

Surveing Gridding Report

ENG/ Abubaker Abdullah Ibrahim, practical Action ND- Office –Sudan mobile :0123630647

function	points	Levells
	p1	0.780
	p2	0.950
	p3	0.860
	p4	0.990
	p5	0.880
	p6	0.950
	p7	1.150
sum		6.560
Ave		0.937
	p8	1.840
	p9	1.850
	p10	1.750
	p11	1.800
	p12	1.950
	p13	1.990
	p14	1.890
	p15	1.890
	p16	2.690
	p17	2.500
sum		20.150
Ave		2.015
Diff		1.078

HAFFIR Dim in the top level is 100m*85

HAFFIR Dim in the bottom level is 94 m*79

Design depth is 3m

allocated depth is 1.078m

Required depth is $= (3 - 1.078) = 1.922 \text{ m} = 2\text{m}$

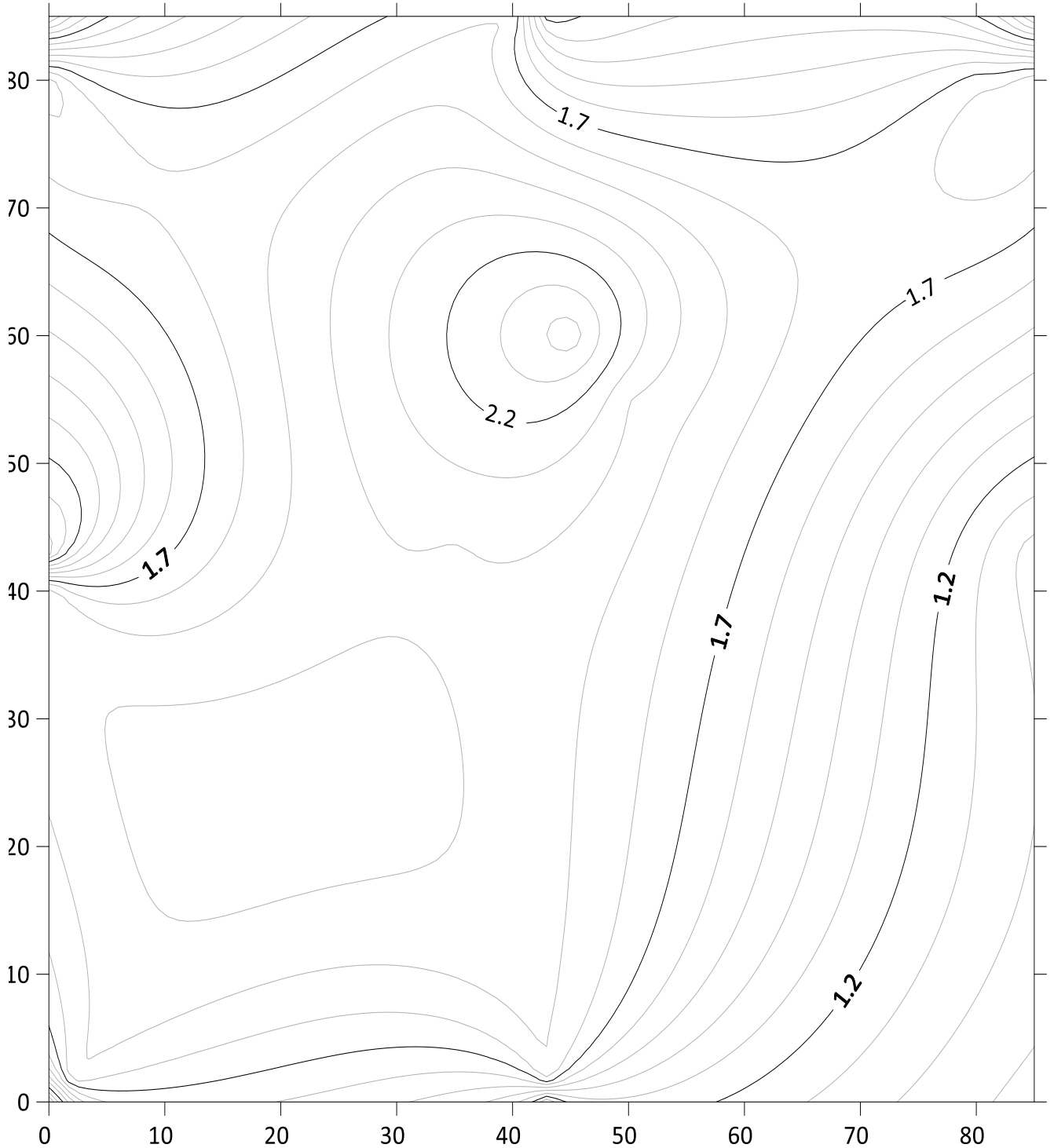
AVE of HAFFIR area is $= \{(100*85) + (94*79)\} / 2 = 7963$

