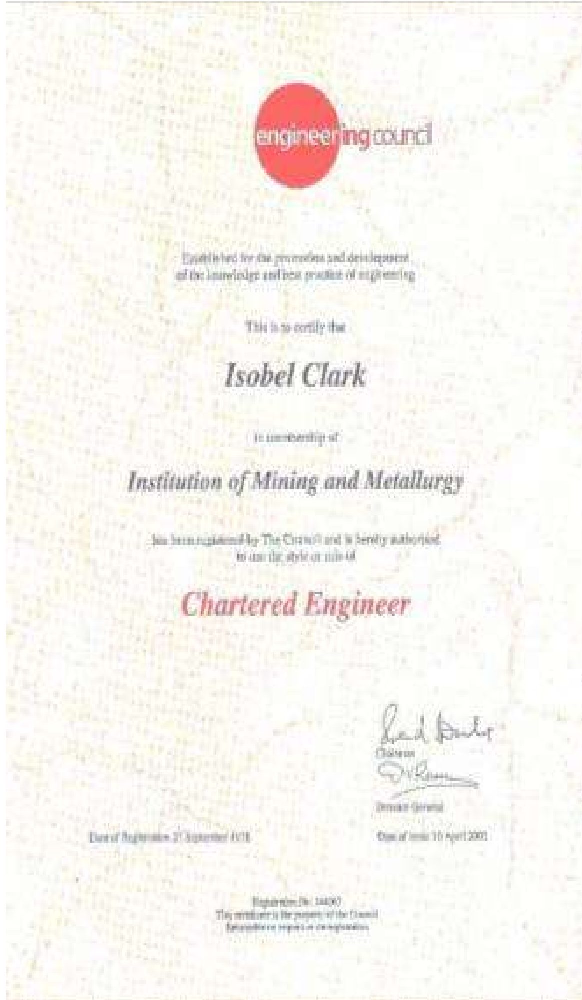
https://www.ausimm.com/conferences-and-events/mineral-resource-estimation/

Isobel Clark Bsc Msc DIC PhD DipEdBr FIOM3 FSAIMM ex-FAusIMM

Isobel Clark grew up in the 1960s, thinking she was a scientist. After joining the teaching staff at the Royal School of Mines in 1971, she realised that her true skills were in mining engineering. During 11 years at the RSM, she built up a consulting business specialising in "ore reserve estimation". At the end of 1982, Geostokos Limited was born at a party on Hogmanay. Since then, Isobel has consulted and/or taught on most continents in minerals ranging from coal to diamonds.
She has been various kinds of visiting professor at Camborne School of Mines, Witwatersrand University and the University of Johannesburg. In recent years (pre-covid!), Isobel spends half her time in Southern Africa and the rest where-ever the work is.

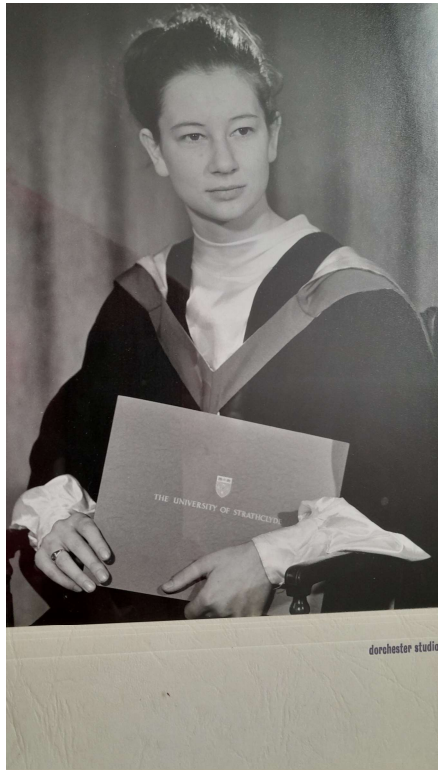
In 2023, Isobel has broken the habit of a lifetime and joined the organising committee of the new and innovative Mineral Resource Estimation conference.



