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STIKINE ELECTROMAGNETIC AND MAGNETIC AIRBORNE GEOPHYSICAL SURVEY DATA COMPILATION

Laurel E. Burns[1], Gina R.C. Graham[1], John D. Barefoot[1], and WGM mining and Geological Consultants Inc.

ABSTRACT

The Stikine geophysical survey is located in southeast Alaska near the city of Wrangell, about 175 kilometers south of Juneau, Alaska. Frequency domain electromagnetic and magnetic data were collected with the DIGHEM^{V} system from March to May 1997. A total of 8,097 line kilometers were collected covering 2,870.1 square kilometers. Line spacing was 400 meters (m). Data were collected approximately 30 m above the ground cover or tree canopy from a helicopter-towed sensor platform ("bird") on a 30-m-long line. The large trees and steep terrain resulted in an average ground clearance of 150 m.

PURPOSE

This airborne geophysical survey is part of a program to acquire data on Alaska's most promising mineral belts and districts. The information acquired is aimed at catalyzing new private-sector exploration, discovery, and ultimate development and production. The purpose of the survey was to map the magnetic and conductive properties of the survey area. Mineral prospects in the survey area include Mad Dog, East Lake, Lost Lake, and Frenchie. A small amount of gold was produced from the Helen S mine during the earth 20th century, and barite was mined from Castle Island between 1963 and 1980. Other gold and base-metal anomalies, altered zones, favorable lithologies, and structural zones are known to exist throughout the survey area.

SURVEY OVERVIEW DESCRIPTION

This document provides an overview of the survey and includes text and figures of select primary and derivative products of this survey. A table of digital data packages available for download is provided to assist users in data selection. For reference, a catalog of the available maps is presented in reduced resolution. Please consult the metadata, project report, and digital data packages for more information and data.

ACKNOWLEDGMENTS

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AVAILABLE DATA

Data Type	Provider	Description
ascii_data	contractor	ASCII format line data, other ASCII data
databases_geosoft	contractor	Geosoft format database of final line data, other Geosoft format databases
documents	contractor and DGGS	Project and field reports, survey background information, gridded data explanations, other documentation
grids_ermapper	contractor and DGGS	Geographically registered gridded data, ER Mapper ERS format
grids_geosoft	contractor and DGGS	Geosoft-format grids, these grids can be viewed in ESRI ArcMap using a free plugin from Geosoft or the free viewer available from Geosoft
images_registered	DGGS	GeoTiff format images of all gridded data
kmz	DGGS	keyhole markup language (kml) kmz archive files of project data. Viewable in Google Earth and other compatible programs
maps_pdf_format	contractor	Printable maps in pdf format. Includes a geographically registered pdf (GeoPDF) for use with mobile devices such as GPS enabled smartphones and tablets, other devices, and programs
maps_prn_format	contractor	Printable maps in HPGL/2 printer file format with extension .prn
vector_data	contractor and DGGS	Line path, data contours, and survey boundary in ESRI shapefile (SHP) format, ESRI Geodatabase format, and/or AutoCAD dxf format

