

Assignment 8

Group Name- MinTech
Enthusiasts

Group Members:-

Abhishek Sawargave 20JE0035

Ankit Kumar Mondal 20JE0146

Ankit Kumar 20JE0145

Akash Chand 20JE0078

Variogram:

A variogram is a description of the spatial continuity of the data. Simply the variogram is the measure of variability with respect to distance between the two points.

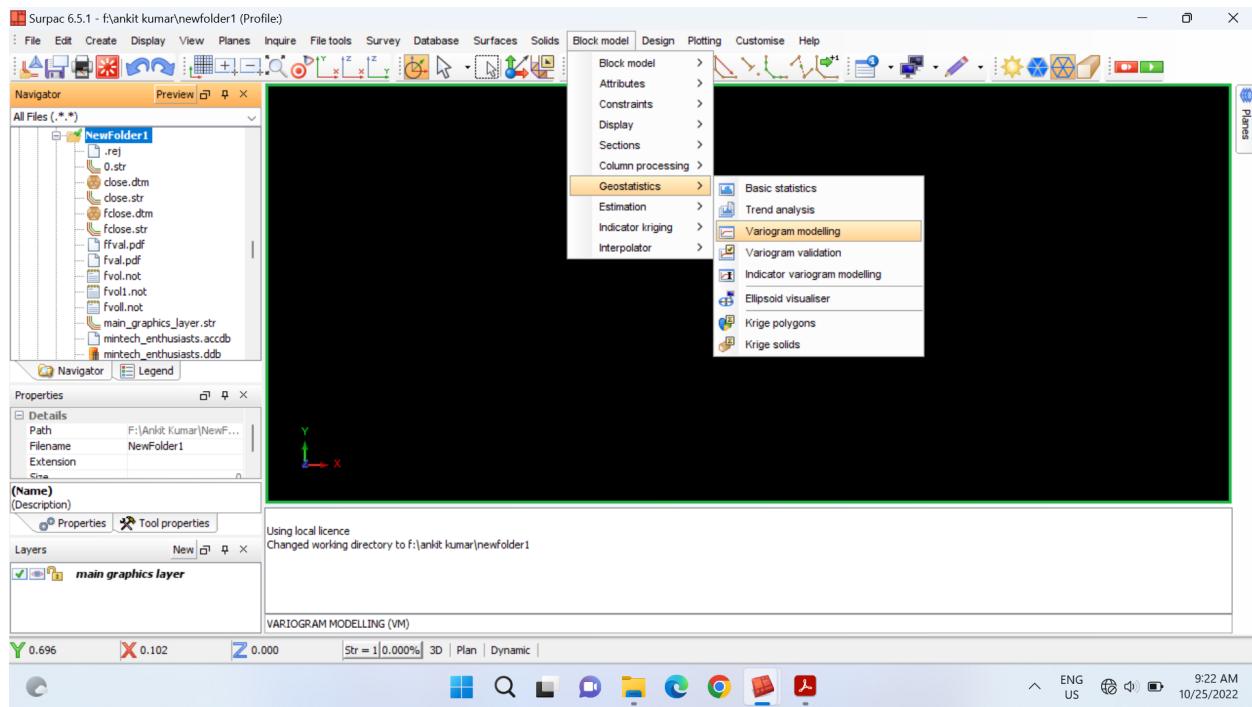
Isotropy:

The property of being isotropic is having the same value when measured in different directions.

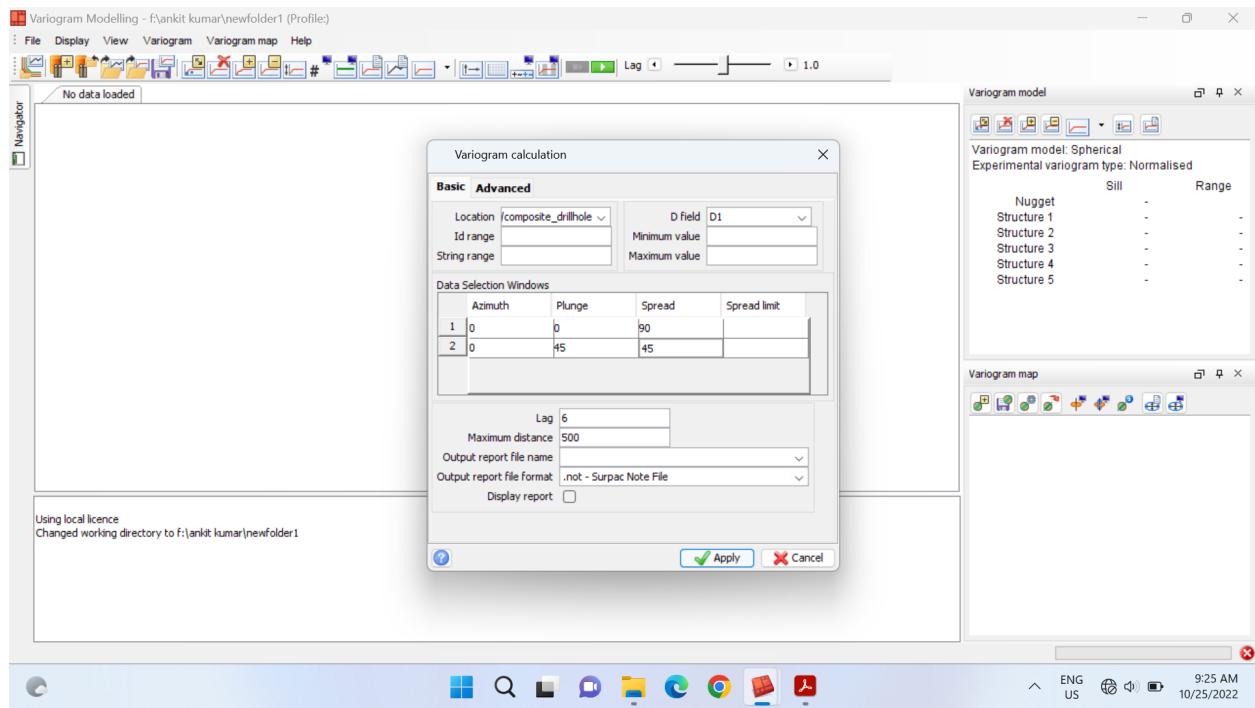
Anisotropy:

The property of being anisotropic is having a different value when measured in different directions.

