Supplementary Materials

Table S1. Cross-validation of interpolation techniques for **Sodium** in groundwater

Sl. No.	Interpolation Technique	Semi-variogram Model	Goodness-of-Fit Criteria		
			MAE (mg/L)	RV	Stnd RMSE
1	Simple Kriging	Circular	98.89	0.9654	0.9825
		Spherical	98.62	**0.9751**	**0.9875**
		Exponential	**97.87**	0.9643	0.9820
		Gaussian	98.54	0.9731	0.9865
2	Ordinary Kriging	Circular	103.61	0.8075	0.8986
		Spherical	102.50	0.8047	0.8970
		Exponential	102.96	0.8173	0.9040
		Gaussian	103.75	0.8027	0.8959
3	Universal Kriging	Circular	103.61	0.8623	0.9286
		Spherical	102.50	0.8566	0.9255
		Exponential	102.96	0.8653	0.9302
		Gaussian	103.75	0.8608	0.9278

Note: MAE = Mean Absolute Error; RV = Reduced Variance; Stnd RMSE = Standardized Root Mean Square Error.

Table S2. Cross-validation of interpolation techniques for **Chloride** in groundwater

Sl. No.	Interpolation Technique	Semi-variogram Model	Goodness-of-Fit Criteria		
			MAE (mg/L)	RV	Stnd RMSE
1	Simple Kriging	Circular	197.85	1.0791	1.0388
		Spherical	**197.85**	**1.0791**	**1.0388**
		Exponential	197.85	1.0791	1.0388
		Gaussian	197.85	1.0791	1.0388
2	Ordinary Kriging	Circular	203.78	1.0901	1.0441
		Spherical	206.71	1.0977	1.0477
		Exponential	206.66	1.0904	1.0442
		Gaussian	206.56	1.1065	1.0519
3	Universal Kriging	Circular	203.78	1.2969	1.1388
		Spherical	206.71	1.2014	1.0961
		Exponential	206.66	1.2155	1.1025
		Gaussian	206.56	1.2321	1.1100

Table S3. Cross-validation of interpolation techniques for **Sulphate** in groundwater

Sl. No.	Interpolation Technique	Semi-variogram Model	Goodness-of-Fit Criteria		
			MAE (mg/L)	RV	Stnd RMSE
1	**Simple Kriging**	Circular	49.10	**1.0235**	**1.0117**
		Spherical	**49.10**	1.0621	1.0306
		Exponential	49.40	1.0628	1.0309
		Gaussian	49.35	1.0644	1.0317
2	**Ordinary Kriging**	Circular	49.87	1.0351	1.0174
		Spherical	49.82	1.0325	1.0161
		Exponential	50.27	1.0276	1.0137
		Gaussian	50.22	1.0371	1.0184
3	**Universal Kriging**	Circular	49.87	1.1634	1.0786
		Spherical	49.82	1.1430	1.0691
		Exponential	50.27	1.1660	1.0798
		Gaussian	50.22	1.1664	1.0800

Table S4. Cross-validation of interpolation techniques for **Nitrate-Nitrogen** in groundwater

Sl. No.	Interpolation Technique	Semi-variogram Model	Goodness-of-Fit Criteria		
			MAE (mg/L)	RV	Stnd RMSE
1	**Simple Kriging**	Circular	9.27	1.0400	1.0198
		Spherical	9.27	**1.0400**	**1.0198**
		Exponential	9.27	1.0400	1.0198
		Gaussian	9.27	1.0400	1.0198
2	**Ordinary Kriging**	Circular	10.62	1.0410	1.0203
		Spherical	10.68	1.0386	1.0191
		Exponential	10.78	1.1033	1.0504
		Gaussian	10.70	1.0400	1.0198
3	**Universal Kriging**	Circular	10.62	1.0523	1.0258
		Spherical	10.68	1.0506	1.0250
		Exponential	10.78	1.1118	1.0544
		Gaussian	10.70	1.0506	1.0250

Table S5. Cross-validation of interpolation techniques for **Fluoride** in groundwater

Sl. No.	Interpolation Technique	Semi-variogram Model	Goodness-of-Fit Criteria		
			MAE (mg/L)	RV	Stnd RMSE
1	Simple Kriging	Circular	0.25	1.1453	1.0702
		Spherical	0.25	1.1759	1.0844
		Exponential	0.26	1.2034	1.0970
		Gaussian	**0.24**	**1.0012**	**1.0006**
2	Ordinary Kriging	Circular	0.25	0.9845	0.9922
		Spherical	0.25	0.9795	0.9897
		Exponential	0.25	1.1038	1.0506
		Gaussian	0.24	0.9392	0.9691
3	Universal Kriging	Circular	0.25	1.2052	1.0978
		Spherical	0.25	1.2052	1.0978
		Exponential	0.25	1.2054	1.0979
		Gaussian	0.24	1.2054	1.0979

Table S6. Cross-validation of interpolation techniques for **Total Hardness** in groundwater

Sl. No.	Interpolation Technique	Semi-variogram Model	Goodness-of-Fit Criteria		
			MAE (mg/L)	RV	Stnd RMSE
1	Simple Kriging	Circular	148.72	1.1420	1.0687
		Spherical	**148.49**	**1.1394**	**1.0674**
		Exponential	148.94	1.1453	1.0702
		Gaussian	149.22	1.1513	1.0730
2	Ordinary Kriging	Circular	156.05	1.2719	1.1278
		Spherical	155.92	1.2720	1.1279
		Exponential	154.31	1.2600	1.1225
		Gaussian	157.26	1.2917	1.1365
3	Universal Kriging	Circular	156.05	1.2914	1.1364
		Spherical	155.92	1.2907	1.1361
		Exponential	154.31	1.2873	1.1346
		Gaussian	157.26	1.3108	1.1449

Table S7. Cross-validation of interpolation techniques for **Total Dissolved Solids** in groundwater

Sl. No.	Interpolation Technique	Semi-variogram Model	Goodness-of-Fit Criteria		
			MAE (mg/L)	RV	Stnd RMSE
1	Simple Kriging	Circular	390.77	1.1071	1.0522
		Spherical	**390.13**	**1.0891**	**1.0436**
		Exponential	392.14	1.0945	1.0462
		Gaussian	390.85	1.1471	1.0710
2	Ordinary Kriging	Circular	403.38	0.8562	0.9253
		Spherical	402.46	0.8527	0.9234
		Exponential	405.12	1.0945	1.0462
		Gaussian	399.38	1.1471	1.0710
3	Universal Kriging	Circular	403.38	0.9438	0.9715
		Spherical	402.46	0.9407	0.9699
		Exponential	405.12	0.9477	0.9735
		Gaussian	399.38	0.9388	0.9689