Isobel Clark

1967

1969



1974

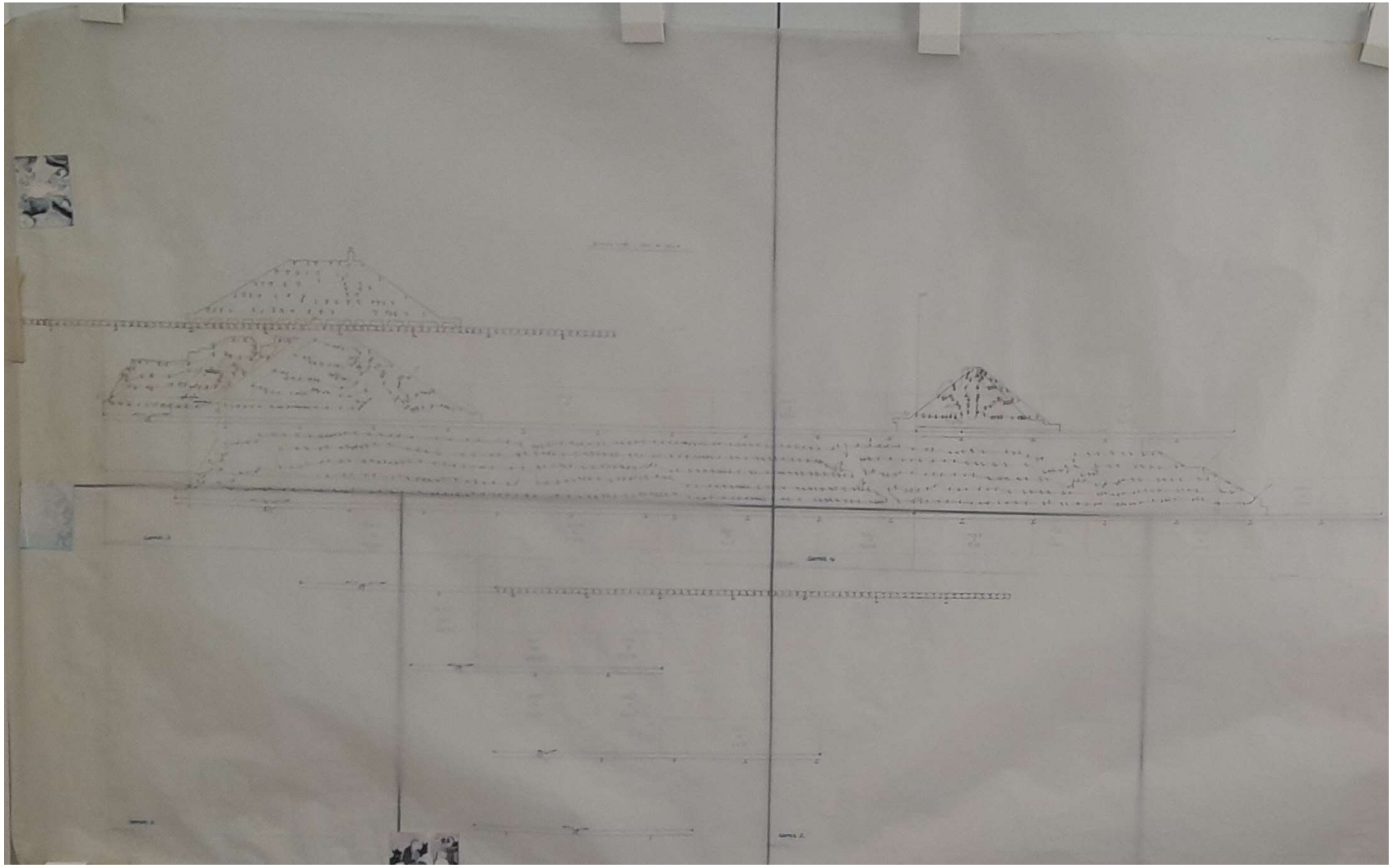
1976

Isobel Clark 1972 – Geevor Tin Mines Ltd, Cornwall

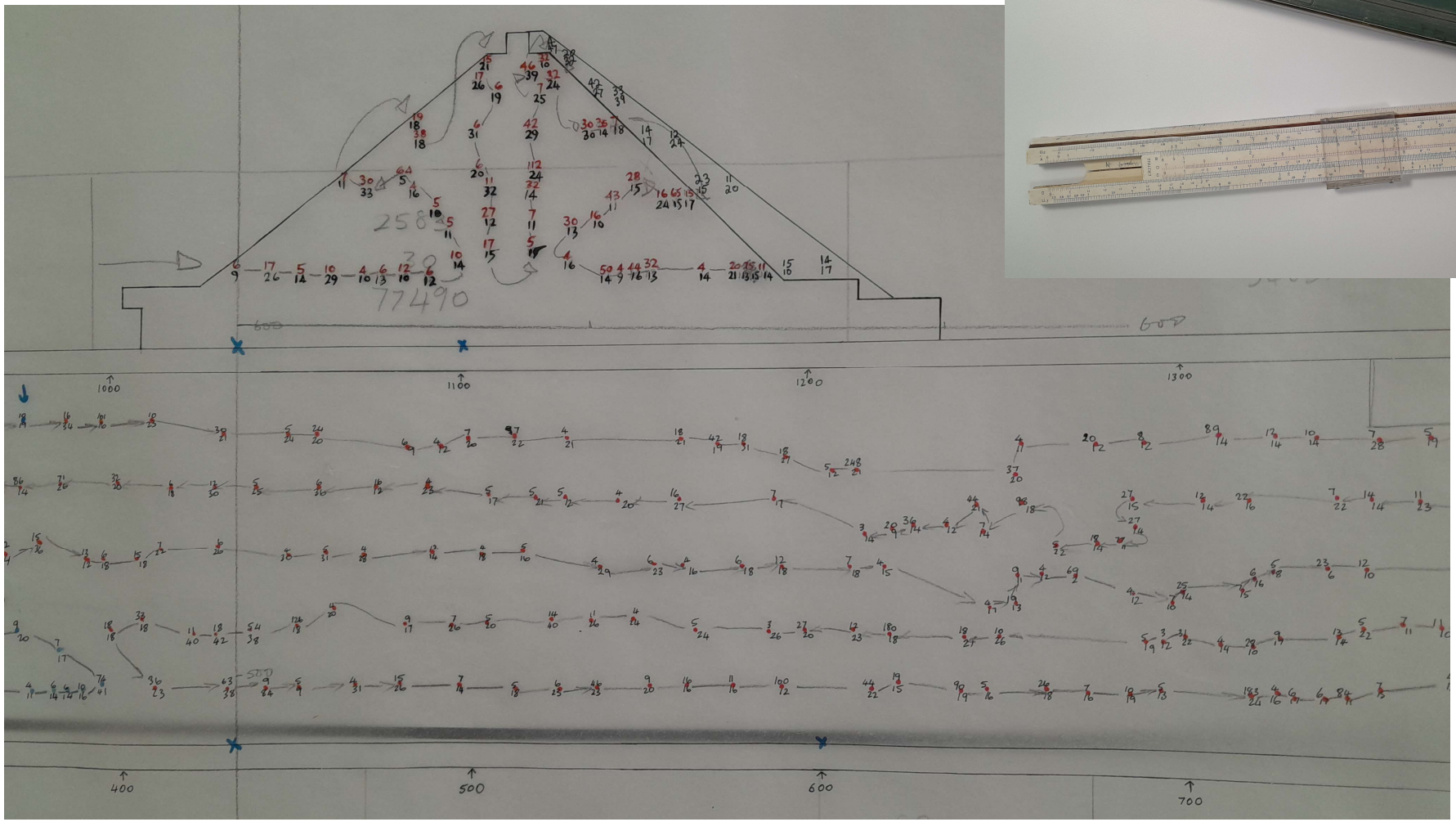
Sampling shed

Victory Shaft

Isobel Clark hand traced section sampling 1972



Isobel Clark Data processing 1972

