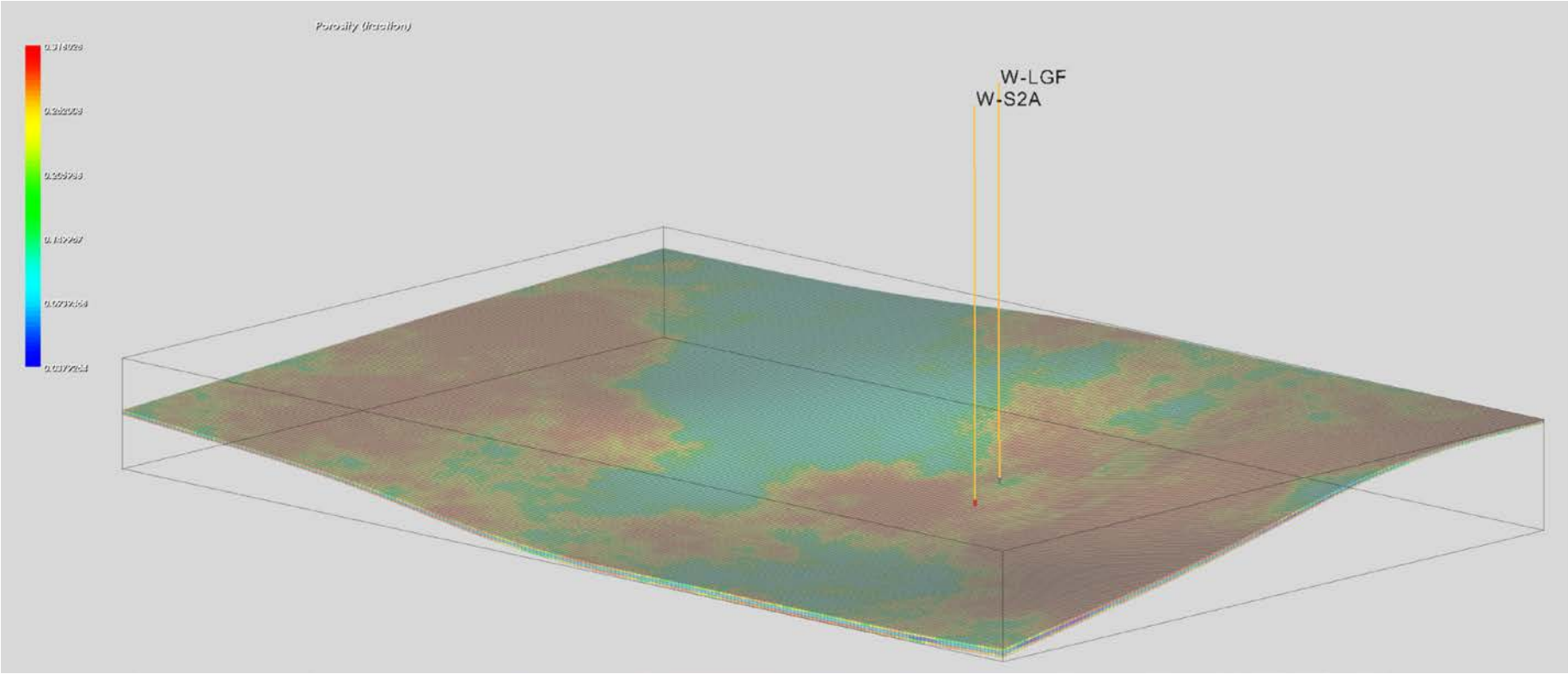
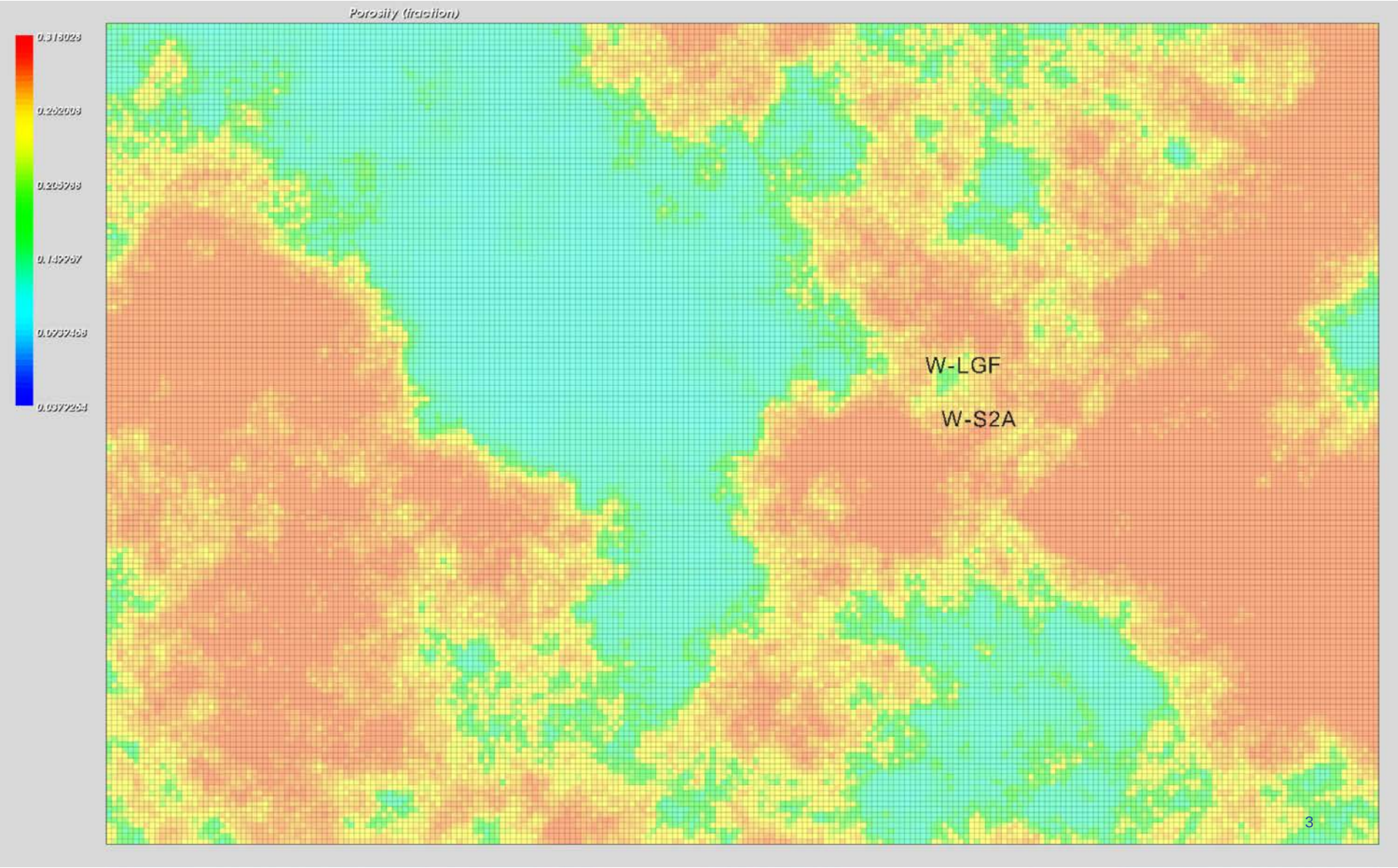
APPENDIX 6 – Annona Dynamic Model Spatial Porosity and Permeability Distribution

