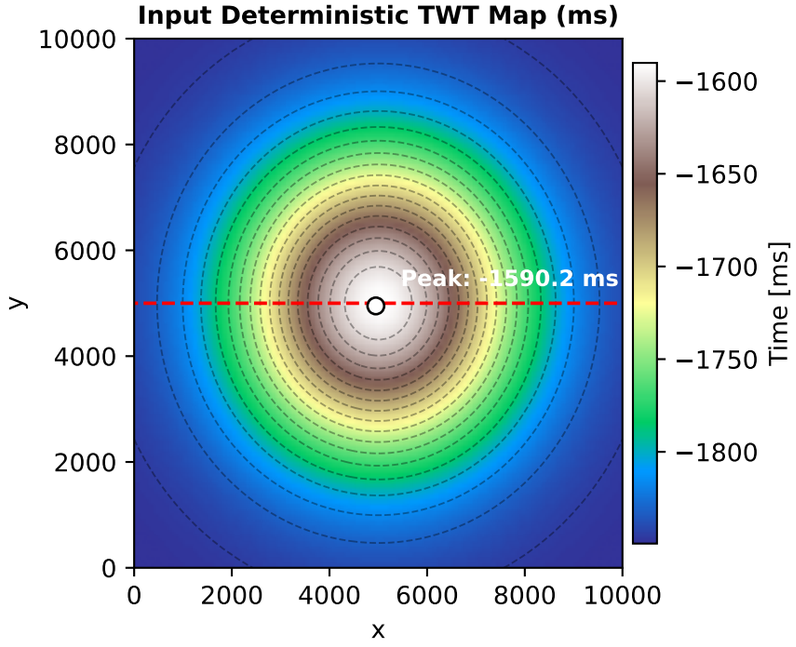
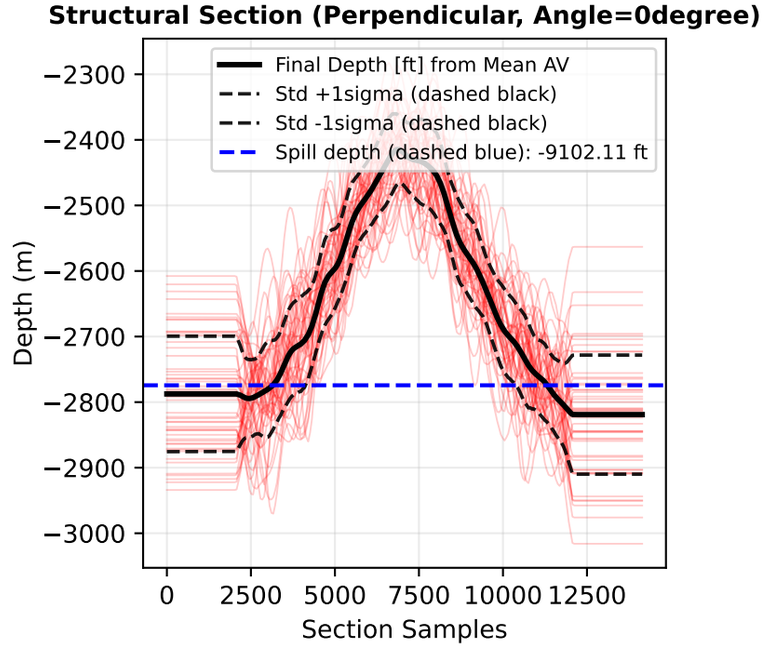
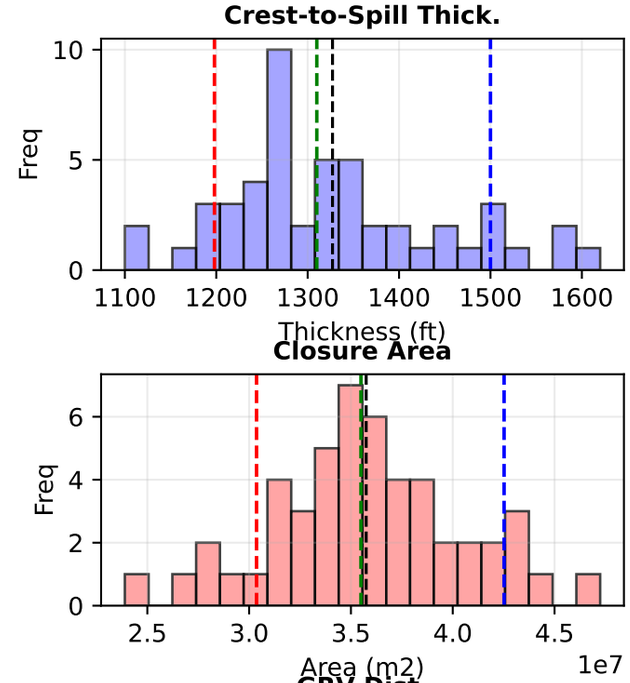
