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NTS 105-K-1

Anvil Range Synd.
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GRAVITY SURVEY - WOP CLAIMS GRID - ADDENDUM: Second Vertical Derivative

Dec 16, 1974 by C.A.Ager, Ph.D.

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GRAVITY SURVEY - WOP CLAIMS GRID - ADDENDUM

The enclosed gravity information can be considered as an addendum to the report by Ager (1974) on the Wop Claims Grid, Tenas Creek Area, Yukon Territory.

At the request of R. Chaplin, additional filtering and interpretation was done on the Wop gravity data. The idea was to try and identify subtle but meaningful anomalies contained within the complete Bouguer gravity maps (Figures 6 and 8). To handle this problem, a second vertical derivative map was constructed from the smoothed residual gravity map, Figure 8, using a one-ring filter of radius 600 feet. (It should be noted that filtering either the smoothed complete Bouguer gravity, Figure 6, or the smoothed residual gravity, Figure 8, will yield the same map. This is so because the second derivative suppresses all low frequency information such as the regional gravity field.) The computer contoured map is given in Figures 19a, 19b. As is common, the anomalies on the edges of the map should be downgraded due to the edge effects in the filtering procedure.

INTERPRETATION OF SECOND DERIVATIVE MAP

The second vertical derivative map serves to amplify the subtle features prevalent in the original gravity map. The most

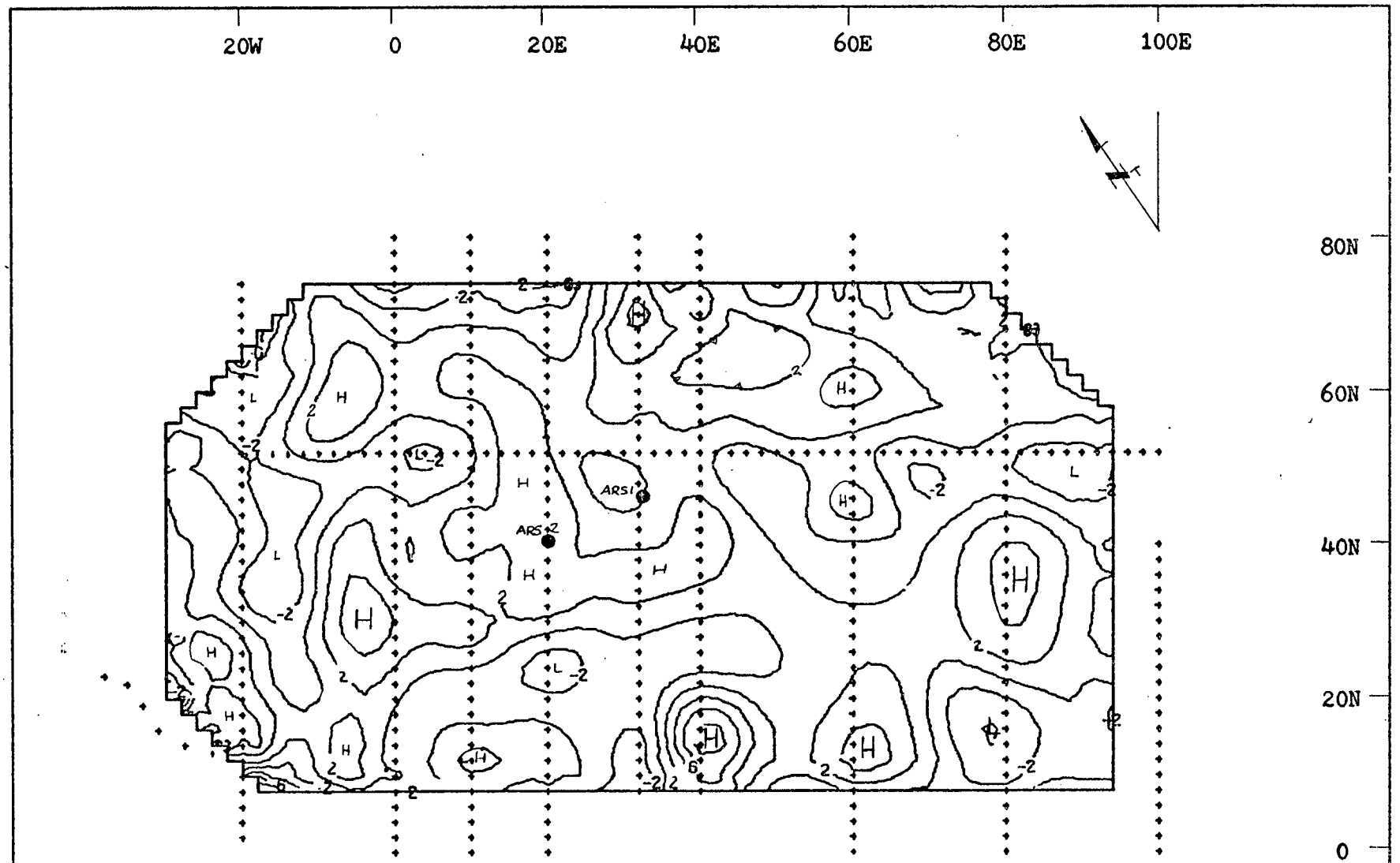
20W
0
20E
40E
60E
80E
100E
80N
60N
40N
20N
0
ARS1
ARS2
SECOND VERTICAL DERIVATIVE GRAVITY
Wop Claims Grid
Scale 1"=2000'
Date Dec/74
Contour interval = 2 gu/(600 ft)2