Annona – Porosity Composite



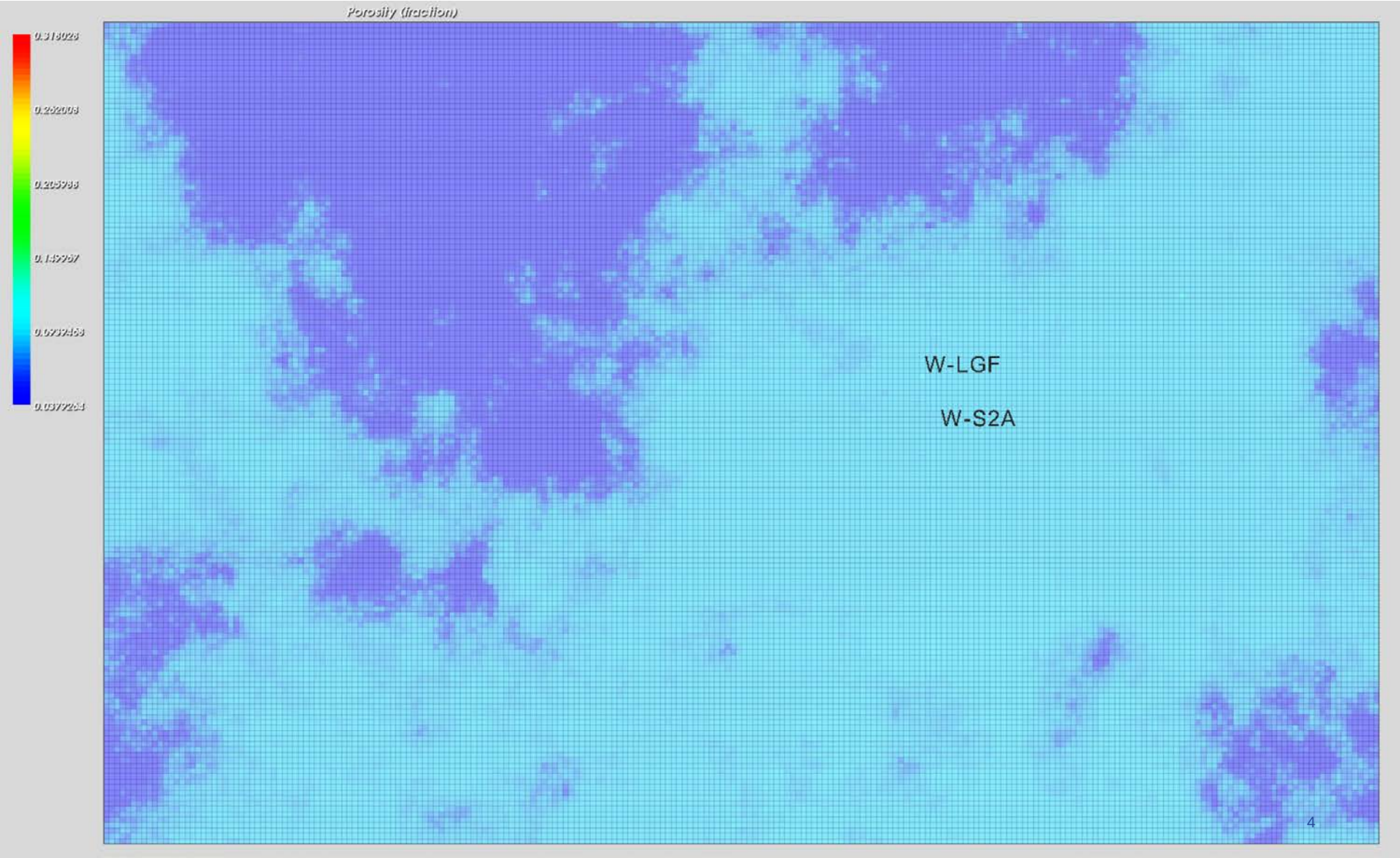
Grid Porosity = Original Porosity x NG
Vertical Exaggeration: 10x

