis of the results presented in Table 3 shows that with an increase in the iteration accuracy, the pressure value does not change sharply. Decreasing value ε the value of pressure changes at all points of the filtration area, i.e. at low precisions, the results will be higher. However, they are small so that it can be taken with sufficient accuracy in the calculations $\varepsilon = 0,001$.

Table 2 compares the results of calculations performed using formulas (8) and (9), which shows that the calculated pressure values are close.

Table 2

Change in well pressure and formation pressure with different dependencies of relative phase permeabilities

Days	According to literature		According to UzbekNIPIneftgaz	
	(8) in accordance with the formula		(9) in accordance with the formula	
	$P_{скв}$	$P_{ср}$	$P_{скв}$	$P_{ср}$
40	0,9490	0,9988	0,9494	0,9988
120	0,9385	0,9964	0,9393	0,9964
240	0,9314	0,9925	0,9322	0,9925
480	0,9203	0,9846	0,9211	0,9844
720	0,9095	0,9766	0,9101	0,9764

Figures 1 and 2 show 3D and contour plots of oil and gas pressure and saturation factors during the operation of five wells symmetrically located in the center of the formation. Figure 1 shows that the pressure around the well decreases to 0.85, the oil saturation coefficient decreases to 0.193, and the gas saturation coefficient increases to 0.807. These are indicators that when the pressure near the well drops, gas saturation increases, and oil saturation decreases (Fig. 2).

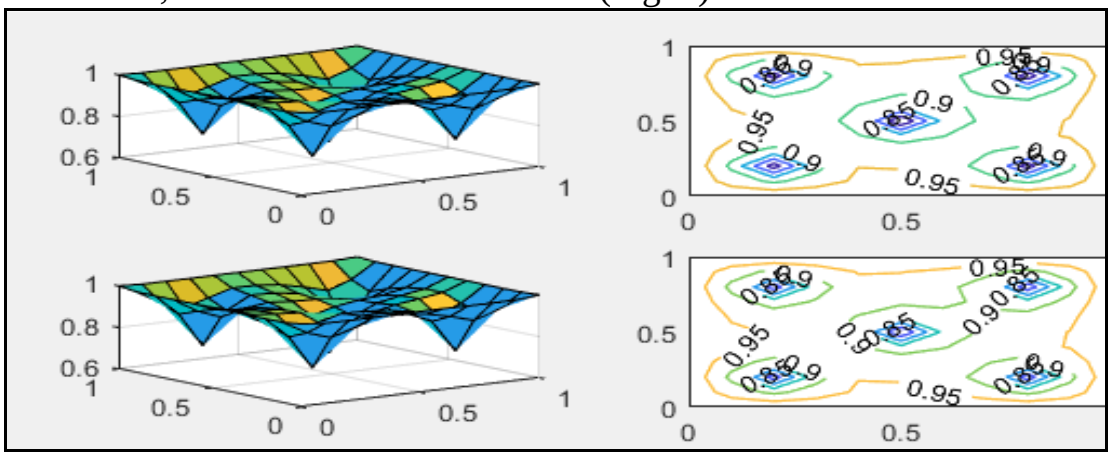

Fig.1. 3D and contour plots of oil and gas pressure distribution in the reservoir

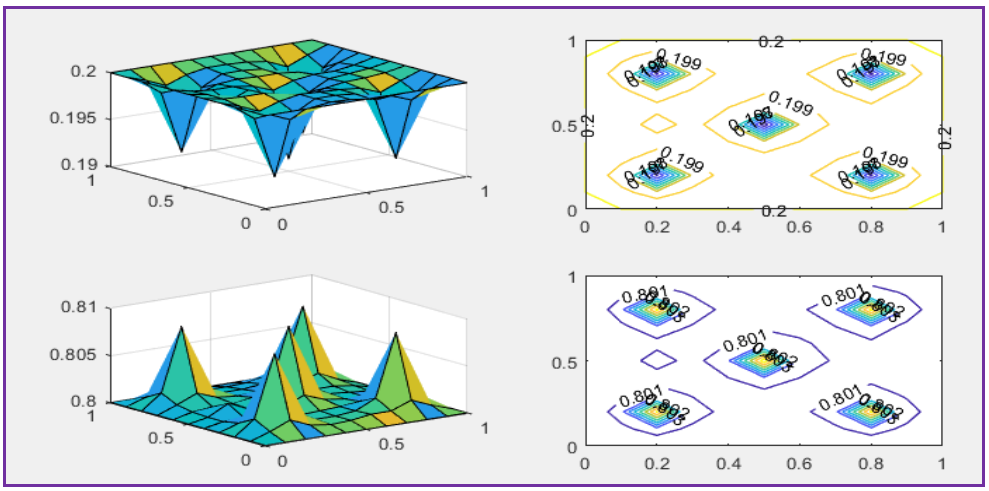

Figure 2. 3D state and contour plots of reservoir oil and gas saturation values

Conclusion.

An analysis of the results shows that the numerical algorithm proposed by us is suitable for calculating pressure and saturation fields for various boundary and initial data, and the mathematical model adequately describes the process under consideration. They can be used to calculate the main indicators in the design and analysis of the development of oil and gas fields.

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