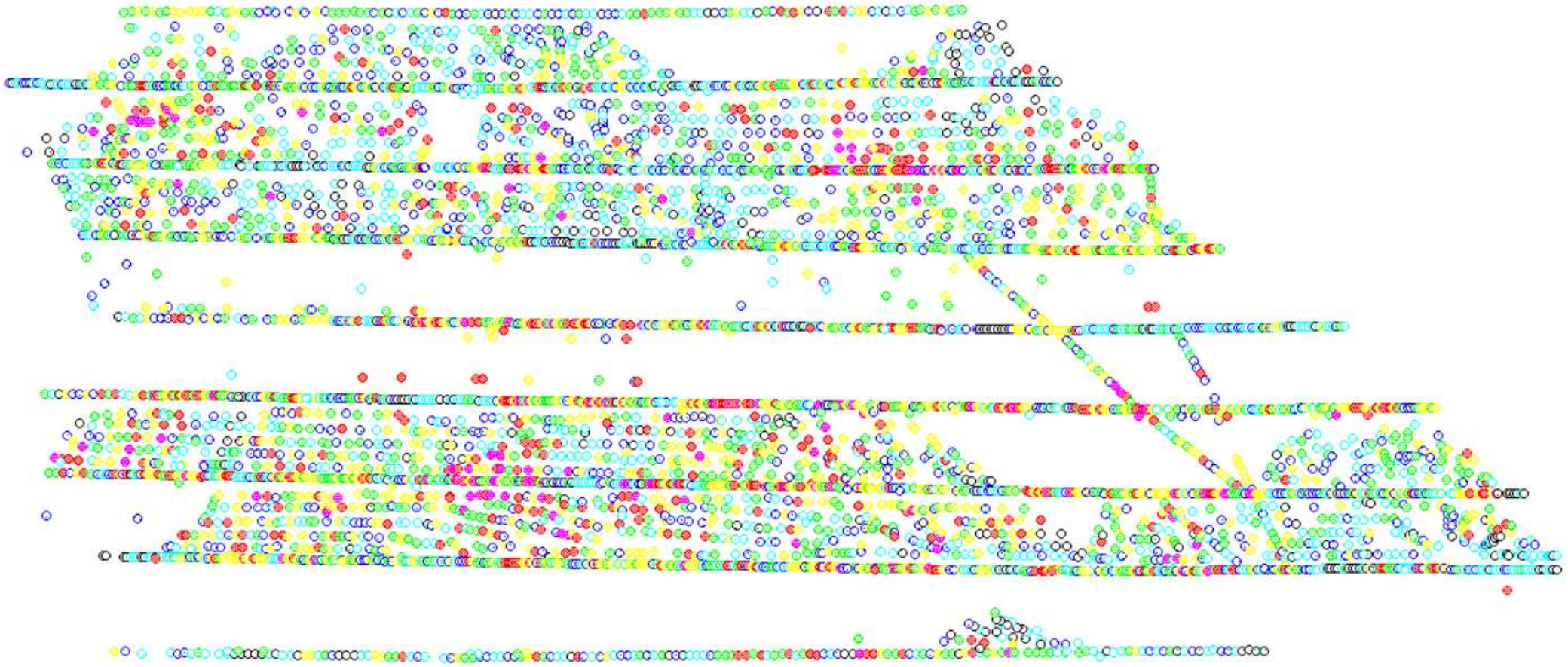


Isobel Clark

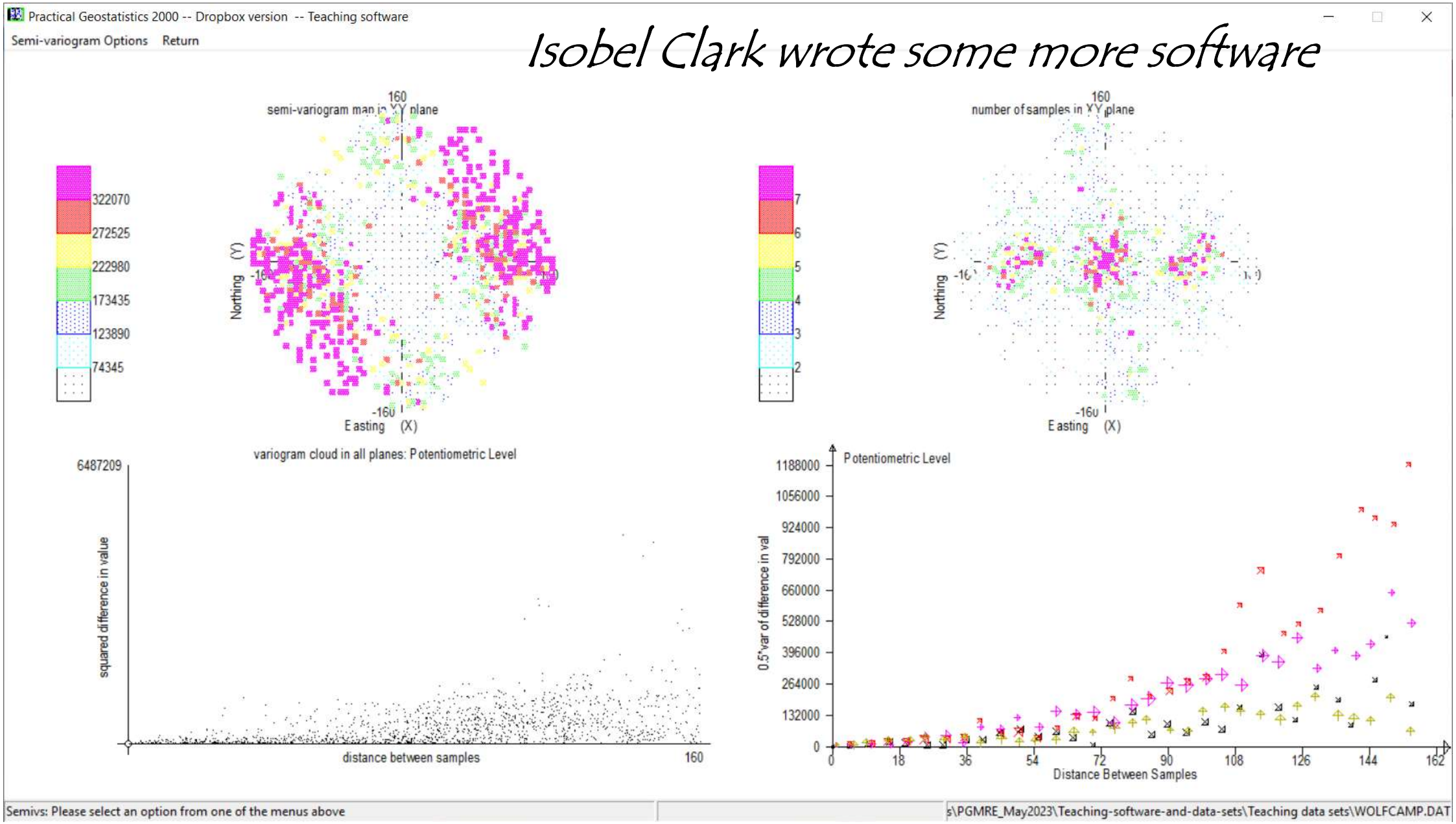
3D geological modelling

stoping

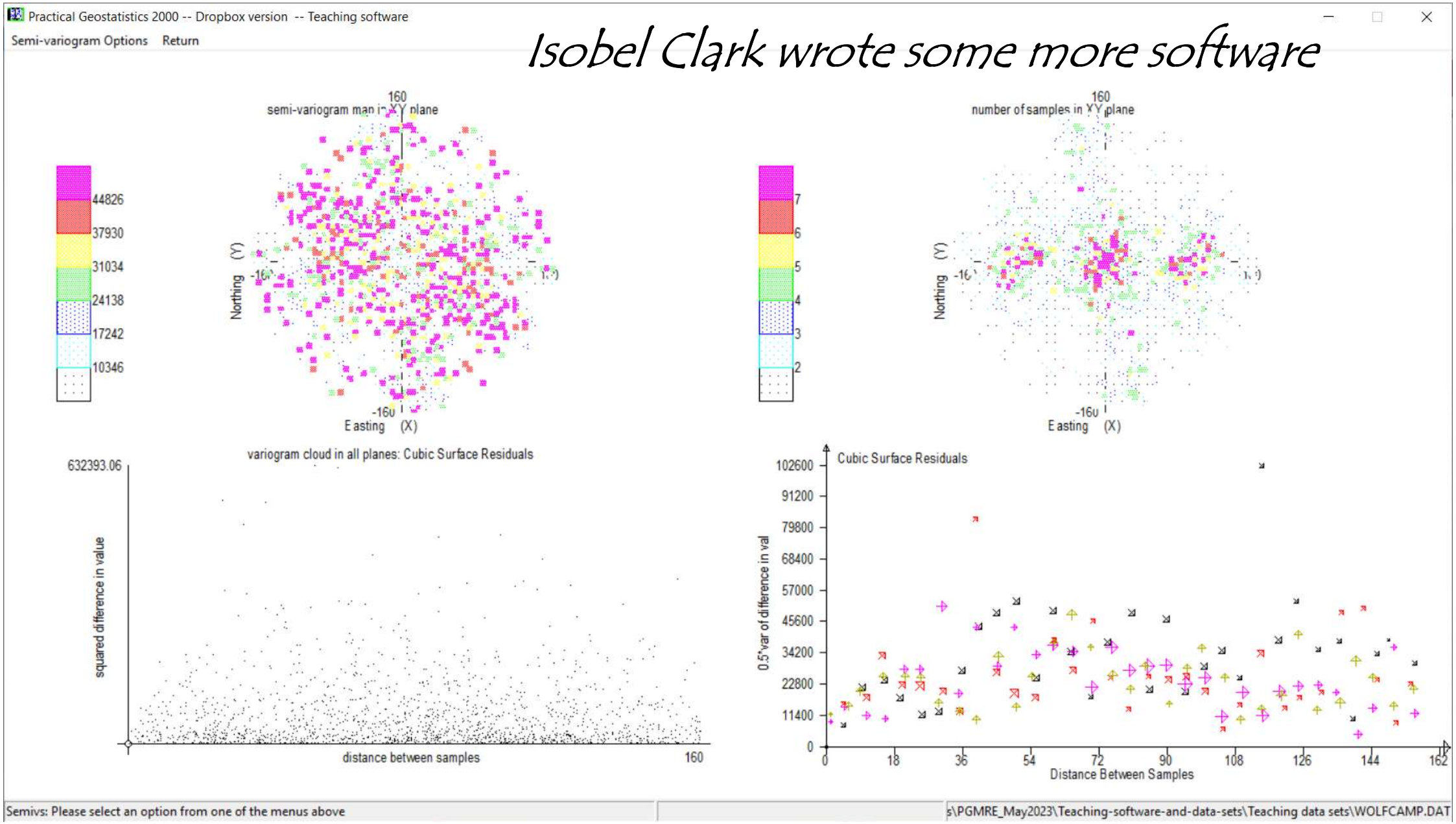
Isobel Clark wrote software

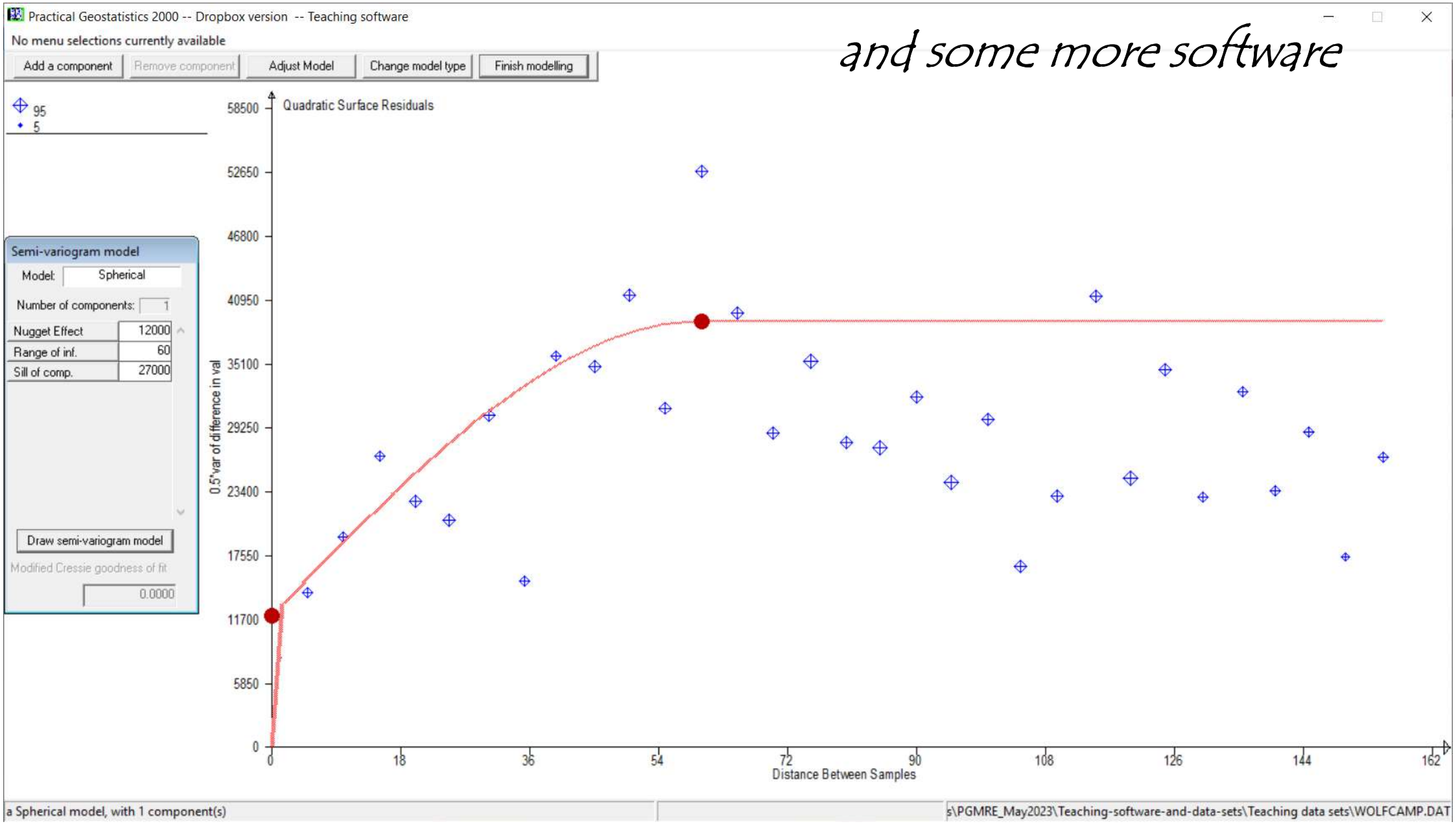


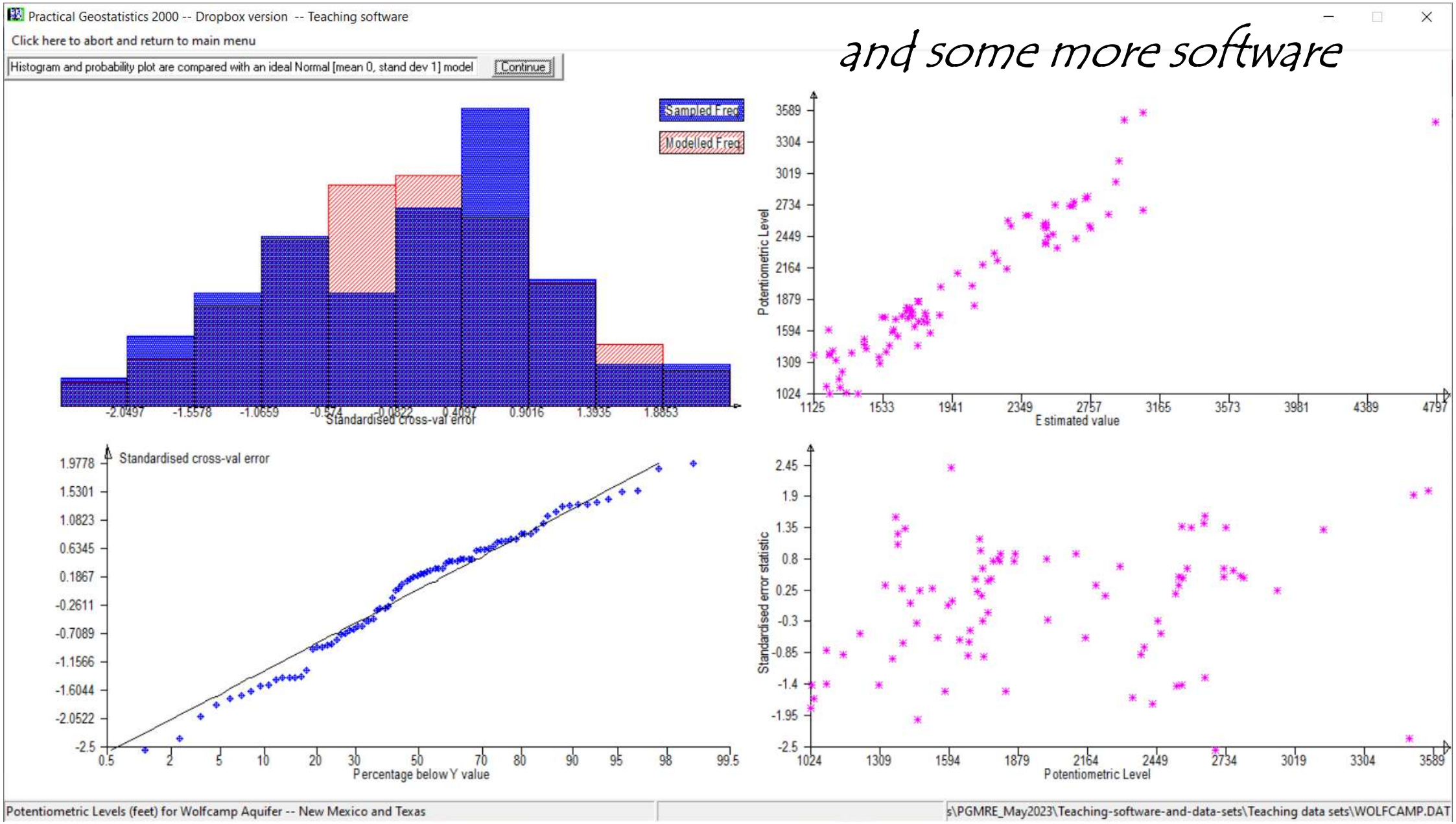