Water Demand 24,000m³

the total required volume is 16,000m³

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Counter levels line

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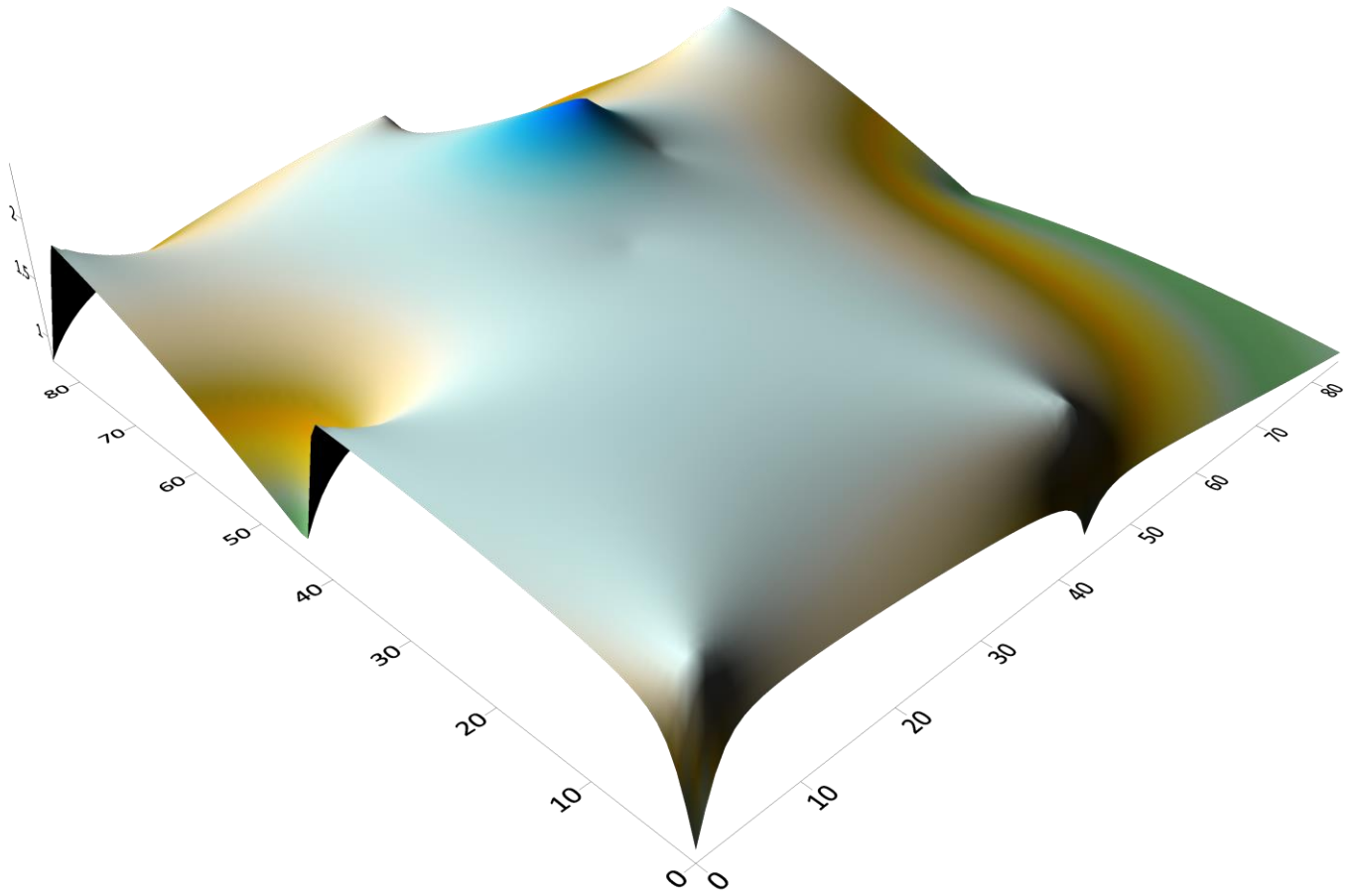
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Geographic information and coordinator

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3D surveying view Details

Tue Jan 4 04:43:53 2022

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Elapsed time for gridding: 0.05 seconds

