THE USE OF PERSONAL COMPUTERS AND OPEN FILE GEOCHEMICAL
DATA TO FIND NEW EXPLORATION TARGETS

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ABSTRACT

In Geological Fieldwork, 1980, Paper 1981-1, a program was presented for calculating moving averages using a Wang 2200A computer (Church, et al., 1981). The same program slightly modified has been used with a TRS-80 Level II computer.

PROGRAM MODIFICATION

The individual values are multiplied by a factor of $1/\text{Log } R$ where 'R' is the radius from the sample value to the centre of the computer window. This has the effect of reducing the anomaly size.

NELSON-YMIR-SALMO - Ag

An interesting anomaly is found to the south of Salmo and mostly west of the Salmo River, an area relatively unexplored. The geology indicates Nelson granite in contact with sediments. Magnetic anomalies are associated with this granite. This is an excellent area for skarn and vein deposits.

GRAND FORKS - Cu

This approach certainly would have found 'Phoenix Copper' if used prior to discovery.

GRAND FORKS - Mo

A very subtle molybdenite anomaly exists to the east of Phoenix Copper. Is a porphyry environment present?

GRAND FORKS - Ag

A low level silver anomaly exists to the south of Phoenix Copper. Is this the centre of a porphyry model?
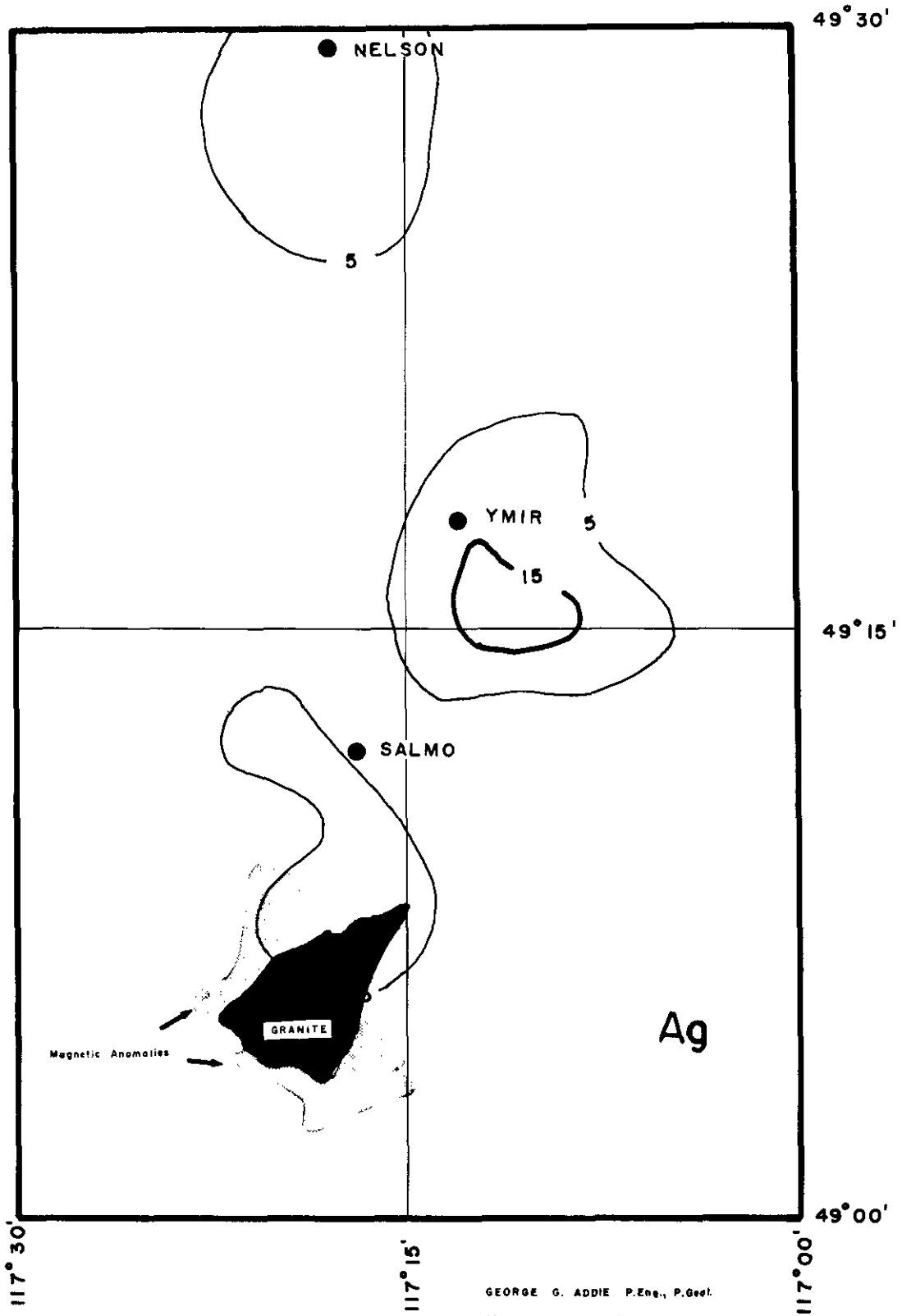
49°30'