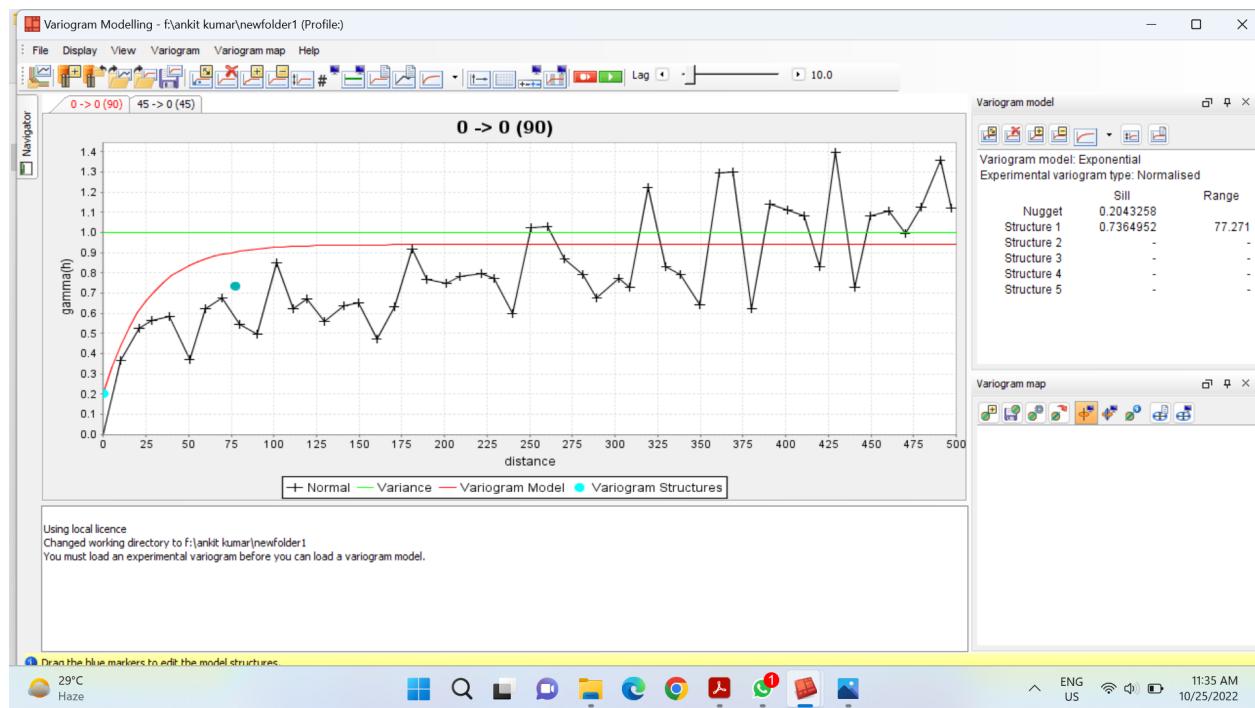
1. To Make a Variogram Model: Geostatistics → Variogram modelling



2. Choose the string composting file



3. 0→0(90)



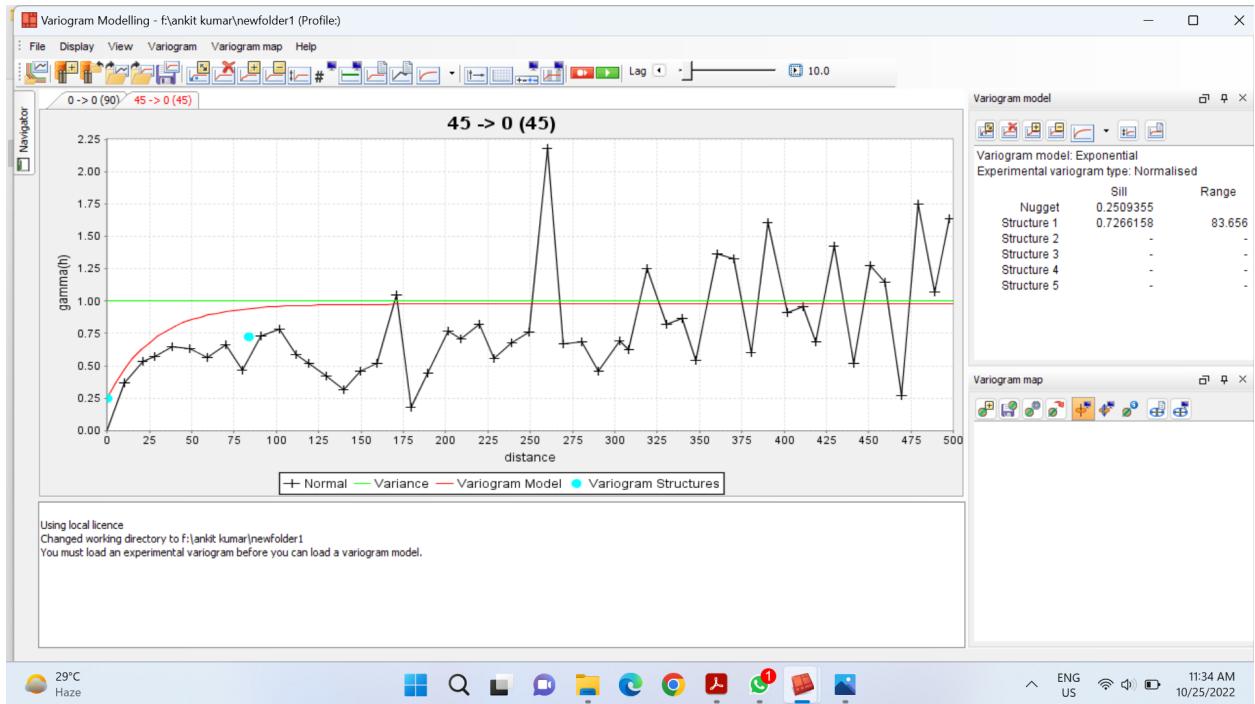
Model Type : Exponential

Model Nugget : 0.2043258

Sill : 0.7364952

Range : 77.271

4. 0→0(45)



Model Type : Exponential

Model Nugget : 0.2509355

Sill : 0.7266158

Range : 83.656

vari.not - Notepad

File Edit View

Oct 25, 2022

Surpac Minex Group VARIOGRAM CALCULATION

Data Source: c:/users/ankit kumar/composite_drillhole.str
Id :
Strings : all
Output File: vari.not

D Field : 1
Valid Data Range : All values
Lag : 6
Max Distance : 500

VARIOGRAM DIRECTION
Azimuth : 0.000
Plunge : 0.000
Spread angle : 90
Spread limit : None

STATISTICS
Number of samples : 727
Mean : 59.690918
Variance : 59.984933
Standard Deviation : 7.744994