Isobel Clark wrote some more software



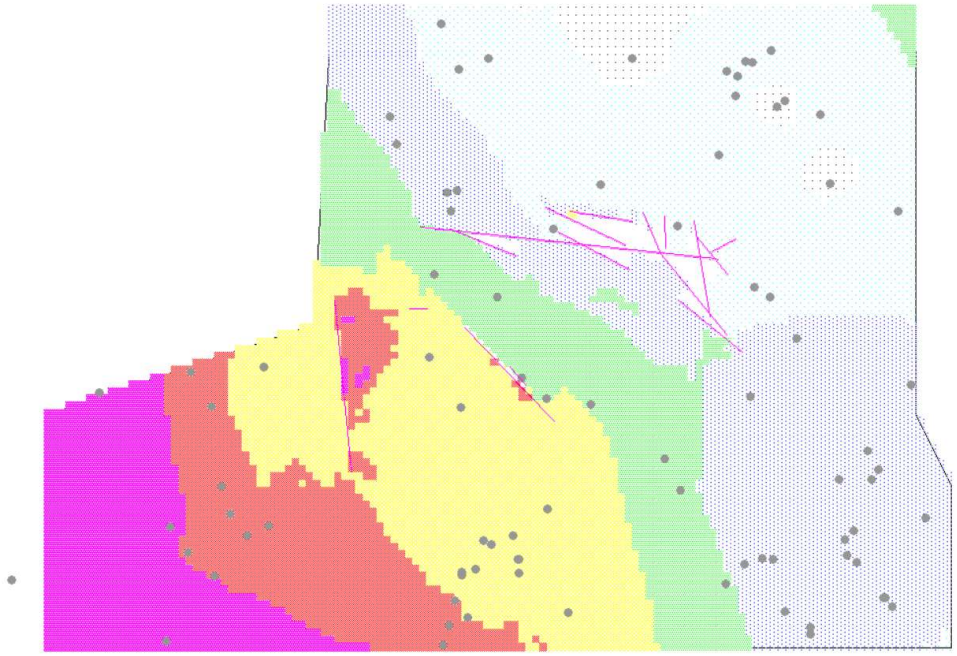
Isobel Clark wrote some more software




Practical Geostatistics 2000 -- Dropbox version -- Teaching software
No menu selections currently available
Add a component
Remove component
Adjust Model
Change model type
Finish modelling
and some more software
95
5
Semi-variogram model
Model: Spherical
Number of components: 1
Nugget Effect 12000
Range of inf. 60
Sill of comp. 27000
Draw semi-variogram model
Modified Cressie goodness of fit
0.0000
Quadratic Surface Residuals
0.5*var of difference in val
58500
52650
46800
40950
35100
29250
23400
17550
11700
5850
0
0
18
36
54
72
90
108
126
144
162
Distance Between Samples
a Spherical model, with 1 component(s)
s\PGMRE_May2023\Teaching-software-and-data-sets\Teaching data sets\WOLFCAMP.DAT