● NELSON

5

YMIR 5

15

49°15'

● SALMO

GRANITE

Magnetic Anomalies

Ag

49°00'

117°30'

117°15'

117°00'

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Figure 1. Moving average contour map of silver values in
stream silts from Nelson-Ymir-Salmo mining camp.
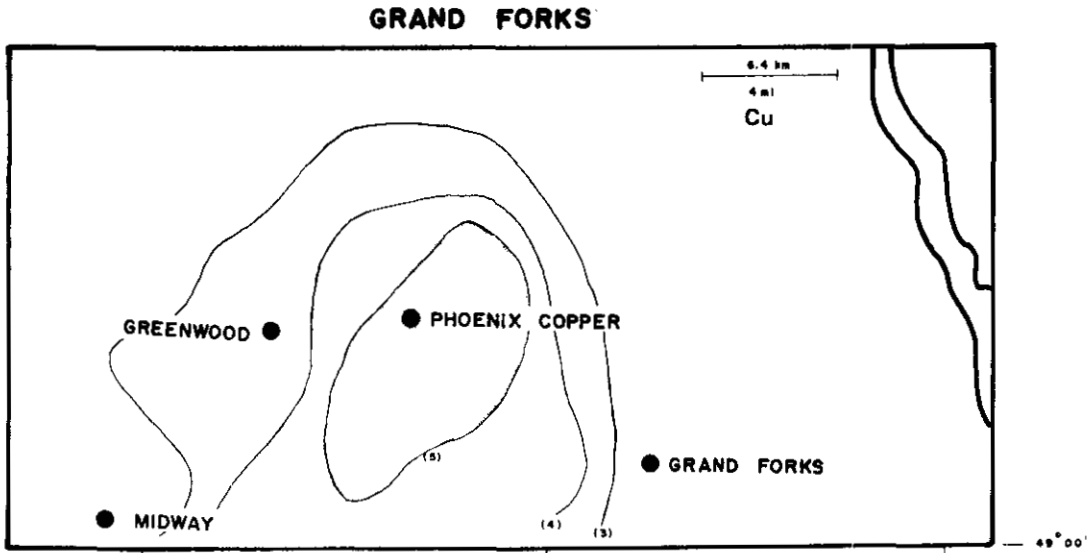
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Figure 2. Contour plot using moving average method of
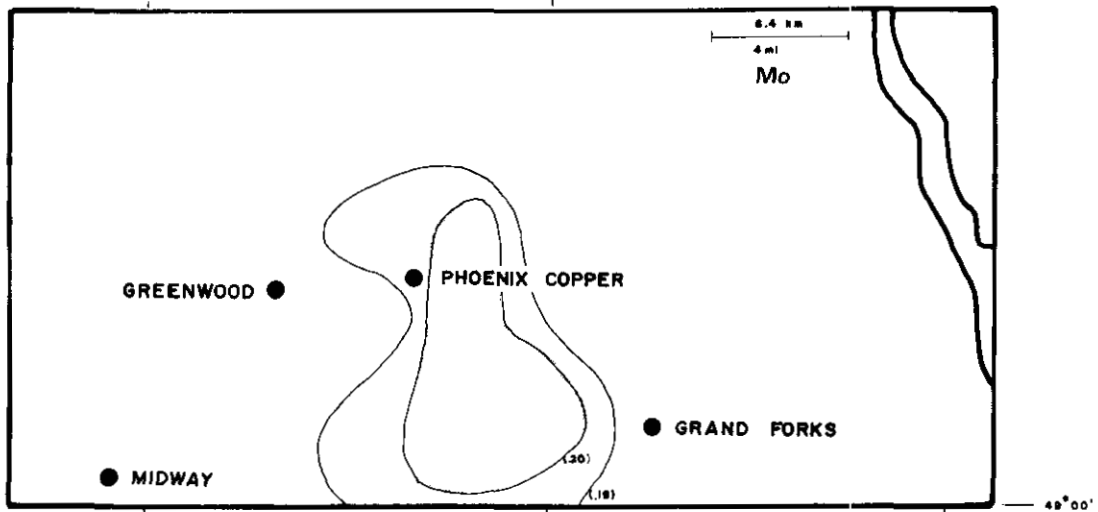copper in stream silts from Grand Forks area.