Annona Porosity – Layer 1



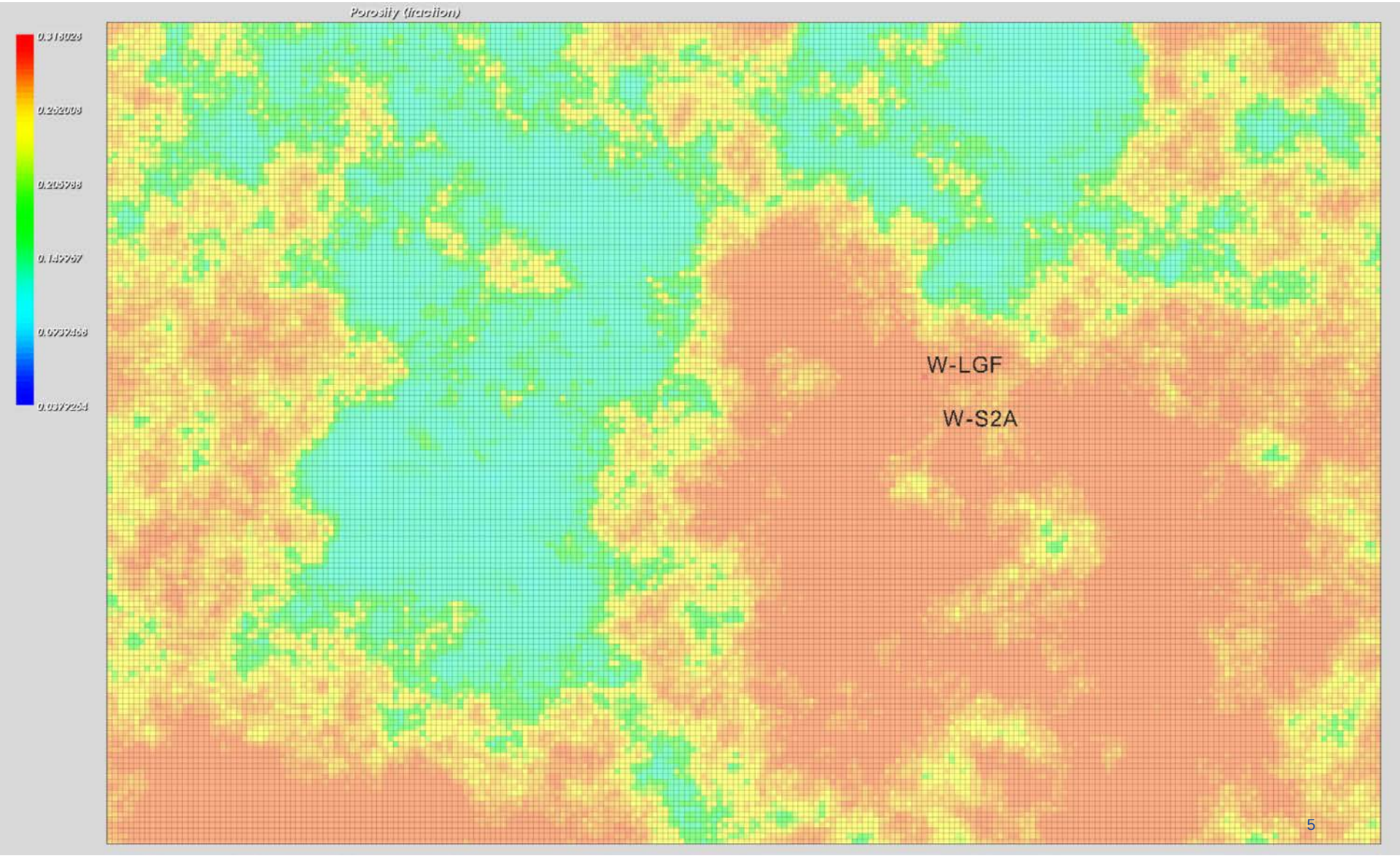
Grid Porosity = Original Porosity x NG

Annona Porosity – Layer 2



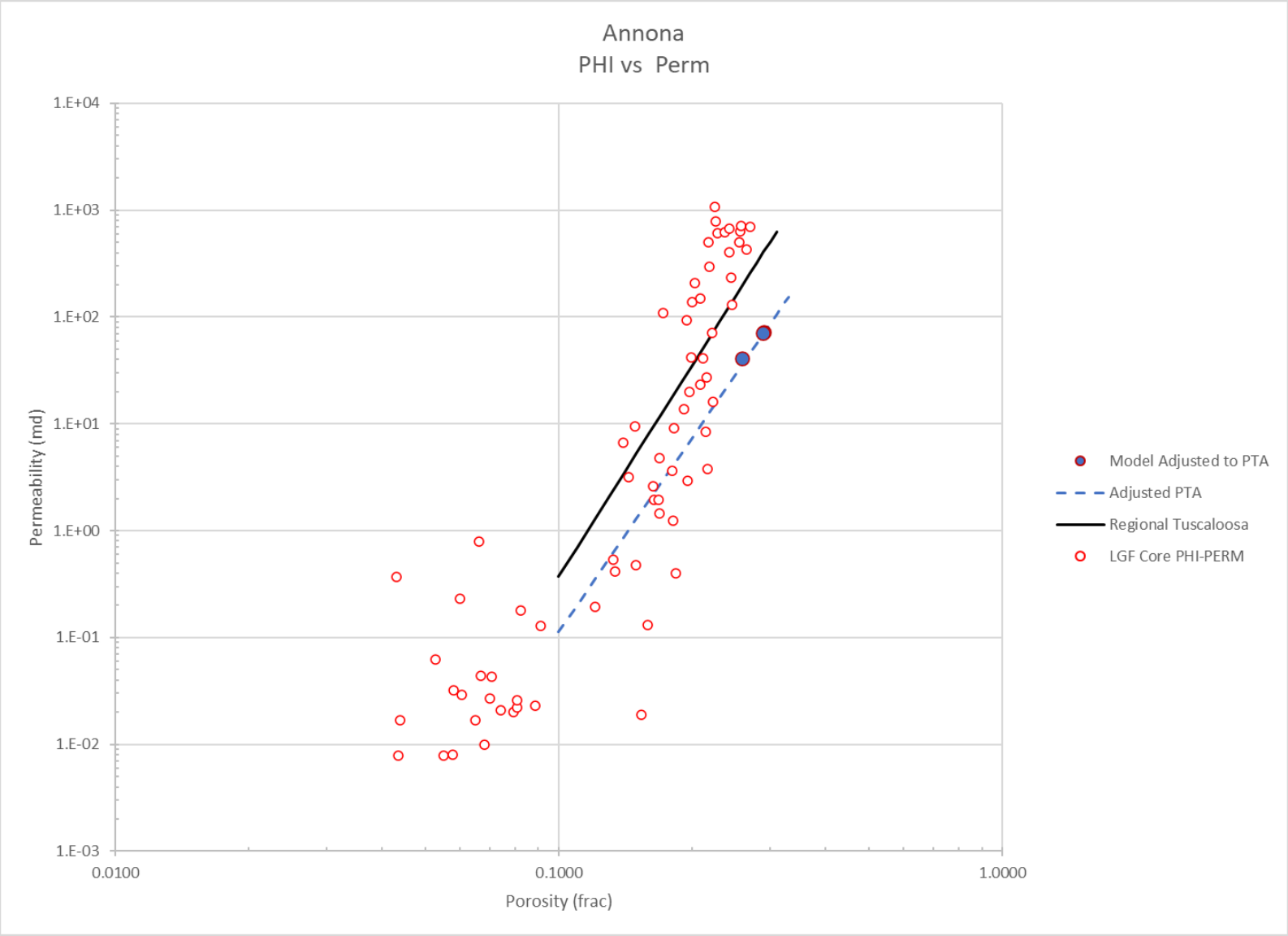
Grid Porosity = Original Porosity x NG

Annona Porosity – Layer 3

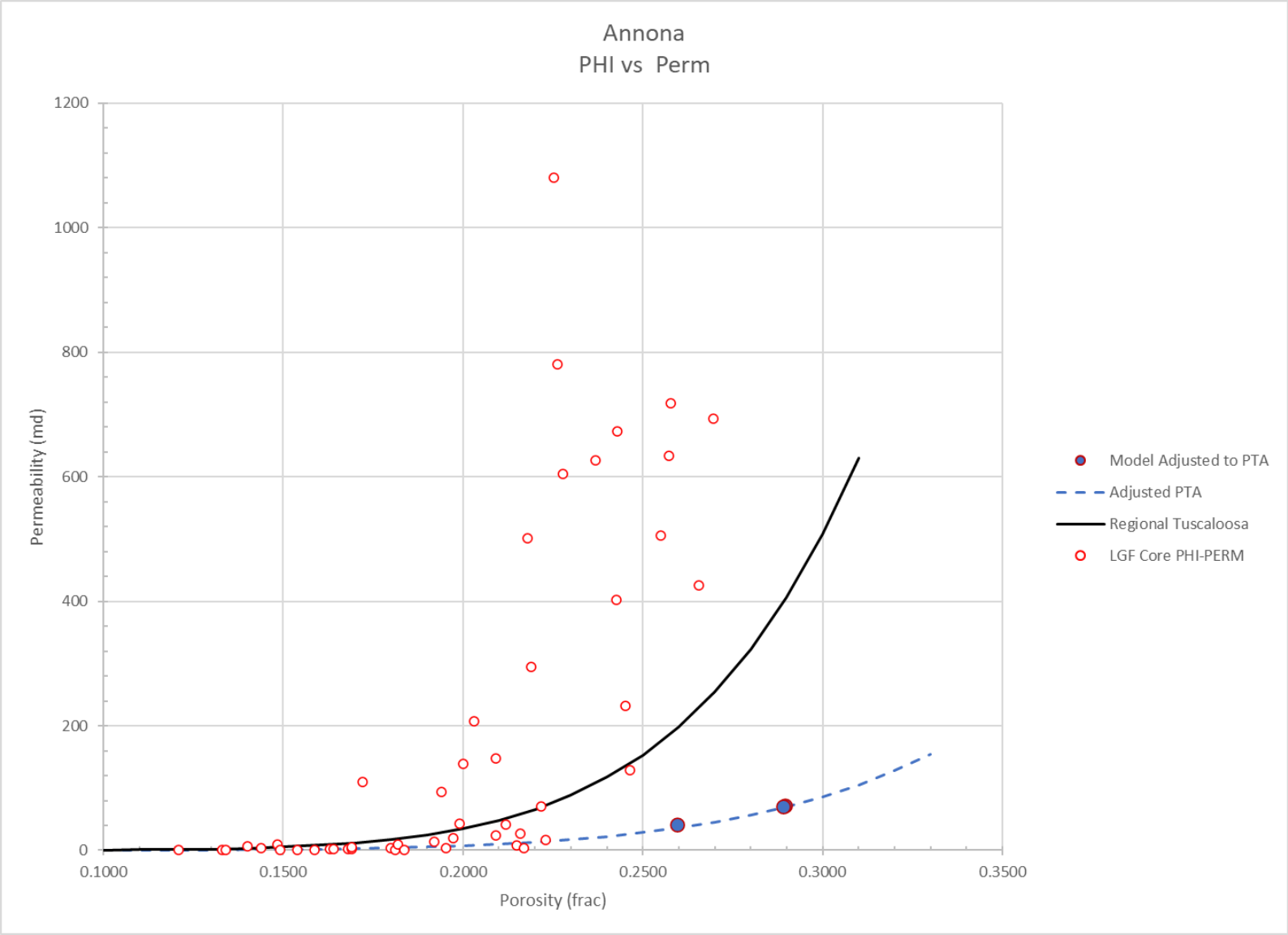


Grid Porosity = Original Porosity x NG

Annona Raw Porosity-Permeability Transform



Annona Raw and Adjusted Porosity-Permeability Transform



Annona Porosity-Permeability Tabulation

Injection Zones (Reservoirs)	Porosity-Permeability Transform
Tuscaloosa	Permeability = 1E-07*(Phi)$^{6.5705}$