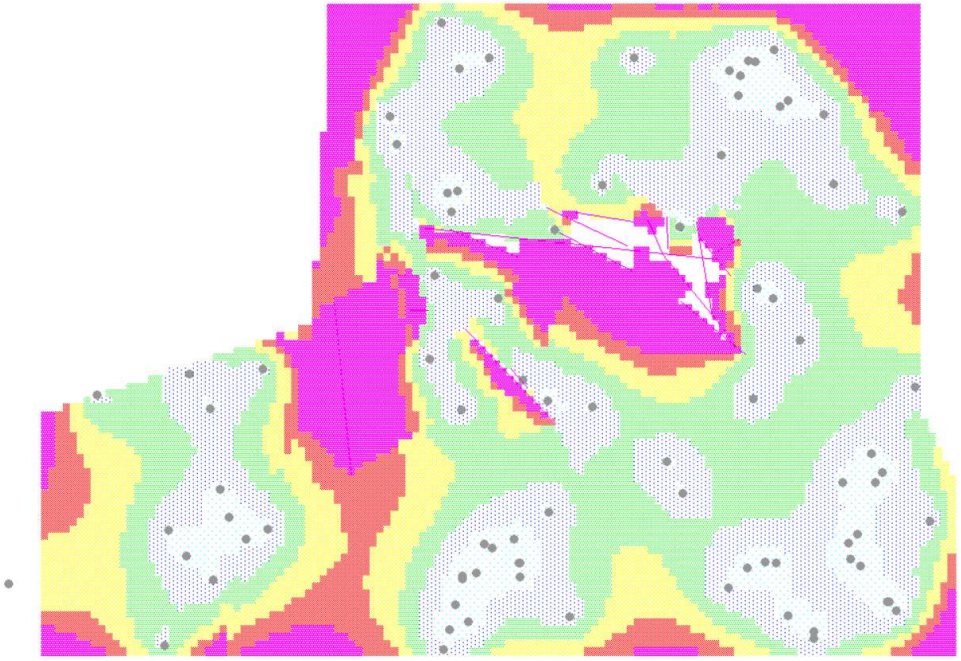

Practical Geostatistics 2000 -- Dropbox version -- Teaching software
Click here to abort and return to main menu
Histogram and probability plot are compared with an ideal Normal [mean 0, stand dev 1] model
Continue
and some more software
Sampled Freq
Modelled Freq
-2.0497
-1.5578
-1.0659
-0.574
-0.0822
0.4097
0.9016
1.3935
1.8853
Standardised cross-val error
Potentiometric Level
3589
3304
3019
2734
2449
2164
1879
1594
1309
1024
1125
1533
1941
2349
2757
3165
3573
3981
4389
4797
Estimated value
Standardised cross-val error
1.9778
1.5301
1.0823
0.6345
0.1867
-0.2611
-0.7089
-1.1566
-1.6044
-2.0522
-2.5
0.5
2
5
10
20
30
50
70
80
90
95
98
99.5
Percentage below Y value
Standardised error statistic
2.45
1.9
1.35
0.8
0.25
-0.3
-0.85
-1.4
-1.95
-2.5
1024
1309
1594
1879
2164
2449
2734
3019
3304
3589
Potentiometric Level
Potentiometric Levels (feet) for Wolfcamp Aquifer -- New Mexico and Texas
s\PGMRE_May2023\Teaching-software-and-data-sets\Teaching data sets\WOLFCAMP.DAT