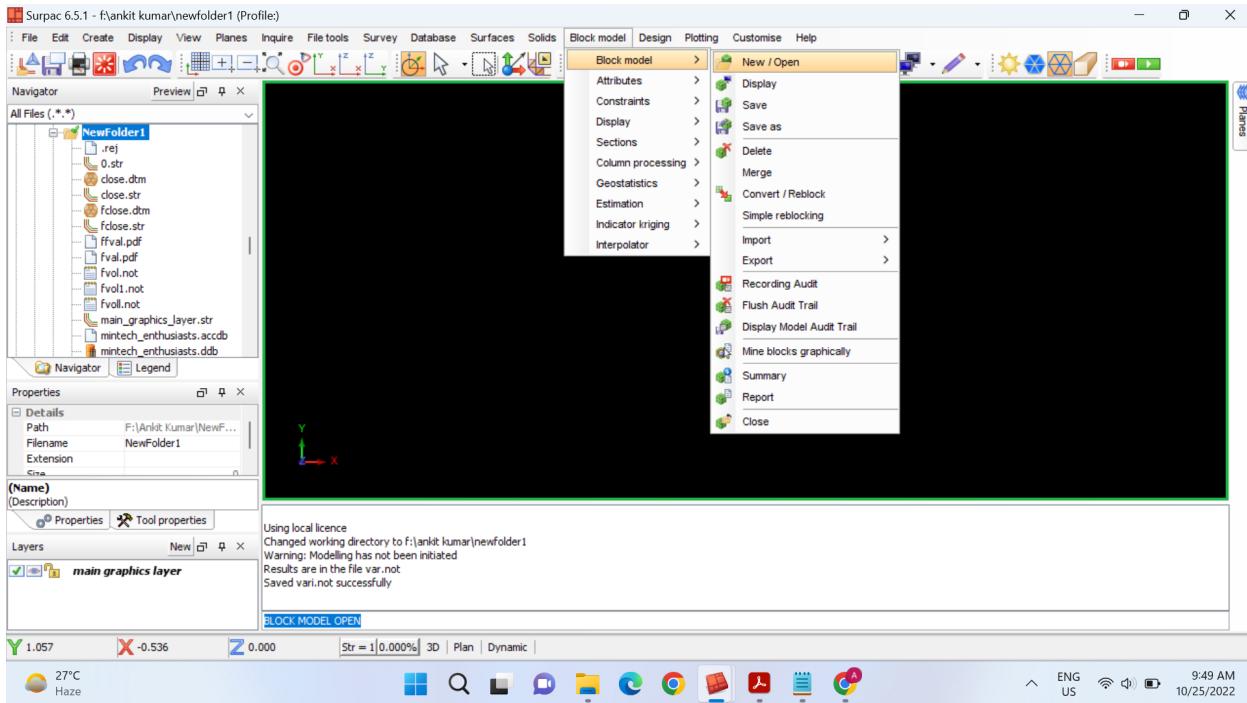
Lag	Pairs	Drift	Gamma(h)	Wtd Gamma(h)	Log Gamma(h)	Gen Rel Gamma(h)	P/w Rel Gamma(h)	Average	Distance
0.00	0	0.000	0.000	0.000	0.000	0.000	0.000		
6.00	656	-0.525	17.179	17.179	0.008	0.005	0.008		7.000
12.00	623	-0.296	26.779	26.900	0.012	0.008	0.011		13.907
18.00	16	2.544	11.371	11.314	0.003	0.003	0.003		20.137
24.00	533	0.058	31.670	31.536	0.014	0.009	0.013		21.153

Ln 1, Col 1 | 100% | Windows (CRLF) | UTF-8

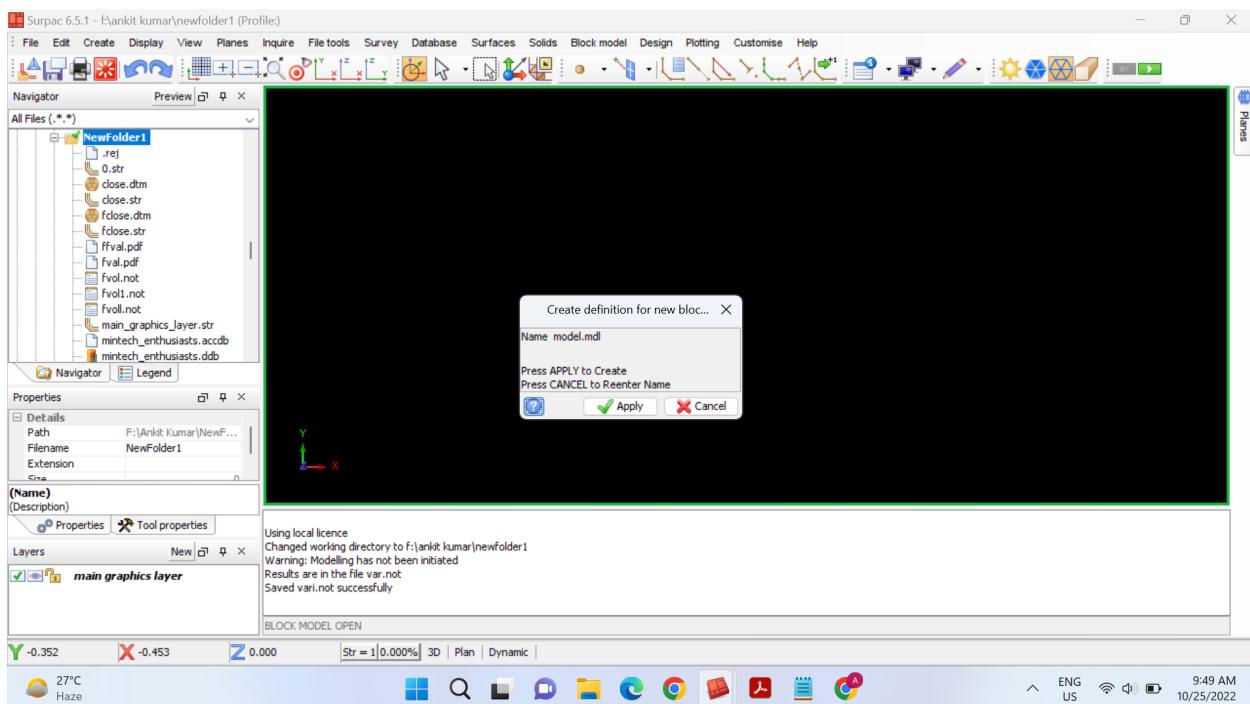
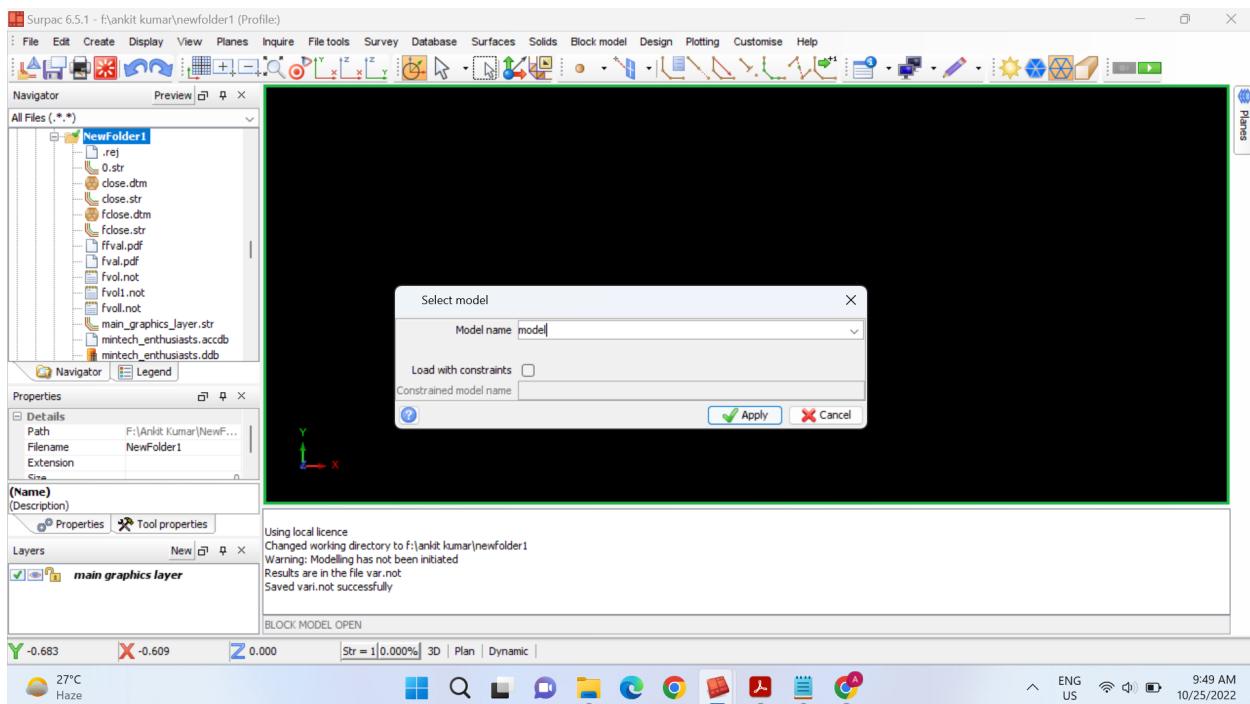
9:33 AM 10/25/2022