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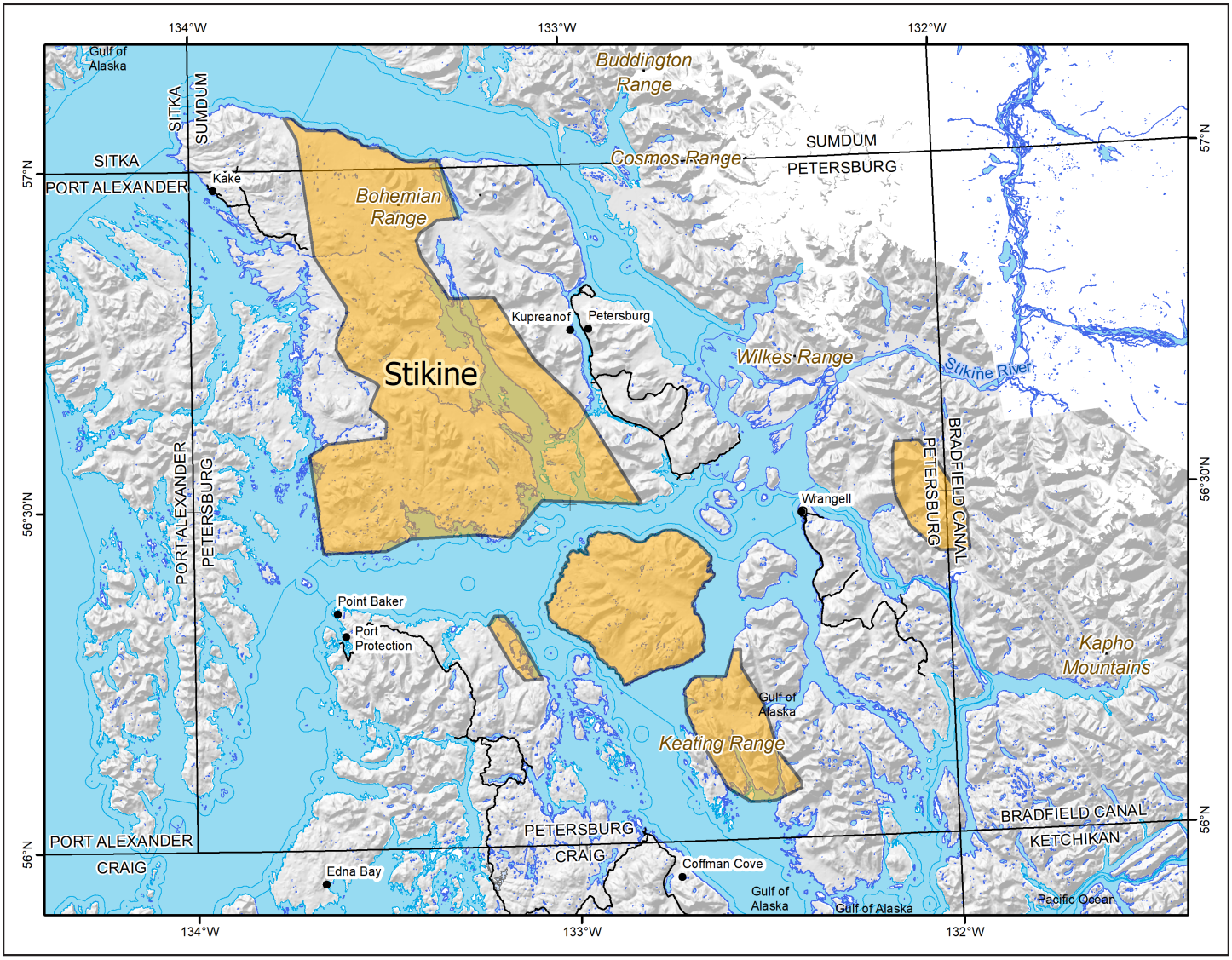




Figure 1. Stikine electromagnetic and magnetic airborne geophysical survey location shown in interior Alaska (inset). Stikine survey area shown with adjacent DGGS geophysical surveys, landmarks, relevant 1:250,000-scale quadrangle boundaries, mountain ranges, rivers, glaciers, and elevation hillshade.