Isobel Clark wrote some more software



Universal Kriging

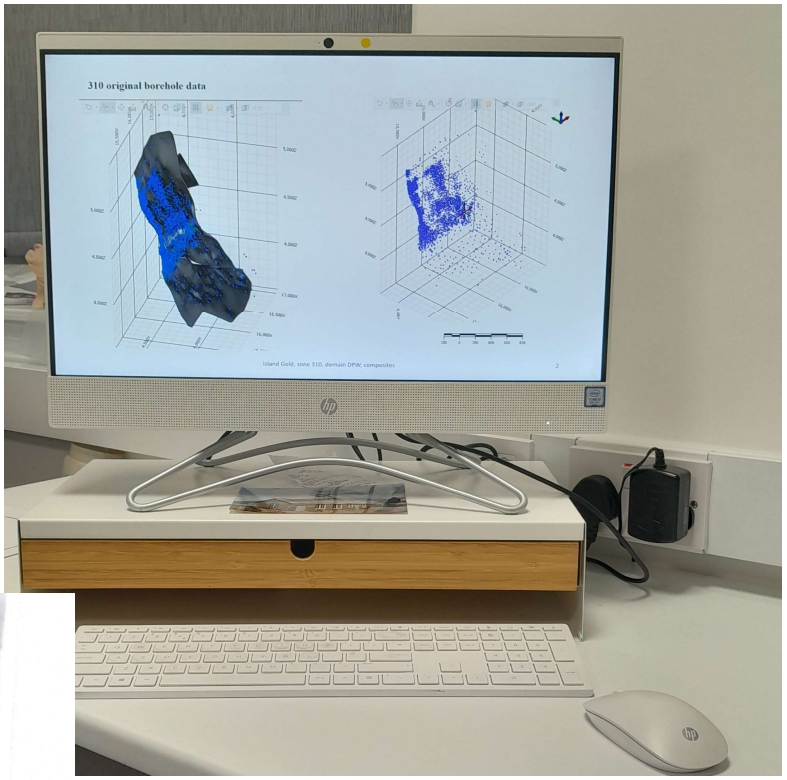
Kriging standard errors



There were some changes

1971
CDC 6400
mainframe

1983
Alpha Micro
Desktop
computer



2023 HP
desktop
computer

Isobel Clark did some teaching

Royal School of Mines

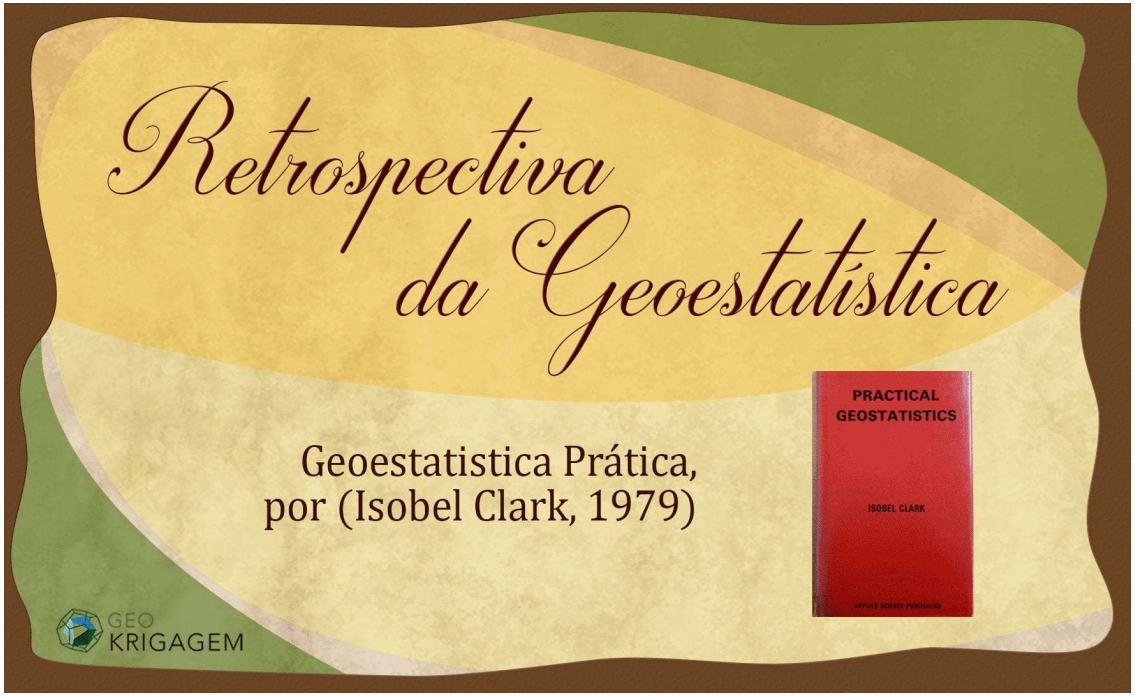
1971 to 1982

Isobel Clark did more teaching

University of the Witwatersrand

1989 to 1997

Isobel Clark wrote a book which got read in a lot of places



لنعد الآن إلى قيمة تباين الفروق Variance of the differences والتي يرمز إليها بـ $2\gamma(h)$ والمعروفة عادة بالمتباين (فيريوغرام) (Variogram) لأنها تتغير مع المسافة والاتجاه. هذه القيم يمكن حسابها عمليا بافتراض أنها لا تري توجها على النحو التالي:

$$2\gamma^*(h) = \frac{1}{n}\sum[g(x) - g(x+h)]^2$$

إن العدد 2 أمام قيمة (γ) موجود لأهداف رياضية بحتة والمصلح $\gamma(h)$ يسمى المتباين النصفي Semi-variogram. الآن وبعد أن قدمنا المتباين النصفي فإن السؤال الذي يطرح نفسه ينص على ماهية نوع السلوك الذي نتوقع أن يتحلى به المتباين النصفي؟ إن لدينا مقياسا للفروقات في قيم العينات التي تبعد مسافات (h) عن بعضها البعض. والمقياس هذا الذي نملكه يعبر عنه بوحدات القيم المستعملة عادة مثل وزن بالمائة $(Wt.\%)^2$ أو جزء من مليون جزء$(ppm)^2$، أو غير ذلك. وأفضل طريقة لتوضيح هذه الأرقام هو الرسم البياني. أنه لأمر عادي أن نرسم رسما بيانيا كما في شكل 2-1 حيث تسقط المسافة بين أزواج العينات على المحور الأفقي وقيم المتباين النصفي على المحور الرأسي. حسب التعريف يبدأ كل من المحورين بالقيمة صفر. لنفرض الآن أننا أخذنا عينتين من نفس المكان وقمنا بقياس قيمة التركيز فإننا نتوقع أن تكون قيمة الفرق بين التركيزين صفرا.

Isobel Clark wrote some other books which got pirated

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But, overall, Isobel Clark preferred to be a consultant

Isobel Clark chaired keynote session at APCOM 2011 in Wollongong

Speakers Clayton Deutsch and Harry Parker

Isobel Clark training courses, for example 2013

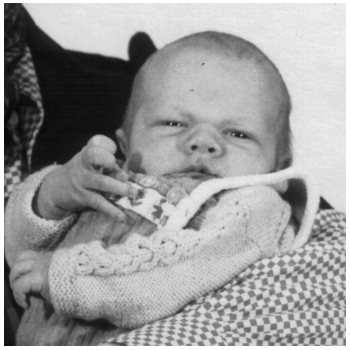
Accra Ghana

Perth WA

Al-Amar Mine, Saudi Arabia

Isobel Clark

1974 official staff portrait,
Royal School of Mines



Next frame

Isobel Clark and Son

2008

1979?

2018

Isobel Clark
soon to be 75

With many thanks to the MREC committee and especially to Jacqui Coombes