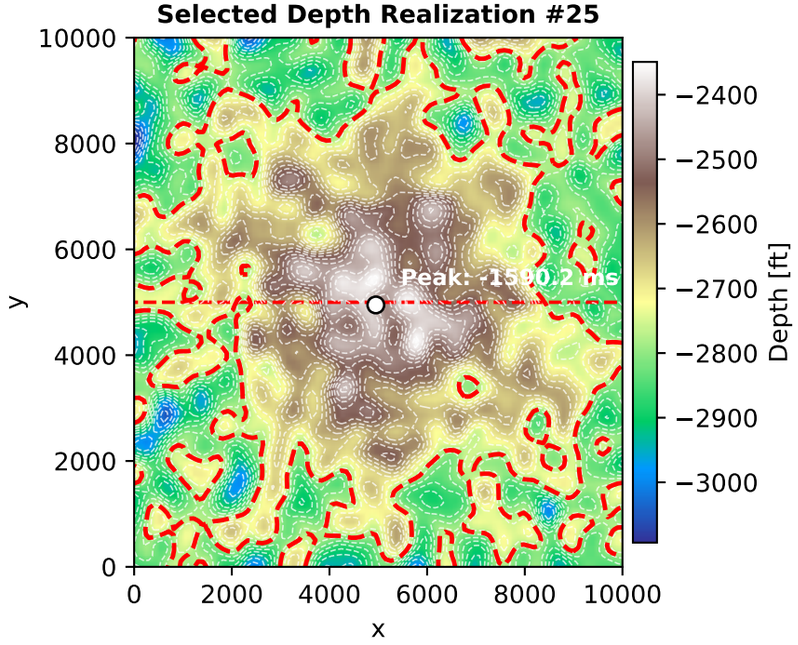
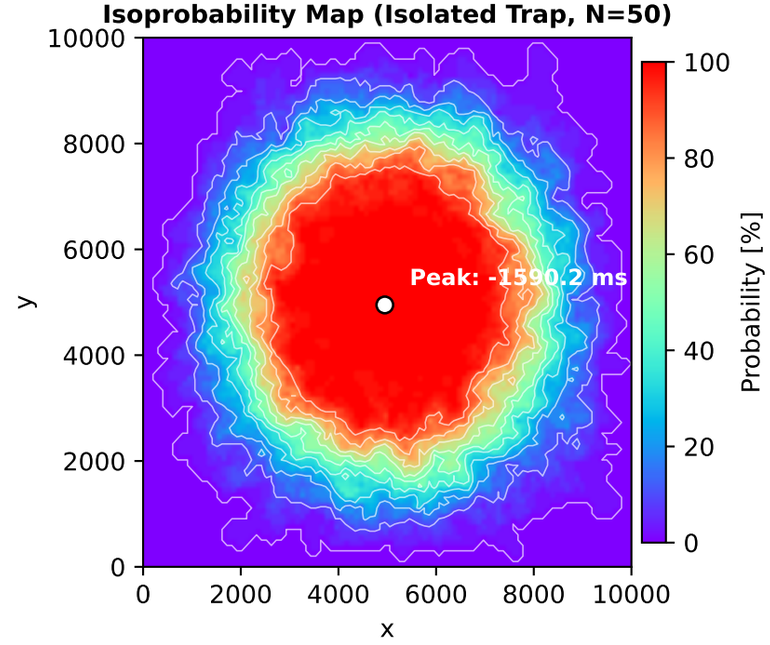
Structural Uncertainty Evaluation