1. Block Modelling

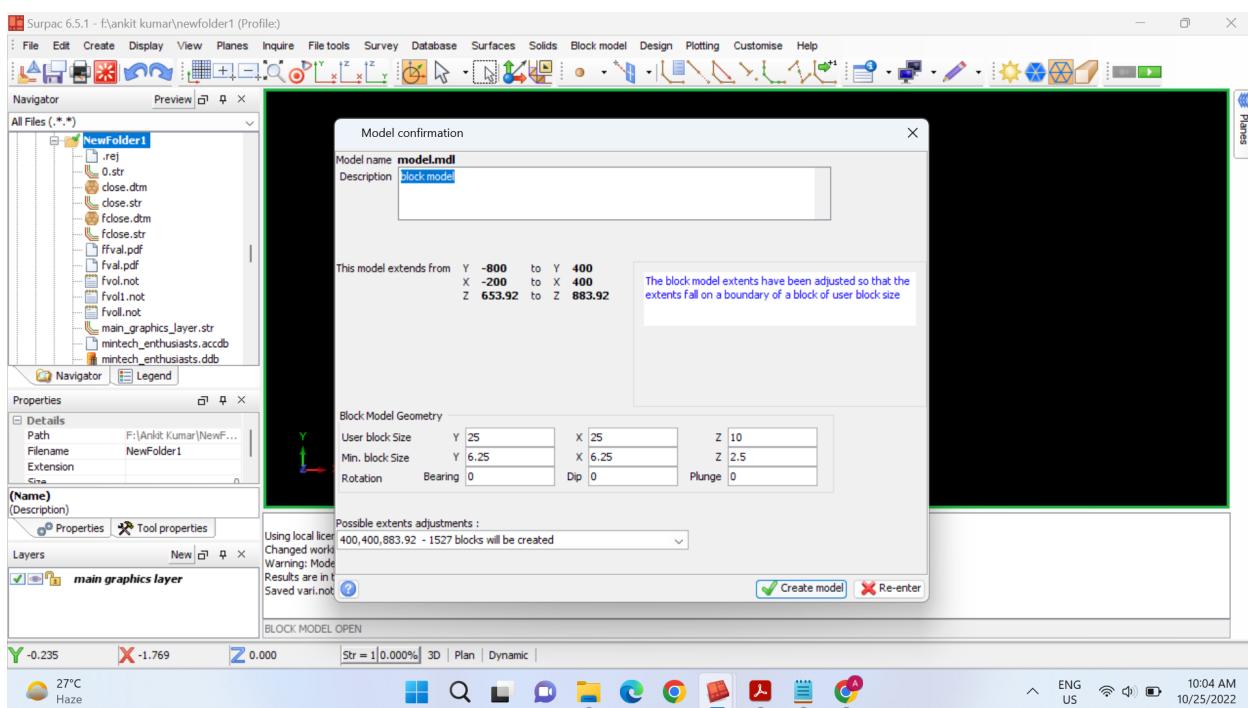
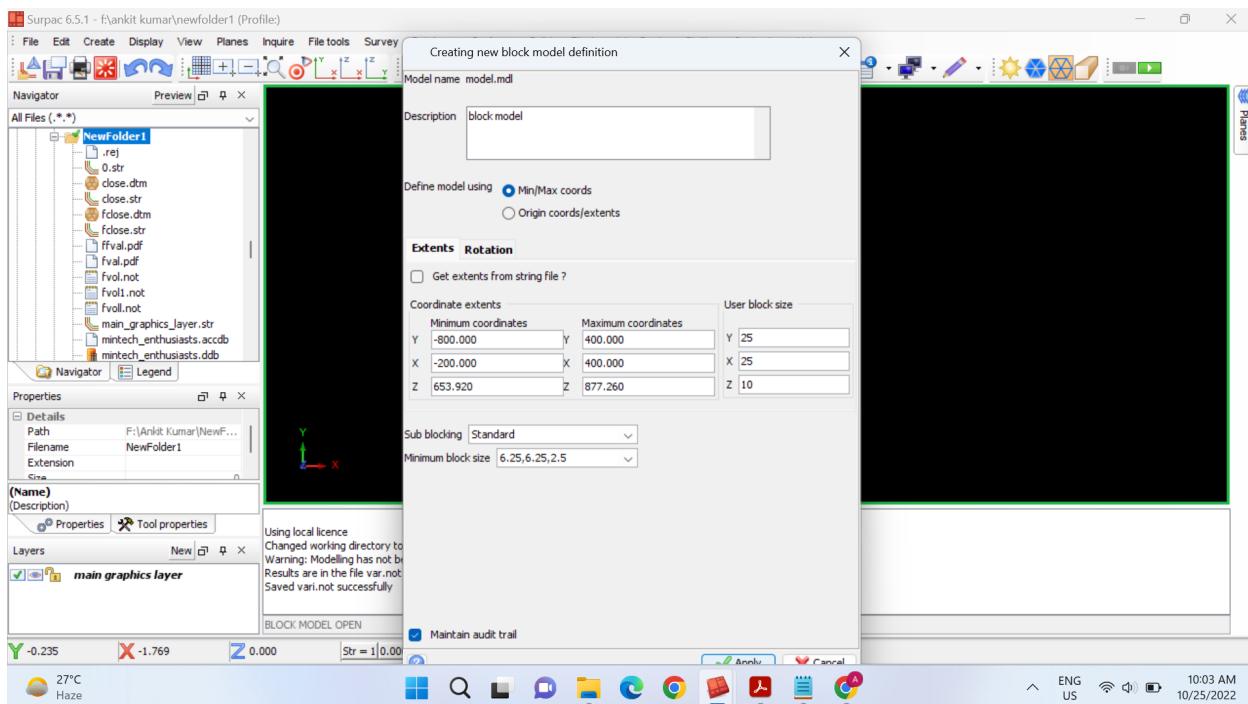
Block model → New / Open