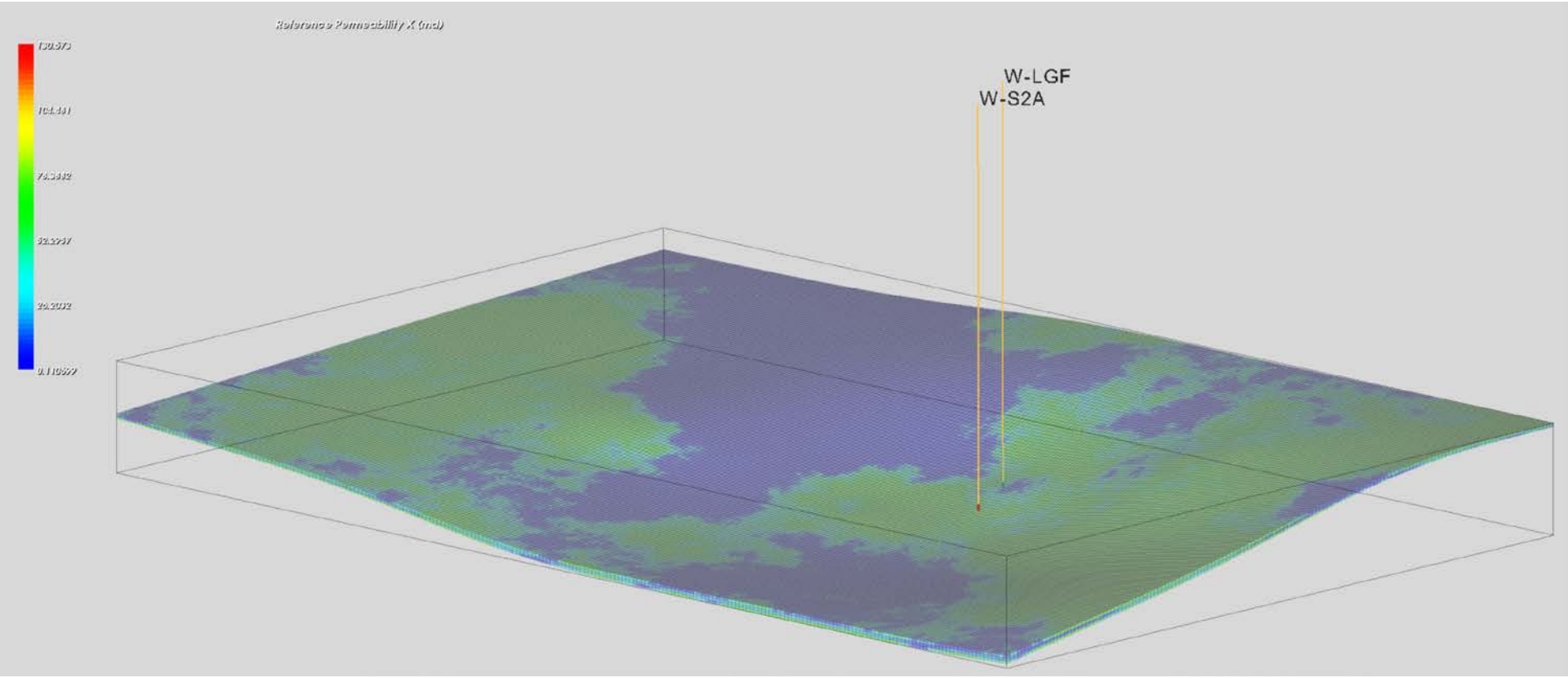
	Regional	Adjusted
coeff	1.000E-07	1.00E-07
exp	6.57050	6.0500

PHI	Perm md	Perm md
0.100	0.372	0.112
0.110	0.696	0.200
0.120	1.232	0.338
0.130	2.085	0.549
0.140	3.393	0.859
0.150	5.340	1.304
0.160	8.160	1.927
0.170	12.152	2.781
0.180	17.692	3.930
0.190	25.238	5.451
0.200	35.352	7.434
0.210	48.713	9.987
0.220	66.128	13.233
0.230	88.559	17.316
0.240	117.133	22.402
0.250	153.167	28.677
0.260	198.190	36.357
0.270	253.966	45.683
0.280	322.516	56.925
0.290	406.150	70.390
0.300	507.487	86.414
0.310	629.495	105.375
0.320	775.511	127.690
0.330	949.283	153.819