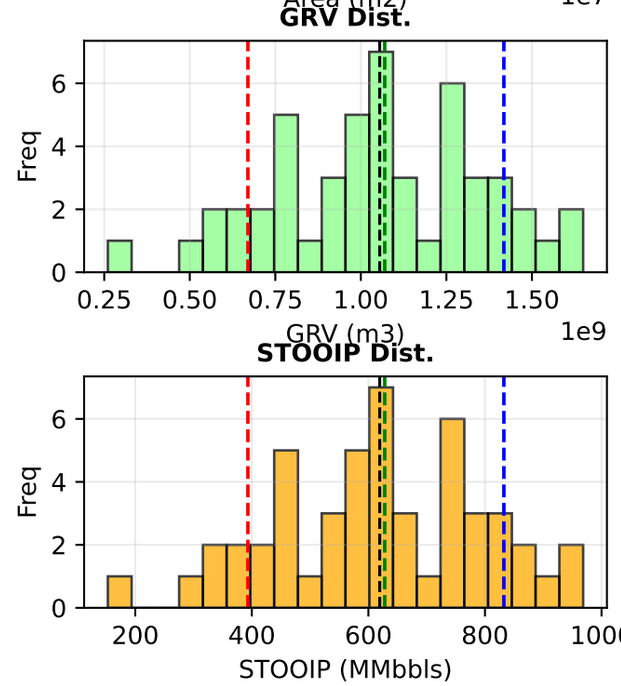












Structural Uncertainty Evaluation - Summary Table

Summary Statistics (P90 / P50 / P10 / Mean)

Metric	P90	P50	P10	Mean
Thickness (ft)	1198.0	1310.0	1500.0	1327.2
Area (m2)	30363228.242	35491276.4	42522191.613	35748801.143
GRV (m3)	669954073.6	1069836032.0	1418022784.0	1055151088.64
STOOIP (MMbbls)	393.295	628.045	832.447	619.424

Structural Uncertainty Evaluation - Per-Realization Results (1-40 of 50)

Realization	SpillDepth(ft)	CrestDepth(ft)	Thickness(ft)	Area(m2)	GRV(m3)	STOOIP(MMbbls)
1.0	-8942.353	-7462.353	1480.0	34425058.667	1083624448.0	636.14
2.0	-8883.086	-7563.086	1320.0	28527701.255	528797952.0	310.43
3.0	-8957.93	-7737.93	1220.0	38138965.412	1385208320.0	813.184
4.0	-8874.558	-7534.558	1340.0	31180491.787	1149655296.0	674.903
5.0	-8836.609	-7596.609	1240.0	26680950.923	260614144.0	152.993
6.0	-8915.05	-7695.05	1220.0	35180083.665	556178944.0	326.504
7.0	-8880.899	-7640.899	1240.0	32404856.647	978491136.0	574.421
8.0	-9051.949	-7731.949	1320.0	41761044.791	1080317952.0	634.198
9.0	-8946.599	-7566.599	1380.0	35741250.893	1014094592.0	595.322
10.0	-8888.404	-7388.404	1500.0	33251709.009	671834624.0	394.399
11.0	-8901.605	-7661.605	1240.0	34210794.817	1264417792.0	742.274
12.0	-8977.481	-7637.481	1340.0	39271502.908	1412447744.0	829.175
13.0	-8946.262	-7566.262	1380.0	37383940.414	1093908480.0	642.177
14.0	-8922.127	-7602.127	1320.0	33598612.386	1323741184.0	777.1
15.0	-8877.643	-7697.643	1180.0	32588511.376	1065616384.0	625.568
16.0	-8799.62	-7579.62	1220.0	27476788.083	555290112.0	325.982
17.0	-9083.34	-7463.34	1620.0	47240077.543	1520420864.0	892.56
18.0	-8903.909	-7623.909	1280.0	36832976.227	705911808.0	414.404
19.0	-8841.351	-7681.351	1160.0	30476481.992	1107333888.0	650.058
20.0	-8904.831	-7644.831	1260.0	34465870.83	957481216.0	562.087
21.0	-8932.384	-7572.384	1360.0	36261605.959	977606656.0	573.902
22.0	-8904.135	-7604.135	1300.0	35241301.908	784396032.0	460.478
23.0	-8934.791	-7534.791	1400.0	40250994.796	1585243904.0	930.614
24.0	-8874.368	-7754.368	1120.0	33302724.212	908563968.0	533.371
25.0	-8987.54	-7707.54	1280.0	42495663.708	1050904576.0	616.931
26.0	-8884.725	-7304.725	1580.0	31098867.463	791865088.0	464.863
27.0	-8967.313	-7707.313	1260.0	36639118.457	1234507008.0	724.715
28.0	-8766.78	-7666.78	1100.0	23895520.865	764764928.0	448.954
29.0	-8938.919	-7498.919	1440.0	39853076.217	1283552256.0	753.507
30.0	-8971.33	-7391.33	1580.0	43189470.462	1410916864.0	828.276
31.0	-8926.342	-7646.342	1280.0	34098561.371	1649697536.0	968.452
32.0	-8972.707	-7472.707	1500.0	38281807.979	953952256.0	560.016
33.0	-8869.113	-7609.113	1260.0	31915110.703	750347520.0	440.49
34.0	-8936.765	-7756.765	1180.0	37730843.791	774294272.0	454.548
35.0	-8905.56	-7625.56	1280.0	34608713.397	1184752128.0	695.506
36.0	-8892.363	-7352.363	1540.0	32588511.376	1250706432.0	734.225
37.0	-8950.477	-7550.477	1400.0	37302316.09	1022492160.0	600.252
38.0	-8887.226	-7547.226	1340.0	35833078.257	733429504.0	430.558
39.0	-9010.094	-7510.094	1500.0	41383532.293	854043136.0	501.364
40.0	-8979.494	-7679.494	1300.0	43781246.812	1504458496.0	883.189