FIGURE 19a

obvious feature of the map is a halo of 'highs' that are concentric about the flanks of the residual gravity anomaly (compare Figures 8 and 19). The most prominent 'high' features are marked with a large 'H'. Other related and subtler 'highs' are identified with a smaller 'h'. These 'high' anomalies outline regions where the gravity gradient exhibits horizontal curvature; that is, where there are inflections in the gradient or noses in the gravity map. Any inference as to what may cause these 'high' anomalies is unknown. However, they can correspond to anomalies caused by deep seated dense sources or to those caused by near surface sources with small density contrast. The sharpness of the anomaly centered at 40E+15N suggests a near surface source. Other broaded anomalies as found at 4E+30N and 80E+36N are interpreted as deep seated. It is important to realize that several of the 'high' anomalies occur where there are few if any data points. These anomalies are, therefore, only inferred - further gravity surveying is required to establish their reality or not.

In general, the second derivative 'lows' surround or isolate the 'highs' except in two regions of the survey area:

1) The low region accentuated between 15-20W and 20-70N could correspond to a major fault zone or to a north striking less dense geological unit.

2) The low area striking east from the vicinity of 00+16N to 95E+50N could represent a similar geological feature as in 1) above.

By combining this added gravity information with the other data collected over the Wop claims grid, it should be possible to further refine the geological model and its inferred economics for this survey area.

Respectfully submitted,

Charles A. Ager

December 16, 1974

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Geophysicist

REFERENCES

Ager, C.A. (1974). Gravity survey - Wop and Chap claims grid, Tenas Creek Area, Yukon Territory, November 18, 1974.

20W 0 20E 40E 60E 80E 100E

80N

60N

40N

20N

0

TO ACCOMPANY REPORT TITLED
Gravity Survey-WOP
Claim Grid Addendum
BY C.A. Ager M.Sc.
DATED Feb/75 PROJECT # ARS

SECOND VERTICAL DERIVATIVE GRAV.

Anvil Range Syndicate
NTS 105 K/1
WOP GRID

CONTOUR INT. 2gu/(600 ft)²
DIGITIZE INT. Δ = 200'
filter: center point - 1 ring r = 600'
0-1 0-5 c/a-3

SCALE 1" = 500'
DATE NOV 1974

C.A. AGER & ASSOCIATES LTD.
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inches
centimetres
This reference scale bar is correct when the original image is set scale at the same ratio as the original and can be used as a reference for the original size.
YUKON GEOLOGICAL SURVEY

FIGURE 19B