140,000 Hz COPLANAR APPARENT RESISTIVITY OF THE ALASKA HIGHWAY CORRIDOR, EAST-CENTRAL ALASKA

PARTS OF BIG DELTA and MT. HAYES QUADRANGLES

by

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2006

ohm•m
5679
4416
3741
3324
3019
2770
2564
2391
2238
2102
1983
1879
1784
1699
1620
1548
1482
1418
1360
1305
1253
1205
1159
1116
1075
1037
999
963
929
896
865
834
805
778
751
726
701
678
655
634
612
592
573
553
535
517
500
484
468
452
437
421
403
384
364
344
323
300
275
247
214
176
134

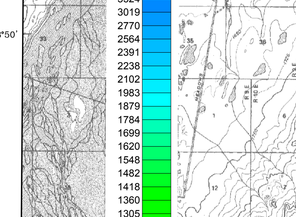
SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 50 FEET
DATUM MEAN SEA LEVEL

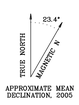
Base from U.S. Geological Survey Quadrangles (Alaska) Big Delta A-3, 1975; A-4, 1991; Mt. Hayes C-3, 1964; C-4, 1967; D-3, 1991; D-4, 1988



DESCRIPTIVE NOTES

The geophysical data were acquired with a RESOLVE Electromagnetic (EM) system and a Scintrex cesium magnetometer. The EM and magnetic sensors were flown at a height of 100 feet. In addition the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed using AS350B-2 and AS350B-3 Squirrel helicopters at a mean terrain clearance of 200 feet along NW-SE (350°) survey flight lines with a spacing of a quarter of a mile. Tie lines were flown perpendicular to the flight lines at intervals of approximately 3 miles.

An Ashtech GG24 NAVSTAR / GLONASS Global Positioning System was used for navigation. The helicopter position was derived every 0.5 seconds using post-flight differential positioning to a relative accuracy of better than 5 m. Flight path positions were projected onto the Clarke 1866 (UTM zone 6) spheroid, 1927 North American datum using a central meridian (CM) of 147°, a north constant of 0 and an east constant of 500,000. Positional accuracy of the presented data is better than 10 m. with respect to the UTM grid.



APPROXIMATE MEAN DECLINATION, 2005

RESISTIVITY

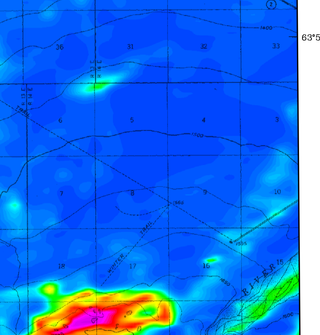
The RESOLVE EM system measured inphase and quadrature components at six frequencies. One vertical coaxial coil-pair operated at 3300 Hz while five horizontal coplanar coil-pairs operated at 400, 1800, 8200, 40,000 and 140,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to bedrock conductors, conductive overburden, and cultural sources. Apparent resistivity is generated from the inphase and quadrature component of the coplanar 140,000 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 80 m grid using a modified Akima (1970) technique.

Akima, H.,1970, A new method of interpolation and smooth curve fitting based on local procedures: Journal of the Association of Computing Machinery, v. 17, no.4, p.589-602.

RESISTIVITY ALTITUDE LIMITS

In areas where the EM bird height exceeded 100 m, and the inphase and quadrature signals were below 3 ppm, the resistivity was not calculated and the grid is blank. This avoids meaningless resistivity calculations due to small signals in areas where the helicopter flew higher to avoid cultural objects or for safety reasons.

LOCATION INDEX



SURVEY HISTORY

This map has been compiled and drawn under contract between the State of Alaska, Department of Natural Resources, Division of Geological & Geophysical Surveys (DGGS), and Stevens Exploration Management Corp. Airborne geophysical data for the new area were acquired and processed by Fugro Airborne Surveys Corp. in late 2005 and early 2006.

This map and other products from this survey are available by mail order or in person from DGGS, 3354 College Road, Fairbanks, Alaska, 99709-3707. Published maps are also available for viewing or downloading as Adobe Acrobat Files (*.pdf) on our Web site (http://www.dggs.dnr.state.ak.us/pubs/).