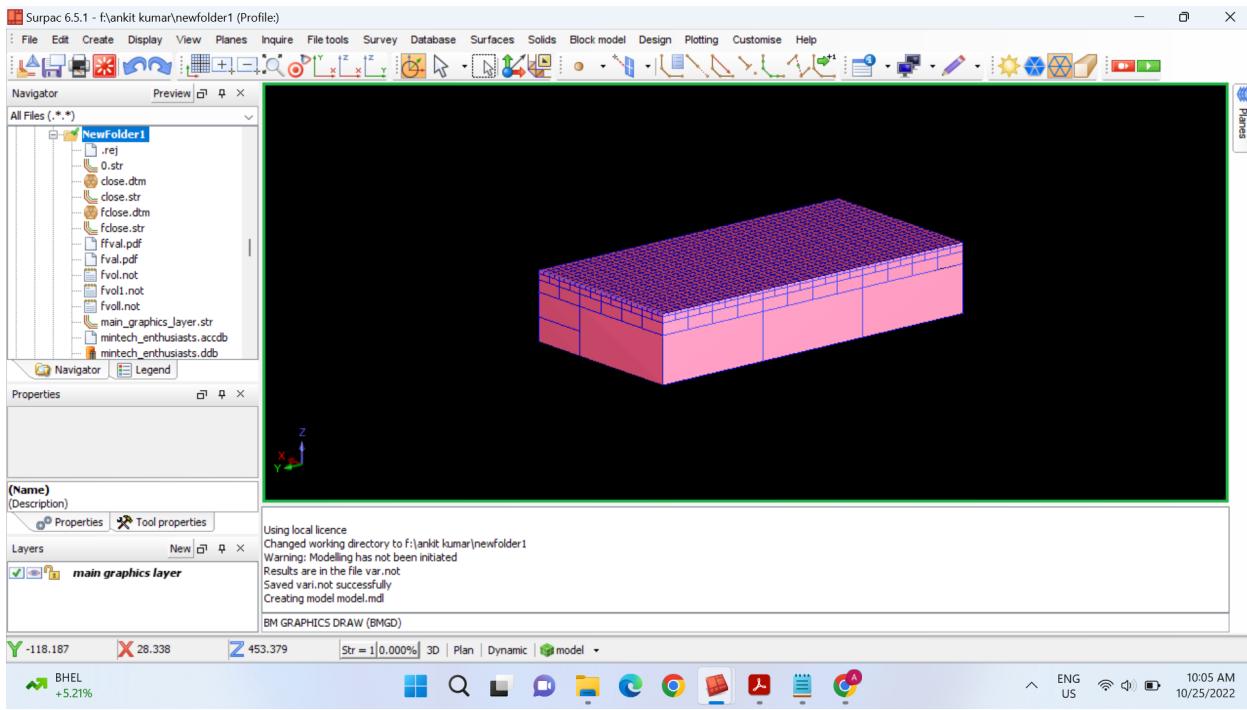
2. Give model name



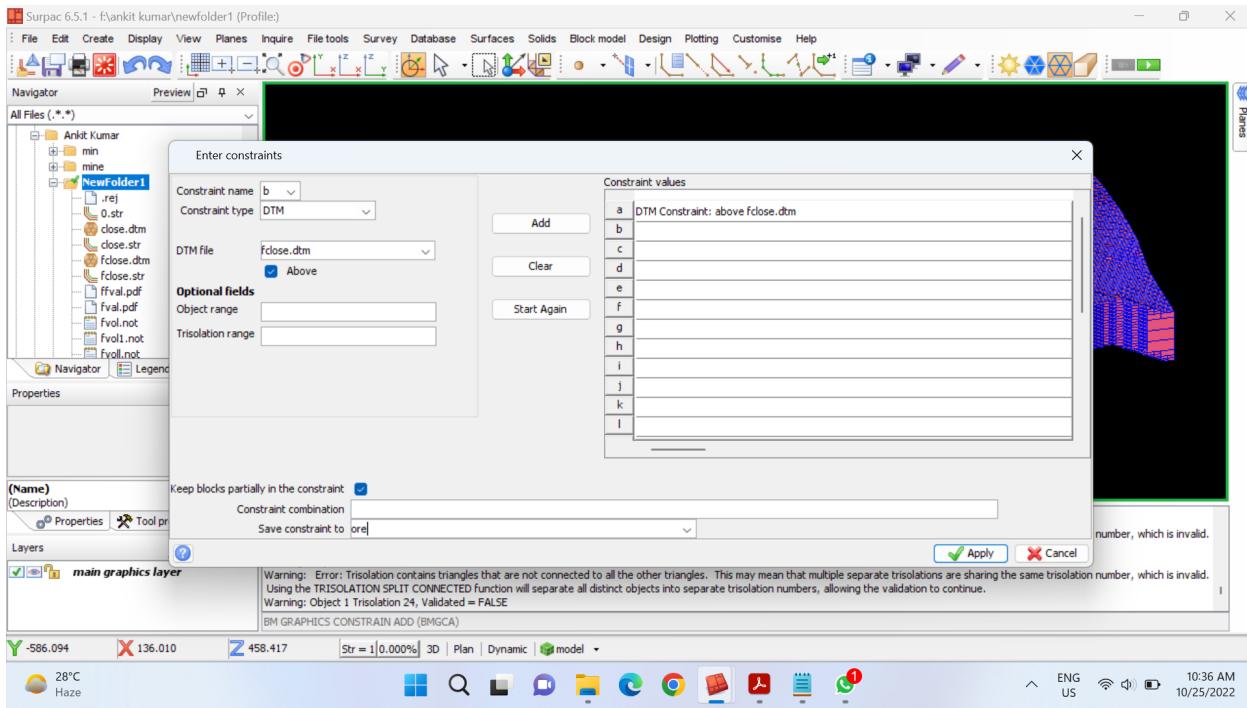
3. Upload the string file