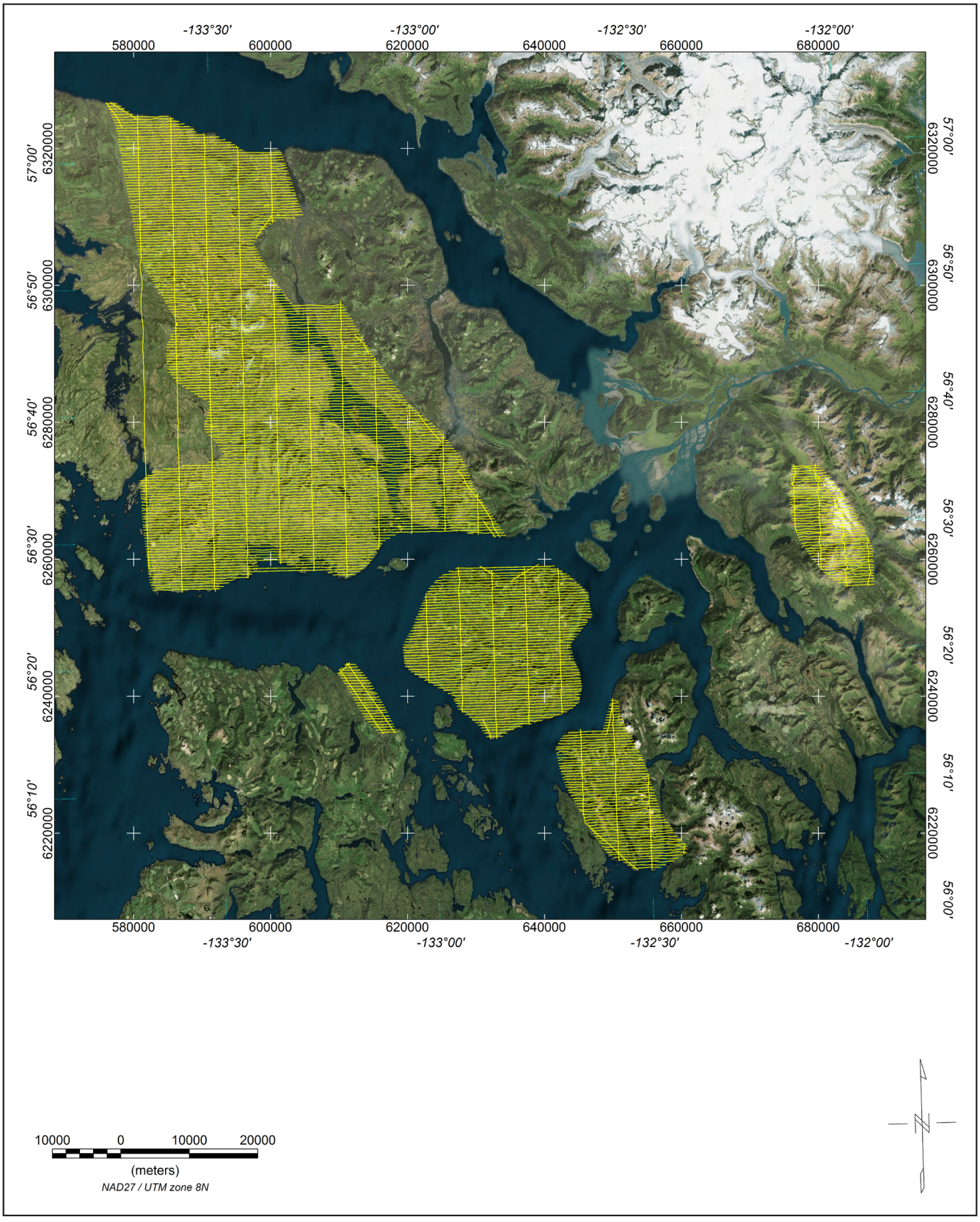


Figure 2. Flight path with orthometric image.