Data Source

Source Data File Name: C:\Users\HP\Desktop\GARNI HAHFFIR\GARNI HAFFIR Surving.dat
X Column: A
Y Column: B
Z Column: C

Filtered Data Counts

Active Data: 18
Original Data: 19
Excluded Data: 0
Deleted Duplicates: 1
Retained Duplicates: 1
Artificial Data: 0
Superseded Data: 0

Exclusion Filtering

Exclusion Filter String: Not In Use

Duplicate Filtering

Duplicate Points to Keep: First
X Duplicate Tolerance: 1E-05
Y Duplicate Tolerance: 1E-05

Deleted Duplicates: 1
Retained Duplicates: 1
Artificial Data: 0

X	Y	Z	ID	Status
43	2	1.89	4	Retained
43	2	1.84	6	Deleted

Breakline Filtering

Breakline Filtering: Not In Use

Z Data Transform

Transformation method: Linear (use Z values directly)

No untransformable data were found.

Data Counts

Active Data: 18

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Univariate Statistics

	X	Y	Z
Count:	18	18	18
1%-tile:	0	0	0.78
5%-tile:	0	0	0.78
10%-tile:	0	0	0.79
25%-tile:	0	2	0.95
50%-tile:	43	43	1.75
75%-tile:	50	80	1.89
90%-tile:	85	85	1.99
95%-tile:	85	85	2
99%-tile:	85	85	2
Minimum:	0	0	0.78
Maximum:	85	85	2.46
Mean:	40.0555555556	48.2222222222	1.49777777778
Median:	43	49	1.775
Geometric Mean:	-nan(ind)	-nan(ind)	1.39242362452
Harmonic Mean:	-nan(ind)	-nan(ind)	1.28842059439
Root Mean Square:	51.7477857819	58.6325658468	1.59246838448
Trim Mean (10%):	-nan(ind)	-nan(ind)	-nan(ind)
Interquartile Mean:	33.4444444444	49.5555555556	1.47333333333
Midrange:	42.5	42.5	1.62
Winsorized Mean:	40.0555555556	48.2222222222	1.47166666667
TriMean:	34	42	1.585
Variance:	1136.52614379	1177.83006536	0.309830065359
Standard Deviation:	33.7124034117	34.319528921	0.556623809551
Interquartile Range:	50	78	0.94
Range:	85	85	1.68
Mean Difference:	38.3986928105	39.0065359477	0.627189542484
Median Abs. Deviation:	41.5	33.5	0.425
Average Abs. Deviation:	26.7222222222	29	0.486666666667
Quartile Dispersion:	-nan(ind)	-nan(ind)	0.330985915493
Relative Mean Diff.:	0.958635881537	0.808891298455	0.418746727178
Standard Error:	7.94608968749	8.08919054239	0.131197490101
Coef. of Variation:	0.841641139265	0.711695300205	0.371633107267
Skewness:	0.074657157893	-0.326683446452	-0.0476931095263
Kurtosis:	1.45577092092	1.43193471077	1.30339869432
Sum:	721	868	26.96
Sum Absolute:	721	868	26.96
Sum Squares:	48201	61880	45.6472
Mean Square:	2677.83333333	3437.77777778	2.53595555556

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Inter-Variable Covariance

	X	Y	Z
X:	1136.5261	200.69281	-1.7457516
Y:	200.69281	1177.8301	2.5505229
Z:	-1.7457516	2.5505229	0.30983007

Inter-Variable Correlation

	X	Y	Z
X:	1.000	0.173	-0.093
Y:	0.173	1.000	0.134
Z:	-0.093	0.134	1.000

Inter-Variable Rank Correlation

	X	Y	Z
X:	1.000	0.112	-0.112
Y:	0.112	1.000	-0.029
Z:	-0.112	-0.029	1.000

Principal Component Analysis

	PC1	PC2	PC3
X:	0.742416030276	0.742416030276	0.0019785829293
Y:	-0.669931743656	-0.669931743656	-0.00250320338022
Z:	-0.00314592310325	-0.00314592310325	-0.00250320338022
Lambda:	1358.9310806	955.434967192	0.299991423411

Planar Regression: $Z = AX+BY+C$

Fitted Parameters

	A	B	C
Parameter Value:	-0.00197793846409	0.00250246702964	1.4563306806

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Standard Error: 0.00425946688555 0.00418411529759 0.27706599146

