Heterogeneous permeability 7 layers, no capillary pressure, X flux. 2 wells,bhp

Layers with different permeability, 35 x 35 cells

Property	Water	Oil	Units
μ	1	10	$centi * poise$
ρ	1000	850	$kilogram/meter^3$
k_r	$(S_w)^2$	$(1-S_w)^2$	

$\frac{\sigma_2}{\sigma_1}$	Total ICCG	Method	ICCG Snapshots	DICCG	Total ICCG	% of total ICCG
10^0	30965	$DICCG_{10}$	395	35878	36273	117
10^0	30965	$DICCG_{POD_{10}}$	395	2998	3393	11
10^0	30965	$DICCG_{POD_5}$	395	4139	4534	15
10^1	45283	$DICCG_{10}$	570	45991	46561	103
10^1	45283	$DICCG_{POD_{10}}$	570	3406	3976	9
10^1	45283	$DICCG_{POD_5}$	570	4244	4814	11
10^2	50111	$DICCG_{10}$	629	50236	50865	102
10^2	50111	$DICCG_{POD_{10}}$	629	3587	4216	8
10^2	50111	$DICCG_{POD_5}$	629	4379	5008	10
10^3	53476	$DICCG_{10}$	670	53615	54285	102
10^3	53476	$DICCG_{POD_{10}}$	670	3826	4496	8
10^3	53476	$DICCG_{POD_5}$	670	4335	5005	9

Table 1: Comparison between the ICCC and DICCG methods of the average number of linear iterations for the second NR iteration for various contrast between permeability layers.
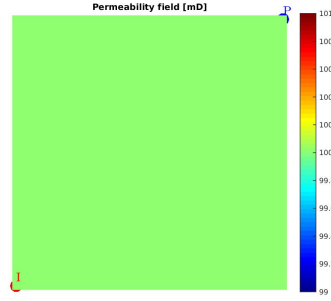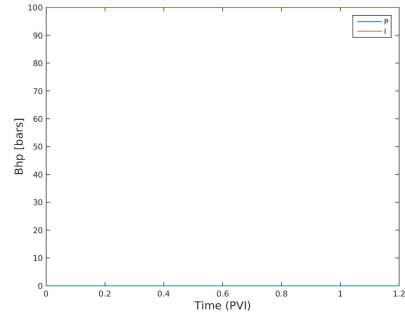
Figure 1: Rock perm.
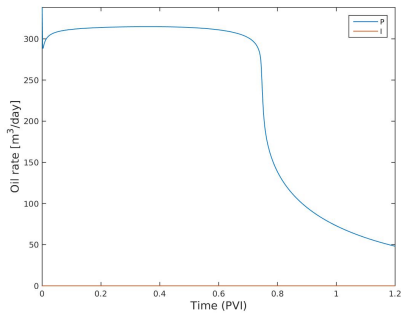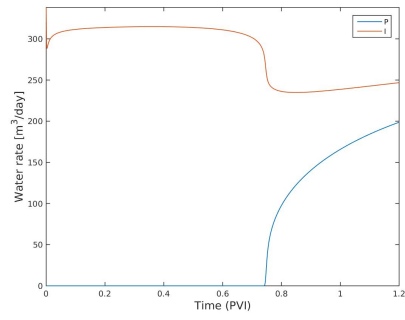

Figure 2: Bhp.

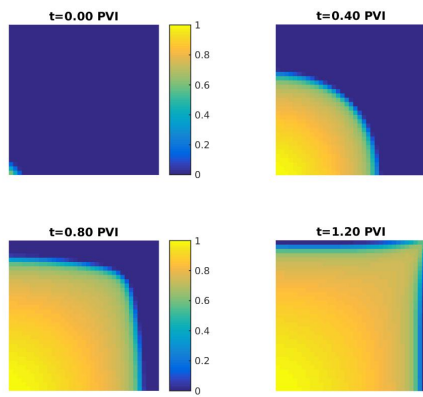Figure 3: Oil Rate.

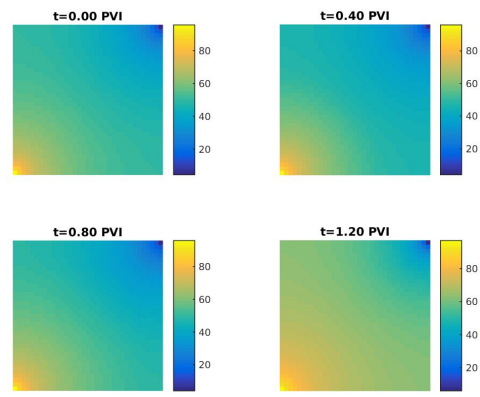Figure 4: Water Rate.

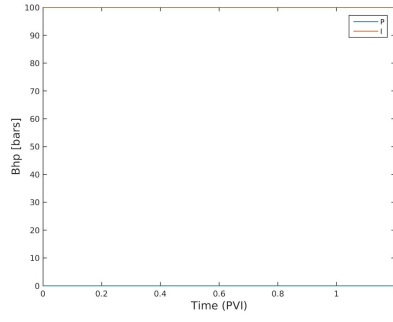

Figure 5: Water saturation.

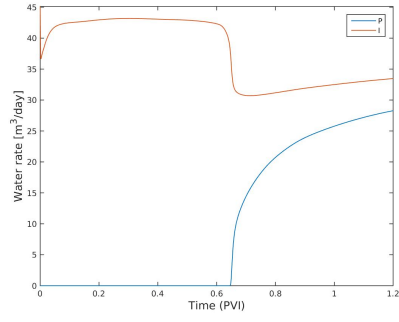

Figure 6: Pressure.