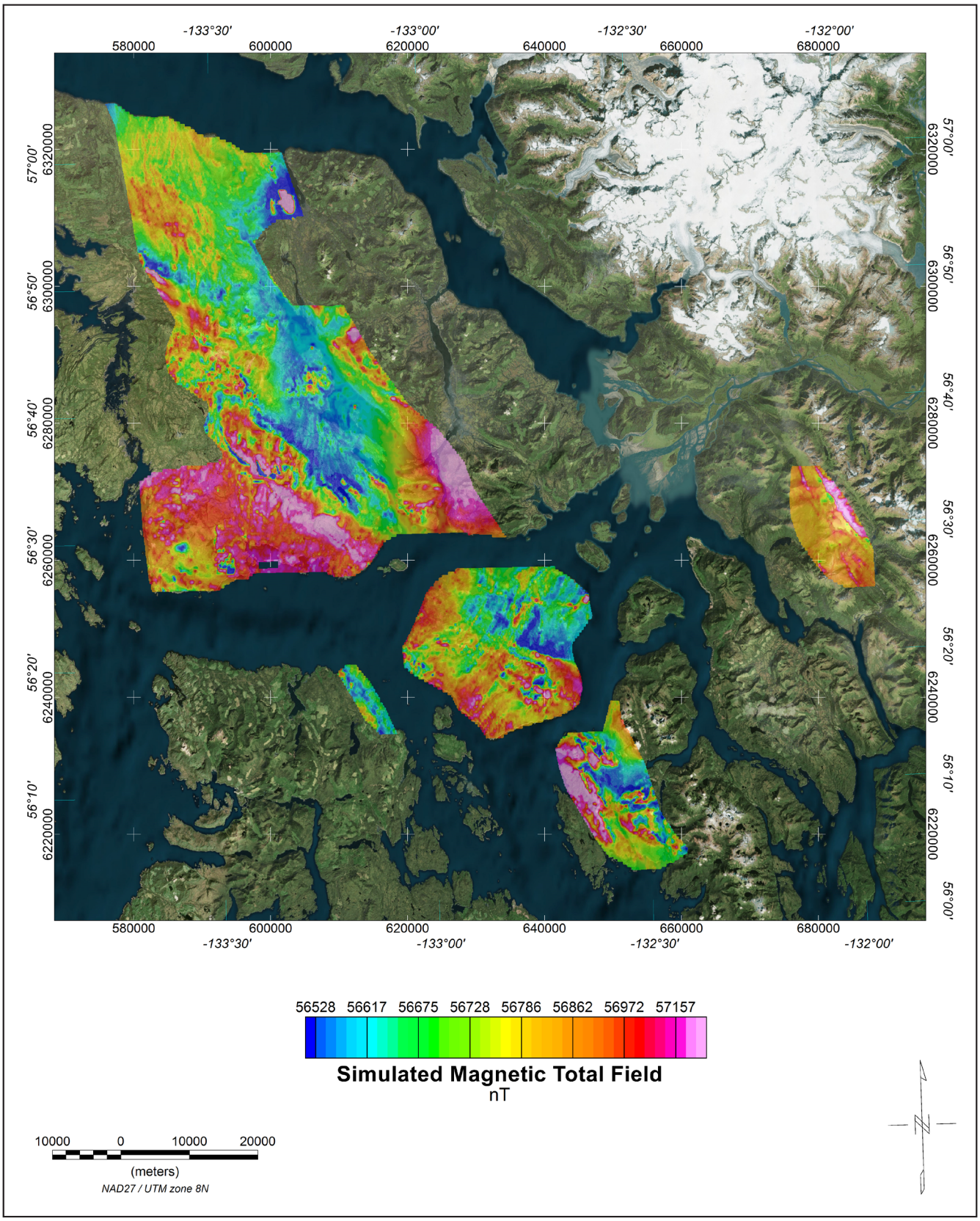


Figure 3. Simulated magnetic total field grid with orthometric image. The magnetic total field data were processed using digitally recorded data from a Scintrex cesium magnetometer. Data were collected at a sampling interval of 0.1 seconds. The magnetic data were (1) corrected for diurnal variations by subtracting the digitally recorded base station magnetic data, (2) IGRF corrected (IGRF model 1985, updated to October 1996), (3) leveled to the tie line data, (4) a constant value of approximately 57,000 nT was added to all data, and (5) interpolated onto a regular 100 m grid using a modified Akima (1970) technique