Layer Summary

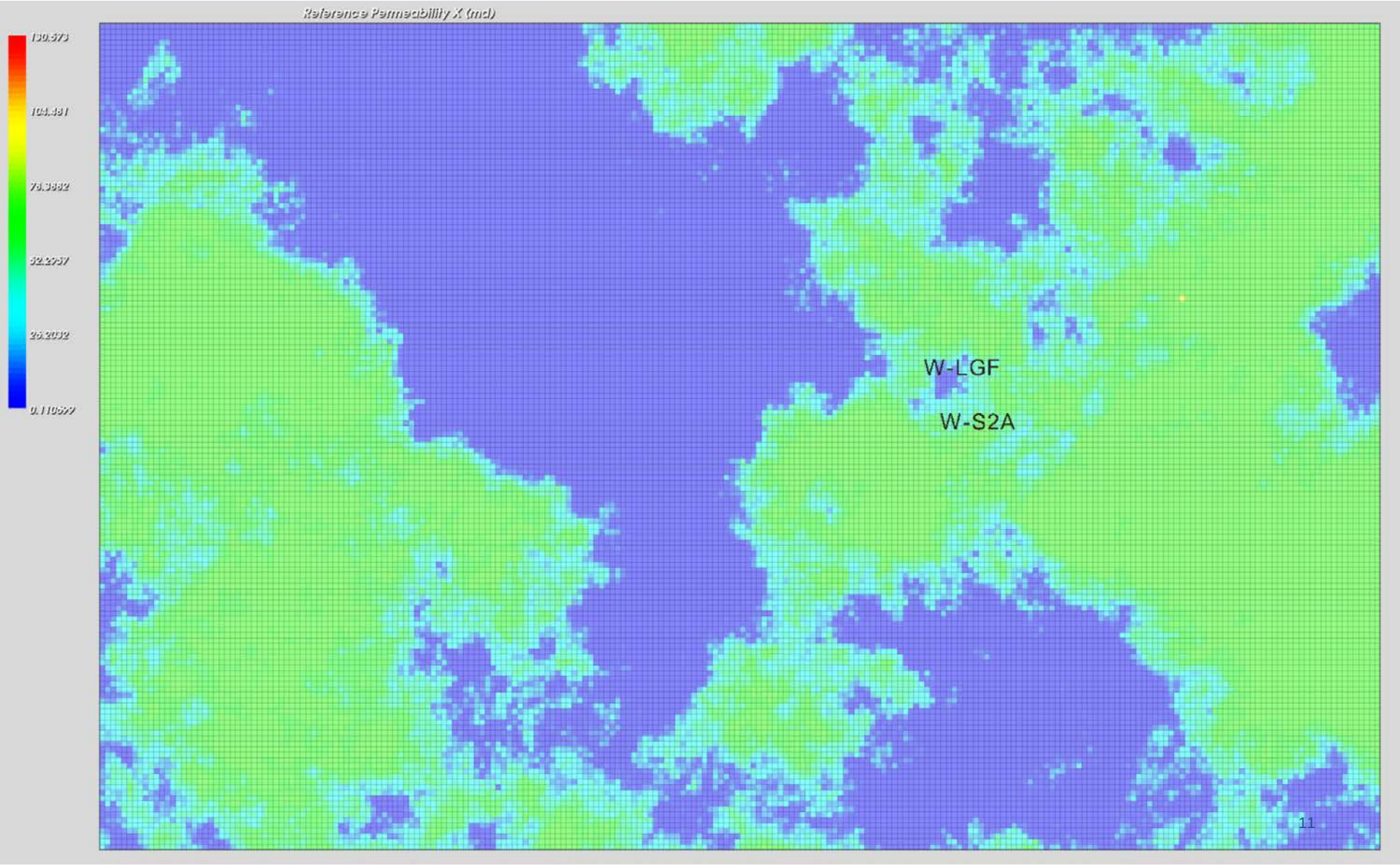
Layer	PHI	Regional Perm (md)	Gross Thickness (ft)	KH (md-ft)	N/G	Hnet (ft)	KH (md-ft)	KH/u (md-ft/cp)	K Adjusted (md)	KH Adj Perm and NG	Adjusted KH/u (md-ft/cp)	Top (TVDSS)	MD (ft)
1	0.2595	231	13.0	2,997	1.000	13.00	2997	4704	41.2	535.1	840	3340.8	3419.8
2	0.2895	402	13.0	5,231	0.300	3.90	1569	2464	71.9	280.3	440	3353.8	3432.8
3	0.2889	398	13.0	5,176	1.000	13.01	5176	8125	71.0	924.3	1451	3366.8	3445.8
												3379.8	3458.8
		344	39	13,404		30	9742	21,042		1740	2731		

Annona – Permeability Composite



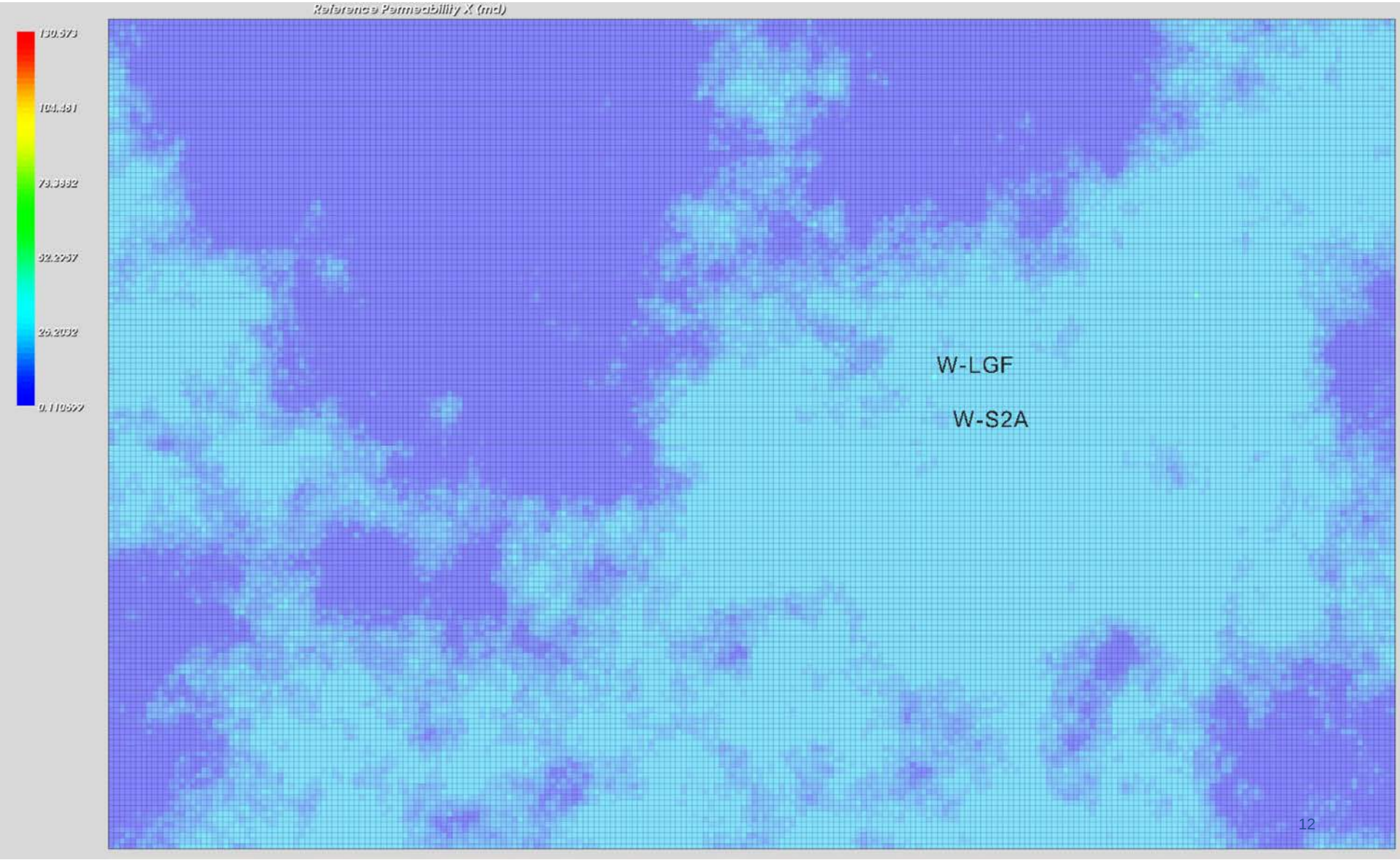
Grid Permeability = Original Permeability x NG
Vertical Exaggeration: 10x