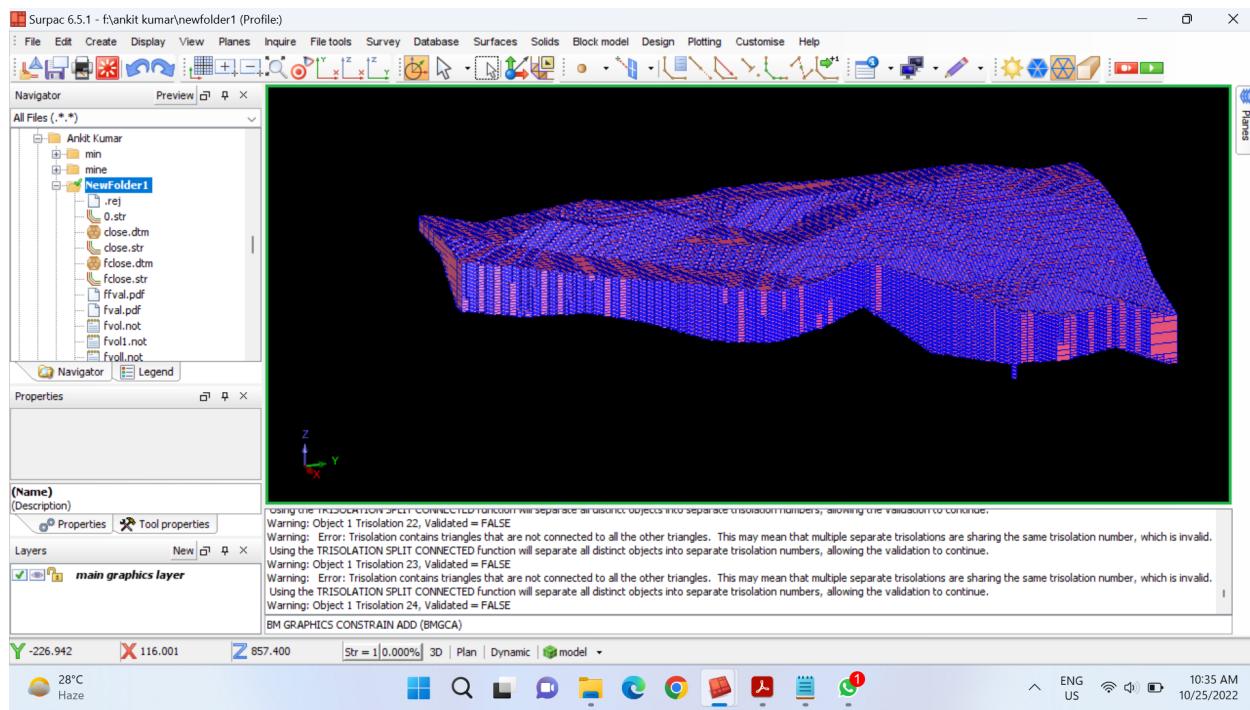
4.The block model is created



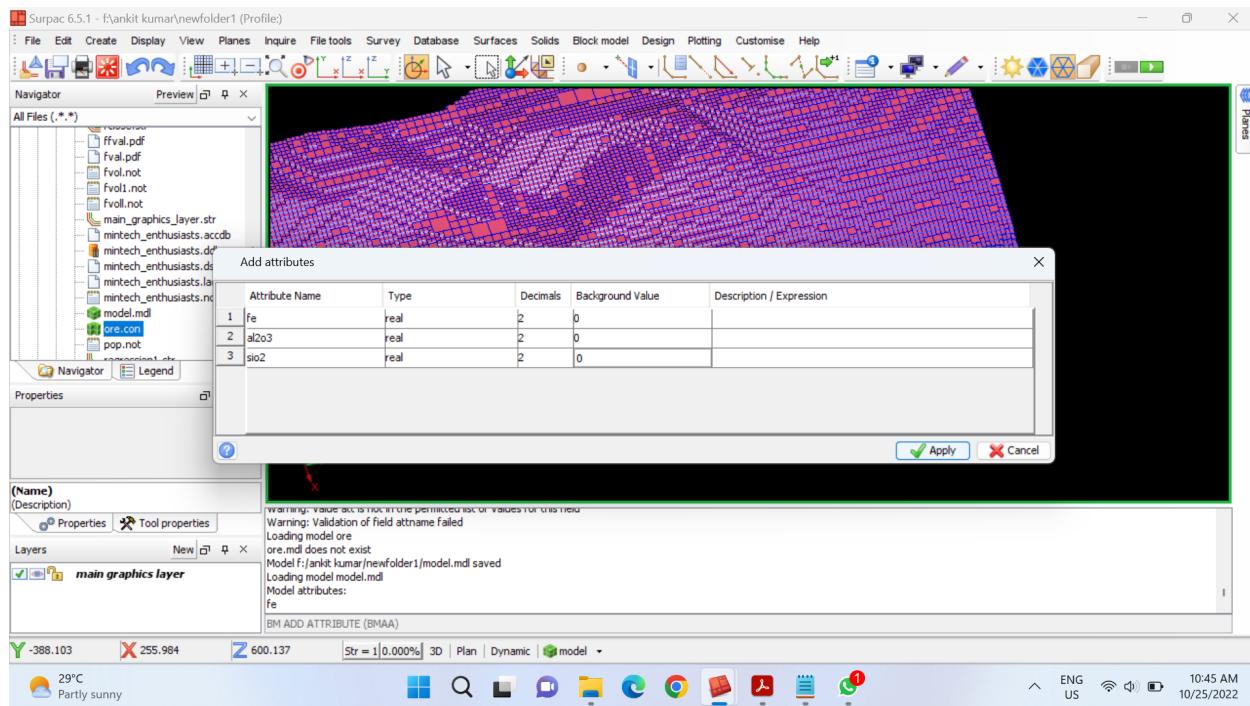
5. Constraints added—>By Uploading the DTM file