Figure 3. Contour plot of molybdenum in stream silts in
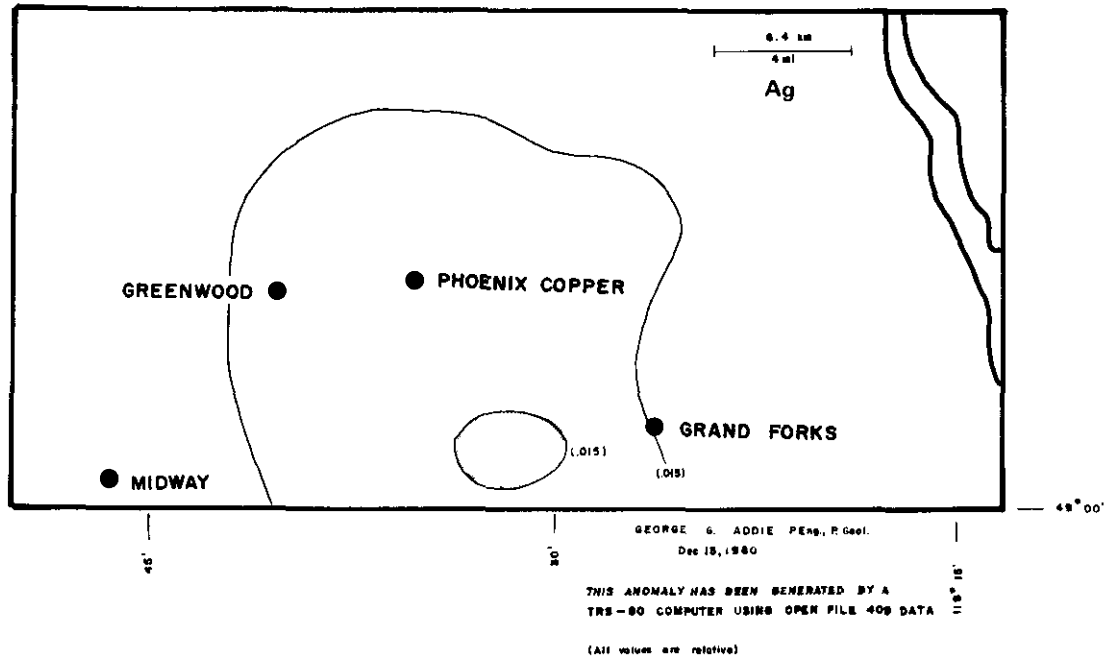Grand Forks area using moving average method.