Annona Permeability – Layer 1



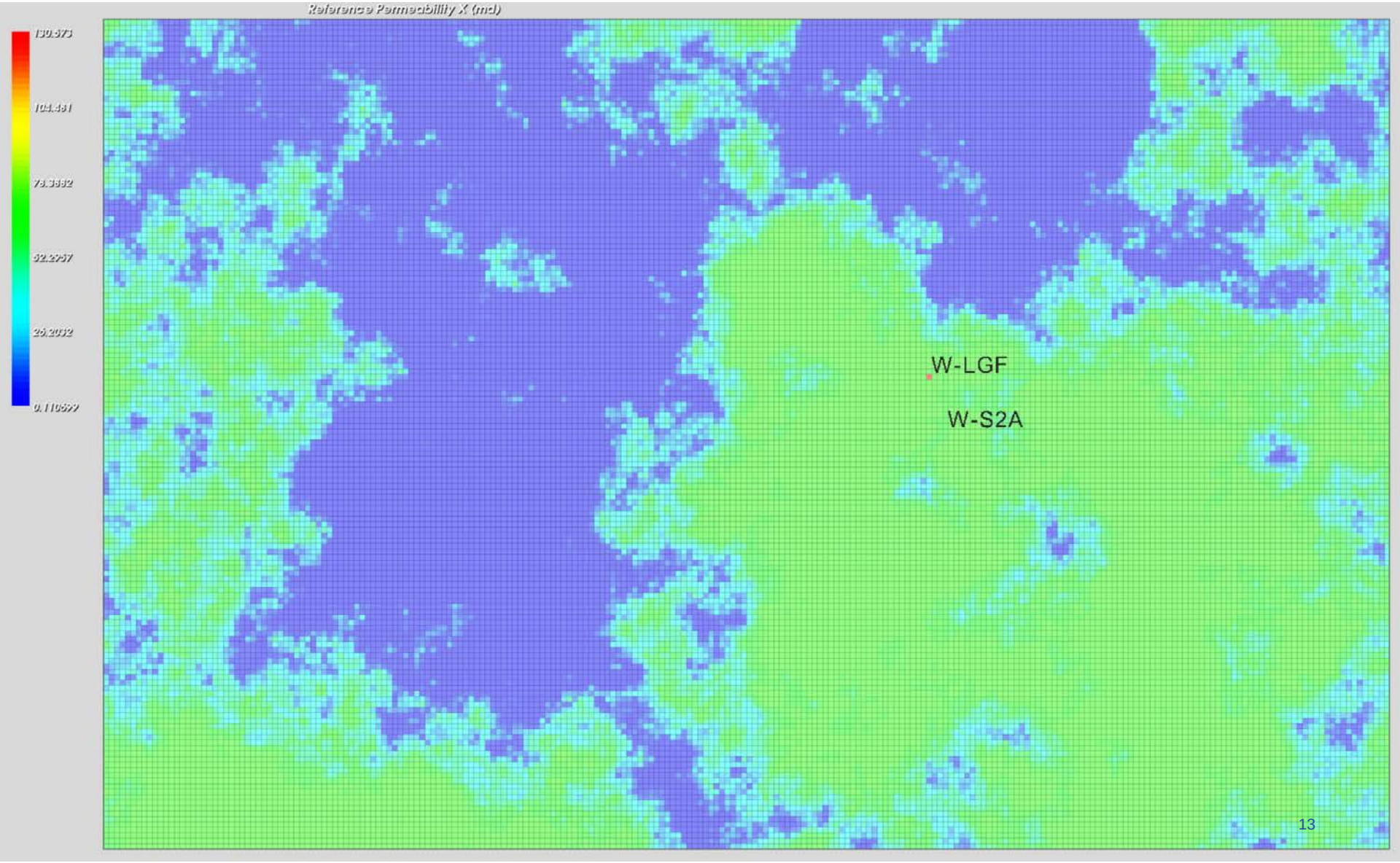
Grid Permeability = Original Permeability x NG