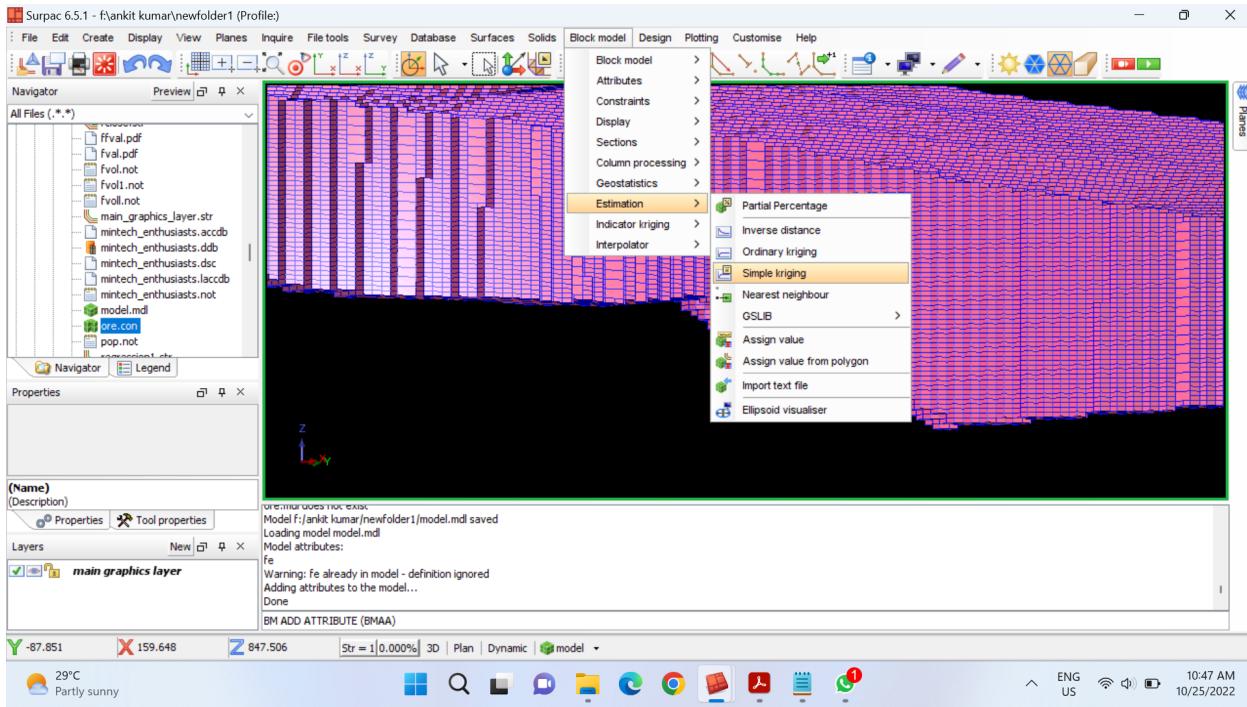
6. Block Model with DTM Constraints



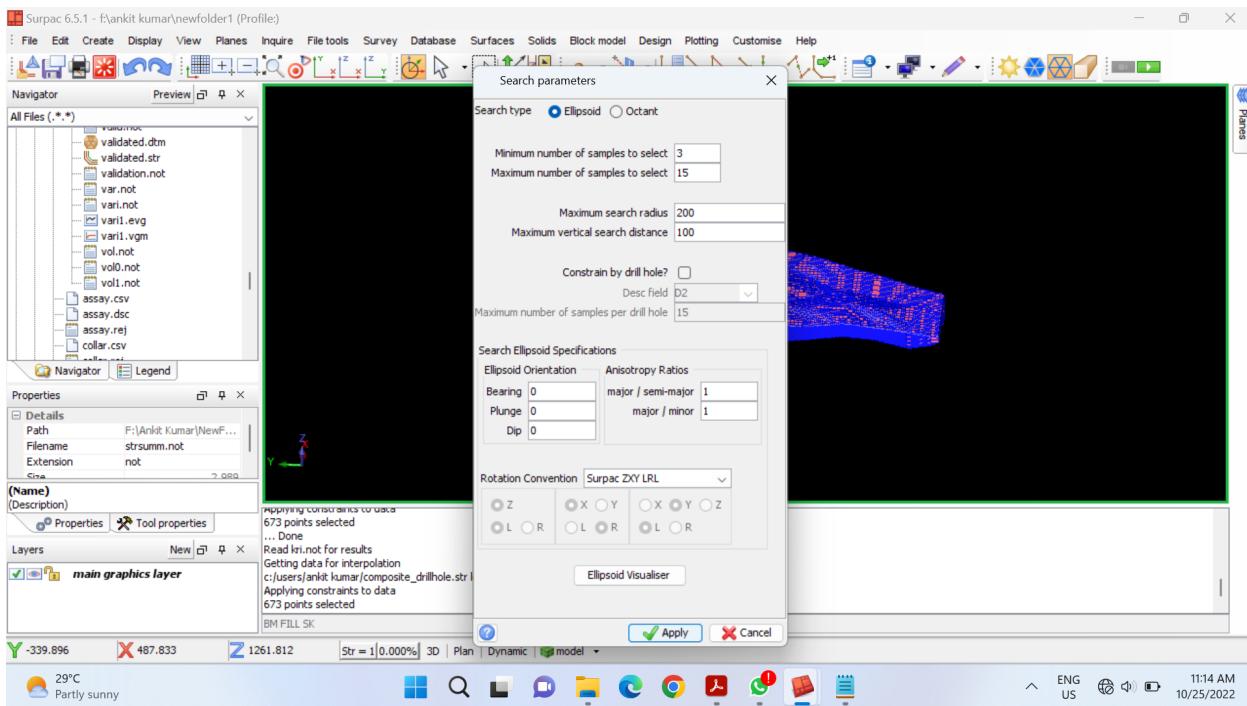
7. Addition of Attributes—>(Block Model→Attributes)



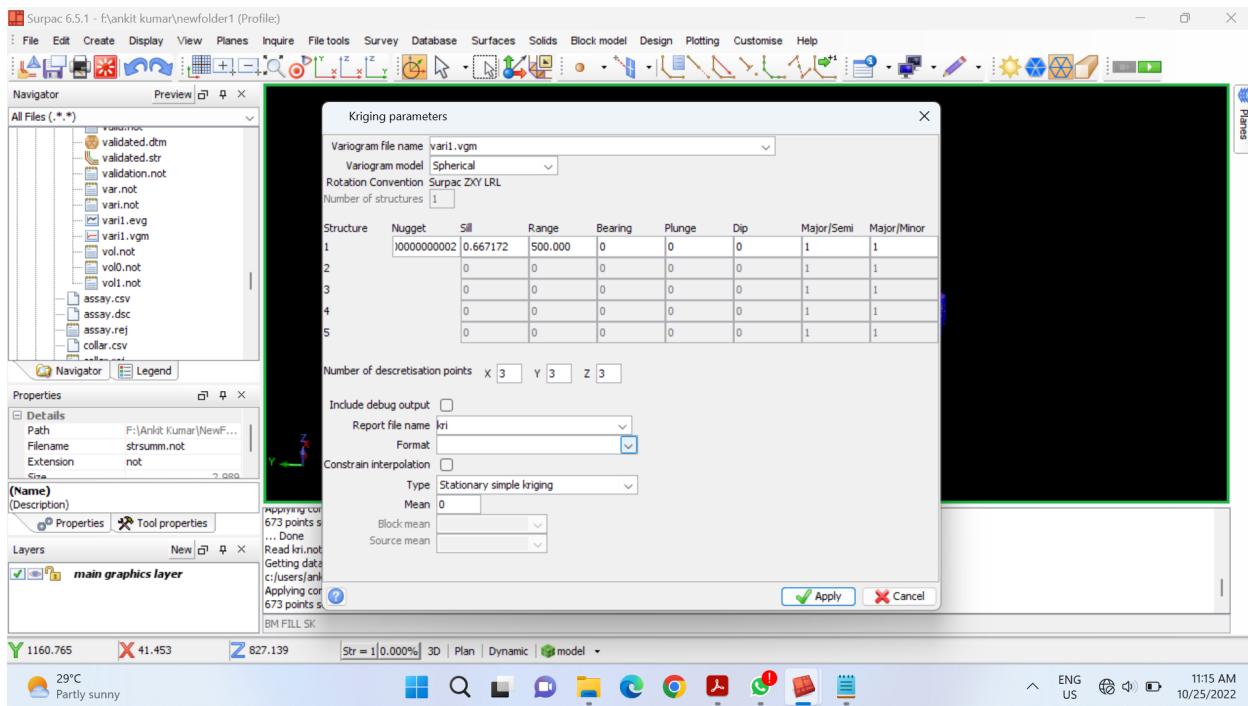
8. Kriging (Block Model→Estimation→Kriging)