Structural Uncertainty Evaluation - Per-Realization Results (41-50 of 50)

Realization	SpillDepth(ft)	CrestDepth(ft)	Thickness(ft)	Area(m2)	GRV(m3)	STOOIP(MMbbls)
41.0	-8960.676	-7540.676	1420.0	36588103.255	1292963584.0	759.032
42.0	-8959.928	-7499.928	1460.0	42760942.761	1468198144.0	861.903
43.0	-8829.616	-7589.616	1240.0	29343944.495	653029120.0	383.359
44.0	-8918.891	-7598.891	1320.0	34496479.951	1069700608.0	627.966
45.0	-8994.792	-7734.792	1260.0	43077237.017	1270762240.0	745.998
46.0	-8897.331	-7557.331	1340.0	31629425.569	952801280.0	559.34
47.0	-8932.965	-7652.965	1280.0	36577900.214	1352704256.0	794.102
48.0	-8881.376	-7681.376	1200.0	34945413.733	1069971456.0	628.125
49.0	-8947.767	-7687.767	1260.0	38955208.652	1319367936.0	774.532
50.0	-8958.173	-7638.173	1320.0	38475665.748	1122174208.0	658.77

Structural Uncertainty Evaluation - Parameters and Configuration

Input & Realizations
- Surface: Imported Time + Depth
- Number of realizations: 50
- Velocity Std. Dev. (ft/s): 250.0
- Smoothing sigma: 2.0
- Section/Cut angle (degree): 0
- Torch acceleration enabled: True
- Contour step (spill search, ft): 20

Variogram
- Model type: Gaussian
- Range (m): 3535.5339059327375
- Sill: 1.0
- Nugget: 0.1

Volumetrics
- Thickness mean (m): 102
- Thickness std. dev. (m): 37
- N/G: 0.8
- Porosity: 0.2
- Water saturation (Sw): 0.3
- FVF: 1.2

Wells & Conditioning
- Wells count: 0
- Wells used as anchors: True
- Show wells on maps: True

QC Additions
- Covariance matrix among wells exported to Excel
- Well metadata and nearest-grid diagnostics exported to Excel