Annona Permeability – Layer 2
Adjusted to N/G



Grid Permeability = Original Permeability x NG

Annona Permeability – Layer 3



Grid Permeability = Original Permeability x NG

Annona Relative Permeability

RelPerm Section: saturation function model and data

Relative Permeability Table: Rel Perm 1 | Family Type: Family1 (W-G) | Data Entry: Parametric

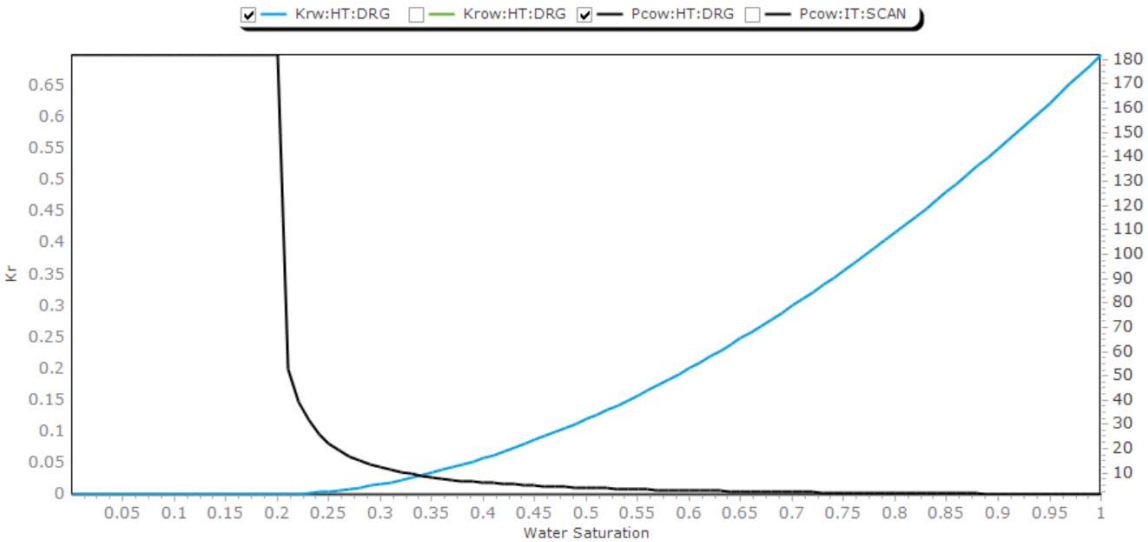
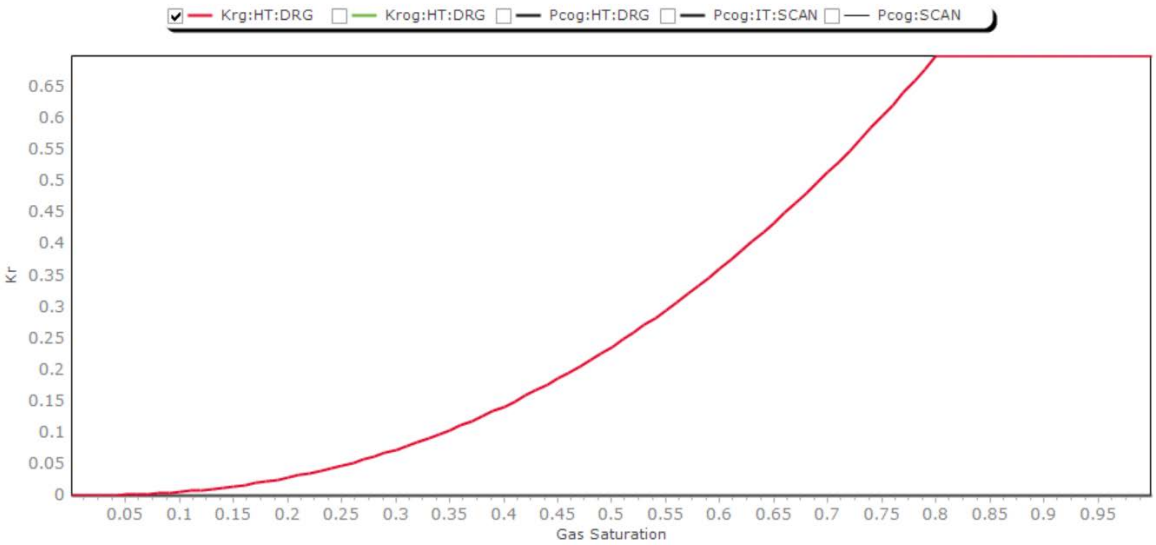
Type : Drainage, Tension : Initial (HT), Region : <All>, Direction : <All>

Water				Oil			Gas				Emulsion	
Sw	Krw	Krow	PCow	So	Krow	Krog	Sg	Krg	Krog	PCog	Sm	Krm
fraction			psi	fraction			fraction			psi	fraction	
0.2			182				0			0		
0.202			63.8									
0.222			36.5									
0.242			24.9									
0.262			18.7									
0.282			14.7									
0.302			12.1									
0.322			10.2									
0.342			8.8									
0.362			7.7									
0.381			6.83									

WAG2P		WAG3P	
Sw	Krw	Sw	Krw
fraction		fraction	

Phase	Parametric		
	Critical Saturation	Endpoint	Exponent
	fraction		
Water	0.2	0.7	1.8
Oil-Water	0	0	0
Oil-Gas	0	0	0
Gas	0	0.7	2.3
Emulsion			
WAG2P			
WAG3P			

- control
- reservoir
- physical
- **relperm**
  - options
  - coverage
  - **sat func**
  - EPS
  - EPS imbibition
  - EPS extende
- aquifer
- mobility
- phase
- adsorption
- wchemistry
- solids
- well
- wellbore heating
- initialisation
- schedule

Previous | Next | Finish | Cancel | Help | Validate | Plot | Calculate

Annona Relative Permeability Model