Inter-Parameter Correlations

	A	B	C
A:	1.000	-0.173	-0.489
B:	-0.173	1.000	-0.621
C:	-0.489	-0.621	1.000

ANOVA Table

Source	df	Sum of Squares	Mean Square	F
Regression:	2	0.167205008082	0.0836025040409	
	0.245894244968			
Residual:	15	5.09990610303	0.339993740202	
Total:	17	5.267111111111		

Coefficient of Multiple Determination (R²): 0.0317451074326

Nearest Neighbor Statistics

	Separation	Delta Z
1%-tile:	2	0.01
5%-tile:	2	0.01
10%-tile:	2	0.13
25%-tile:	3	0.46
50%-tile:	5	0.9
75%-tile:	5	1.01
90%-tile:	19.2093727123	1.11
95%-tile:	37	1.16
99%-tile:	37	1.16
Minimum:	2	0.01
Maximum:	42	1.16
Mean:	8.83379792142	0.717222222222
Median:	5	0.9
Geometric Mean:	5.3309065297	0.492046022327
Harmonic Mean:	4.06671463573	0.129294427377
Root Mean Square:	14.5047884814	0.814953986431
Trim Mean (10%):	-nan(ind)	-nan(ind)
Interquartile Mean:	4.11111111111	0.775555555556
Midrange:	22	0.585
Winsorized Mean:	6.57928377834	0.718333333333

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TriMean:	4.5	0.8175
Variance:	140.138368065	0.158550653595
Standard Deviation:	11.8380052401	0.398184195561
Interquartile Range:	2	0.55
Range:	40	1.15
Mean Difference:	10.0082415066	0.452614379085
Median Abs. Deviation:	2.03553390593	0.25
Average Abs. Deviation:	5.87192522703	0.323888888889
Quartile Dispersion:	0.25	0.374149659864
Relative Mean Diff.:	1.13294888513	0.631065749305
Standard Error:	2.79024459367	0.0938529149476
Coef. of Variation:	1.34008105522	0.555175485678
Skewness:	1.93516937755	-0.528499197913
Kurtosis:	5.27205220773	1.63907767802
Sum:	159.008362586	12.91
Sum Absolute:	159.008362586	12.91
Sum Squares:	3787	11.9547
Mean Square:	210.388888889	0.66415

Complete Spatial Randomness

Lambda:	0.00249134948097
Clark and Evans:	0.881850129016
Skellam:	59.2802227888

Gridding Rules

Gridding Method:	Kriging
Kriging Type:	Point

Polynomial Drift Order:	0
Kriging std. deviation grid:	no

Semi-Variogram Model

Component Type:	Linear
Anisotropy Angle:	0
Anisotropy Ratio:	1
Variogram Slope:	0.0074566

Search Parameters

No Search (use all data):	true
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Output Grid

Grid File Name:	C:\Users\HP\Desktop\GARNI HAHFFIR\GARNI HAFFIR Surving.grd
Grid Size:	100 rows x 100 columns
Total Nodes:	10000
Filled Nodes:	10000
NoData Nodes:	0
NoData Value:	1.70141E+38

Grid Geometry

X Minimum:	0
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X Maximum: 85
X Spacing: 0.85858585858586

Y Minimum: 0
Y Maximum: 85
Y Spacing: 0.85858585858586

Z

Count: 10000

1%-tile: 0.970264471556
5%-tile: 1.08951975967
10%-tile: 1.23358781475
25%-tile: 1.53612711623
50%-tile: 1.7928607608
75%-tile: 1.96314158834
90%-tile: 2.02727528551
95%-tile: 2.09373544408
99%-tile: 2.27267575538

Minimum: 0.77999999718
Maximum: 2.44881562943

Mean: 1.72127573656
Median: 1.79287198706
Geometric Mean: 1.68991608719
Harmonic Mean: 1.65429159825
Root Mean Square: 1.74864465341
Trim Mean (10%): 1.73407666862
Interquartile Mean: 1.7824028409
Midrange: 1.61440781331
Winsorized Mean: 1.72629216241
TriMean: 1.77124755654

Variance: 0.0949774603692
Standard Deviation: 0.30818413387
Interquartile Range: 0.427014472104
Range: 1.66881563225
Mean Difference: 0.341357099751
Median Abs. Deviation: 0.191939640621
Average Abs. Deviation: 0.242190427804
Quartile Dispersion: 0.122029631948
Relative Mean Diff.: 0.198316337412

Standard Error: 0.0030818413387
Coef. of Variation: 0.179044023757
Skewness: -0.727322692652
Kurtosis: 2.82036455283

Sum: 17212.7573656
Sum Absolute: 17212.7573656
Sum Squares: 30577.5812391
Mean Square: 3.05775812391