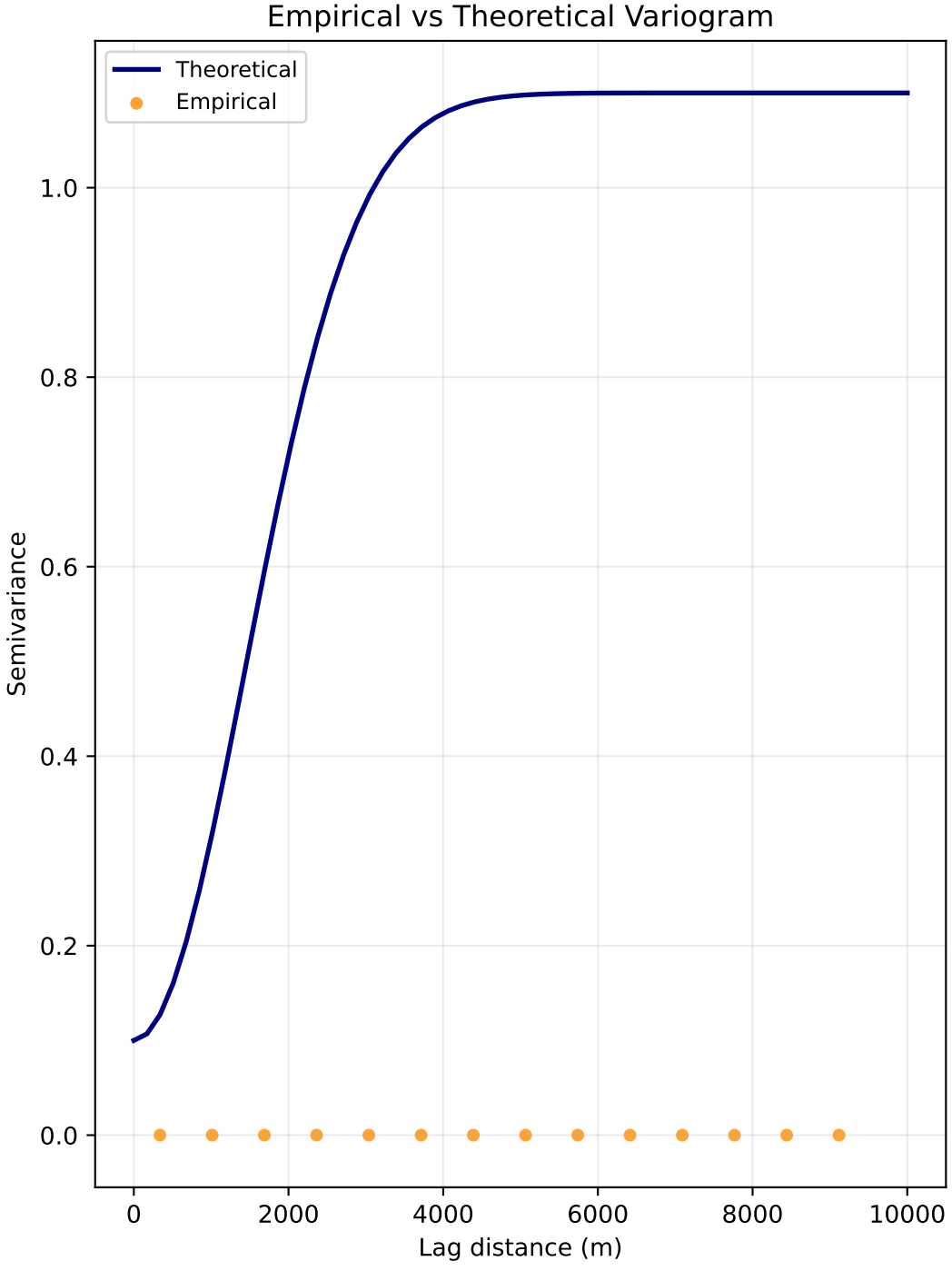
Structural Uncertainty Evaluation - Covariance QC

Covariance Diagnostics

- CovarianceConditionNumber: nan
- CovarianceMinEigen: nan
- CovarianceMaxEigen: nan
- CovarianceOffDiagonalMean: nan
- CovarianceOffDiagonalStd: nan

No wells covariance available

Structural Uncertainty Evaluation - Variogram QC



Parameter Recommendations

- Range_m: current=3536, recommended=3536
  reason: 25% of map diagonal is a robust default correlation distance
- Sill: current=1, recommended=0.1
  reason: Tail median of empirical semivariogram stabilizes sill estimate
- Nugget: current=0.1, recommended=0.1
  reason: Default engineering-safe microscale noise floor

Structural Uncertainty Evaluation - Engineering Coherence QC

Metric	Value	QC_Note
FiniteVelocityCoverage_pct	100.0	Target >= 99%
FiniteDepthCoverage_pct	100.0	Target >= 99%
VelocityMin_mps	2675.388184	>= 1200 m/s safeguard
VelocityMax_mps	3469.5	Check for realistic AV
FinalDepthMin_m	-2847.662598	Interpretation specific
FinalDepthMax_m	-2408.562012	Interpretation specific
ClosurePresenceFrequency_pct	100.0	Avoid 0% unless open structure