9. Kriging parameters are added

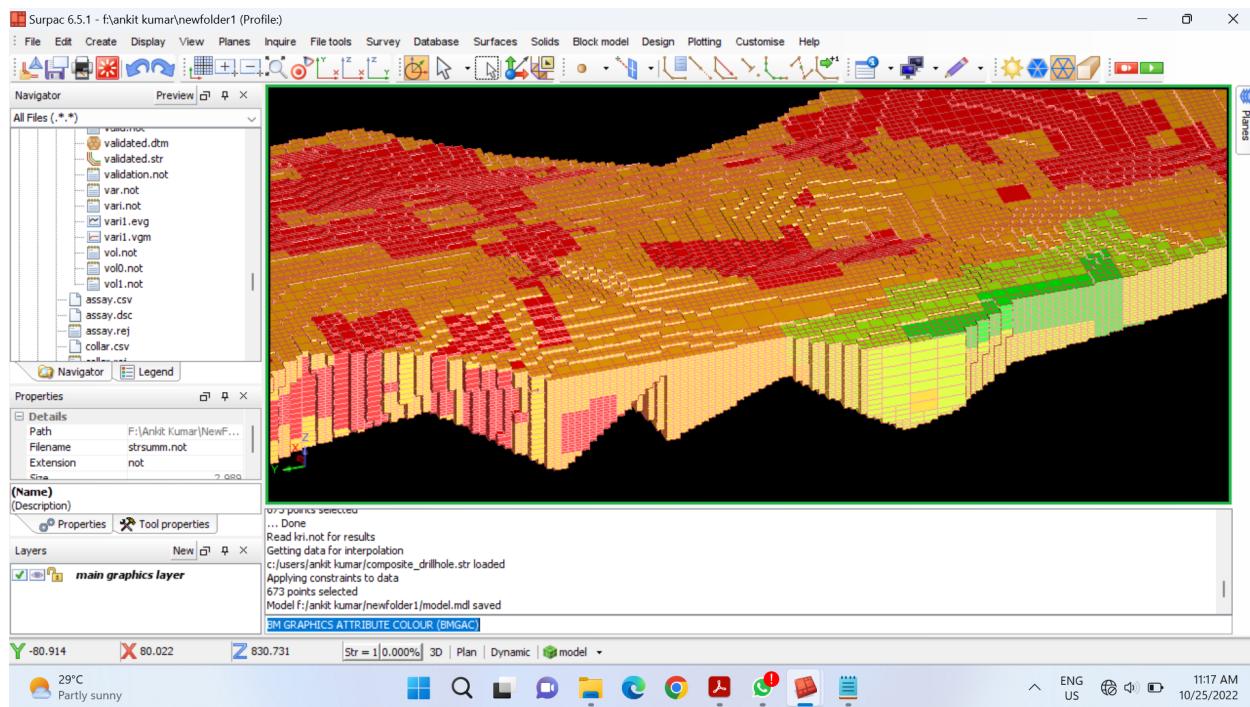
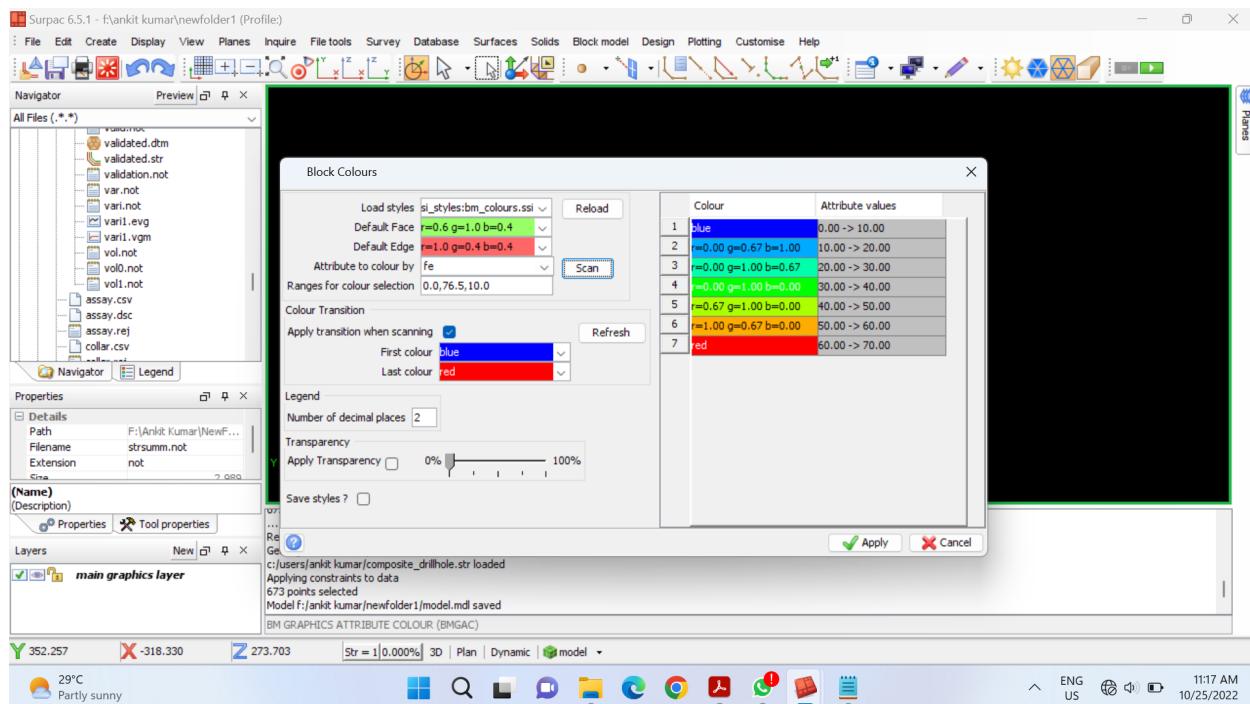


10. Uploading variogram file



```
kri.not - Notepad
File Edit View
Model Constraints
    Unconstrained
SEARCH PARAMETERS
ROTATION CONVENTION
    Surpac ZXY LRL
ANGLES OF ROTATION
    First Axis      0.00
    Second Axis     0.00
    Third Axis      0.00
ANISOTROPY FACTORS
    Semi_major axis 1.00
    Minor axis       1.00
OTHER INTERPOLATION PARAMETERS
Max search distance of major axis      100.000
Max vertical search distance        200.000
Maximum number of informing samples     30
Minimum number of informing samples      3
KRIGING TYPE          = SIMPLE KRIGING (MEAN:      0.000)
VARIOGRAM MODEL = Spherical
Cumulative sill      1.109172
Nugget effect        0.442000
MODEL    C VALUE      RANGE      AZIMUTH    PLUNGE    DIP      SEMI_MAJOR_RATIO    MINOR_RATIO
1       0.667172    500.000     0.000     0.000     0.000      1.000      1.000
BLOCK VARIANCE 0.641257
Ln 1, Col 1           100%          Windows (CRLF)          UTF-8
29°C Partly sunny
11:15 AM 10/25/2022
```

11. Colour distribution according to the attributes



12. To see the attributes and value of each block by clicking on it