Figure 7: Bhp.
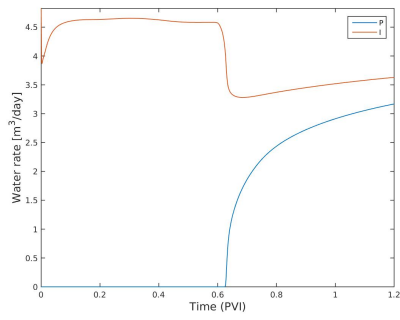

Figure 8: Water Rate (perm 10-1).
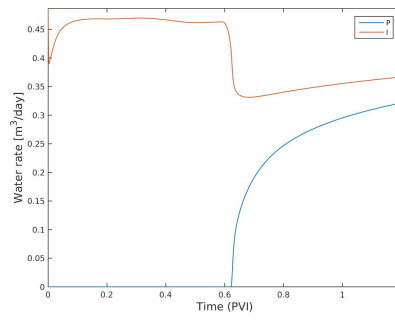

Figure 9: Water Rate (perm 10-2).

Figure 10: Water Rate (perm 10 -3).

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Heterogeneous permeability 7 layers, no capillary pressure, X flux. 2 wells, rate

Layers with different permeability, 35 x 35 cells

Property	Water	Oil	Units
μ	1	10	$centi * poise$
ρ	1000	850	$kilogram/meter^3$
k_r	$(S_w)^2$	$(1 - S_w)^2$	

$\frac{\sigma_2}{\sigma_1}$	Total ICCG	Method	ICCG Snapshots	DICCG	Total ICCG	% of total ICCG
10^0	37089	$DICCG_{10}$	462	41878	42340	114
10^0	37089	$DICCG_{POD_{10}}$	462	31830	32292	87
10^0	37089	$DICCG_{POD_5}$	462	32355	32817	88

Table 2: Comparison between the ICCC and DICCG methods of the average number of linear iterations for the second NR iteration for various contrast between permeability layers.
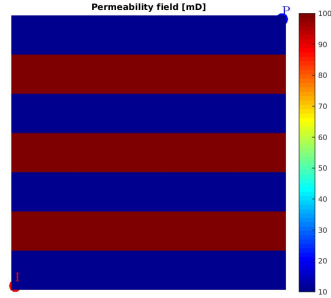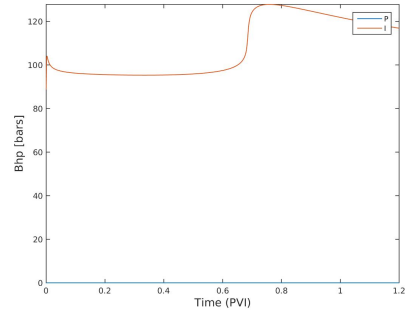
Figure 11: Rock perm.

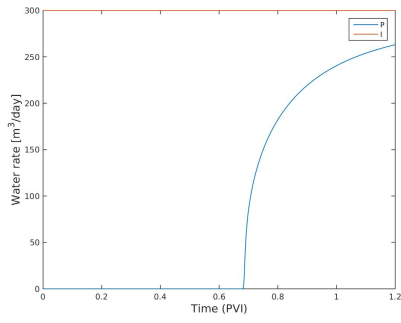Figure 12: Bhp, homogeneous perm.
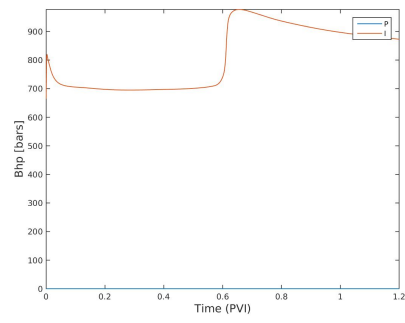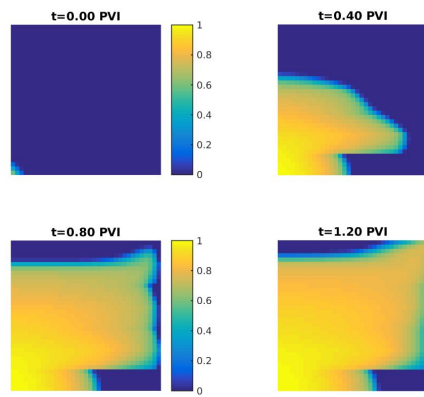

Figure 13: Water Rate.

Figure 14: bhp (perm 10-1).

Figure 15: Water saturation.
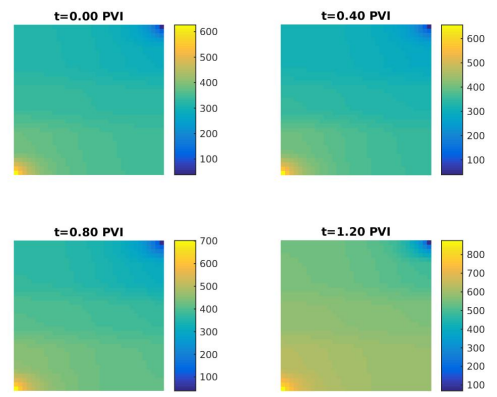

Figure 16: Pressure.