Figure 4. Contour plot of gold in stream silts in Grand Forks area using moving average method.

CONCLUSION

The use of the computer can identify low level anomalies that are not obvious from data plots only. It is on this basis that new target areas can be found in old mining camps.

REFERENCES

Church, B.N., Barakso, J., and Bell, D. (1981): Computer Processing of Geochemical Data showing the Primary Dispersion of Elements near the Equity Mine (Sam Goosly), B.C. Ministry of Energy, Mines & Pet. Res., Geological Fieldwork, 1980, Paper 1981-1, pp. 25-32.

Regional Stream Sediment and Water Geochemical Reconnaissance Data, British Columbia, 1976, Geol. Surv., Canada, Open File 409.

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TABLE 1.   TRS-80 Level II Computer Program

GRAND FORKS
FEB 23, 1981   BY GEORGE G. ADDIE, P. ENG., P. GEOL.

```
  5 LPRINT "GRAND FORKS"
  6 LPRINT "FEB 23, 1981 BY GEORGE G. ADDIE, P.ENG., P.GEOL."
 10 LPRINTCHR*(29)" "
 20 CLS
 40 T=0:S=0:P=0:C=0:E=0:F=0:H=0:J=0:L=0:M=0:N=0:
    D=0:X=0:W=0:Y=0
 50 INPUT "COORDINATES OF CENTER OF FIRST CIRCLE";A,B
 60 INPUT "EASTING AND NORTHING INTERVALS";G,K
 70 Z=A:Q=B
 80 LPRINT TAB(0)"E";TAB(8)"N";
 90 LPRINT TAB(15)"ZN";TAB(25)"CU";TAB(35)"PB";
100 LPRINT TAB(45)"AG";TAB(55)"U";TAB(60)"MO"
110 FOR I=ITO 8:READ A(I):NEXT I
120 IF A(2)=-1 THEN 180
130 IF SQR((A(1)-Z)[2+((A(2)-Q)]2))>100 THEN 110
131 R=SQR((A(1)-Z){2+((A(2)-Q)]2))
132 IF R<=1 THEN R=1.1
135 U=1/LOG(R)
140 S=S+1:T=T+LOG(A(3)*U)
150 C=C+LOG(A(4)*U)
160 D=D+LOG(A(5)*U)
170 E=E+LOG(A(6)*U)
171 L=L+LOG(A(7)*U)
172 W=W+LOG(A(8)*U)
175 GOTO 110
180 IF S=0 THEN 280
190 Y=EXP(T/S)
200 F=EXP(C/S)
210 H=EXP(D/S)
220 J=EXP(E/S)
230 M=EXP(L/S)
255 X=EXP(W/S)
260 LPRINT TAB(0)Z;TAB(6)Q;TAB(11)Y;TAB(19)F;TAB(27)H;
270 LPRINT TAB(35)J;TAB(43)X;TAB(55)M
280 Z=Z-50:S=0:T=0:C=0:D=0:E=0:L=0:W=0:Y=0:F=0:H=0:
    J=0:M=0:X=0
290 IF (A-Z)>G THEN 310
300 RESTORE:GOTO 110
310 L=0:W=0:S=0:T=0:C=0:D=0:E=0:L=0:W=0:Q=Q-50:P=P+1:
    Y=0:F=0:H=0:J=0:M=0:X=0
320 IF INT(P/2)=P/2 THEN 340
330 Z=(Z+G+50):GOTO 350
340 Z=A
350 IF (B-Q)<K THEN 300
360 LPRINT "THE END":END
500 DATA 3760,4520,35,14,5,.1,1,10.7
```