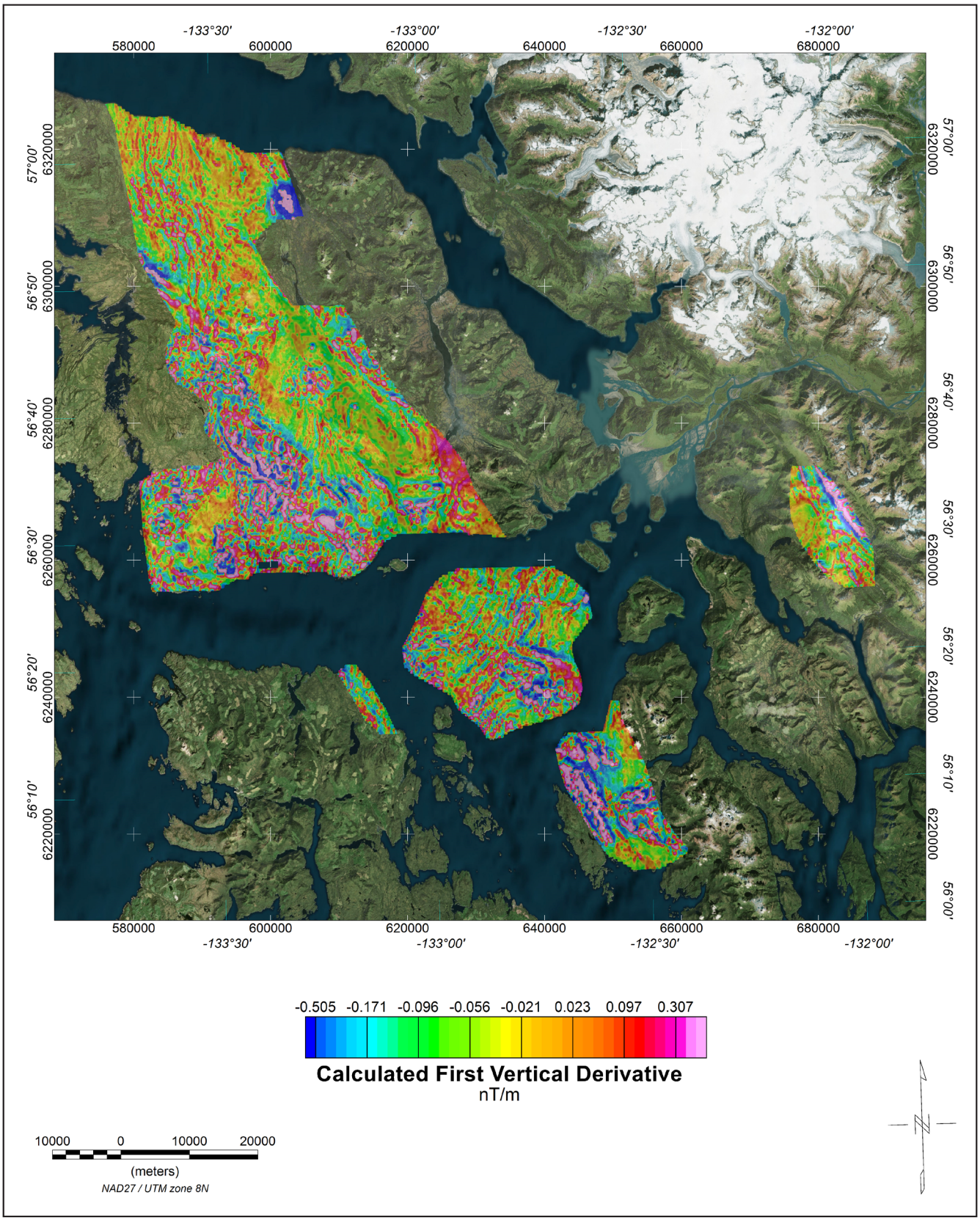


Figure 4. Calculated first vertical derivative with orthometric image. The first vertical derivative grid was calculated from the diurnally-corrected, IGRF-corrected total magnetic field grid using a FFT base frequency domain filtering algorithm. The resulting first vertical derivative grid provides better definition and resolution of near- surface magnetic units and helps to identify weak magnetic features that may not be evident on the total field data

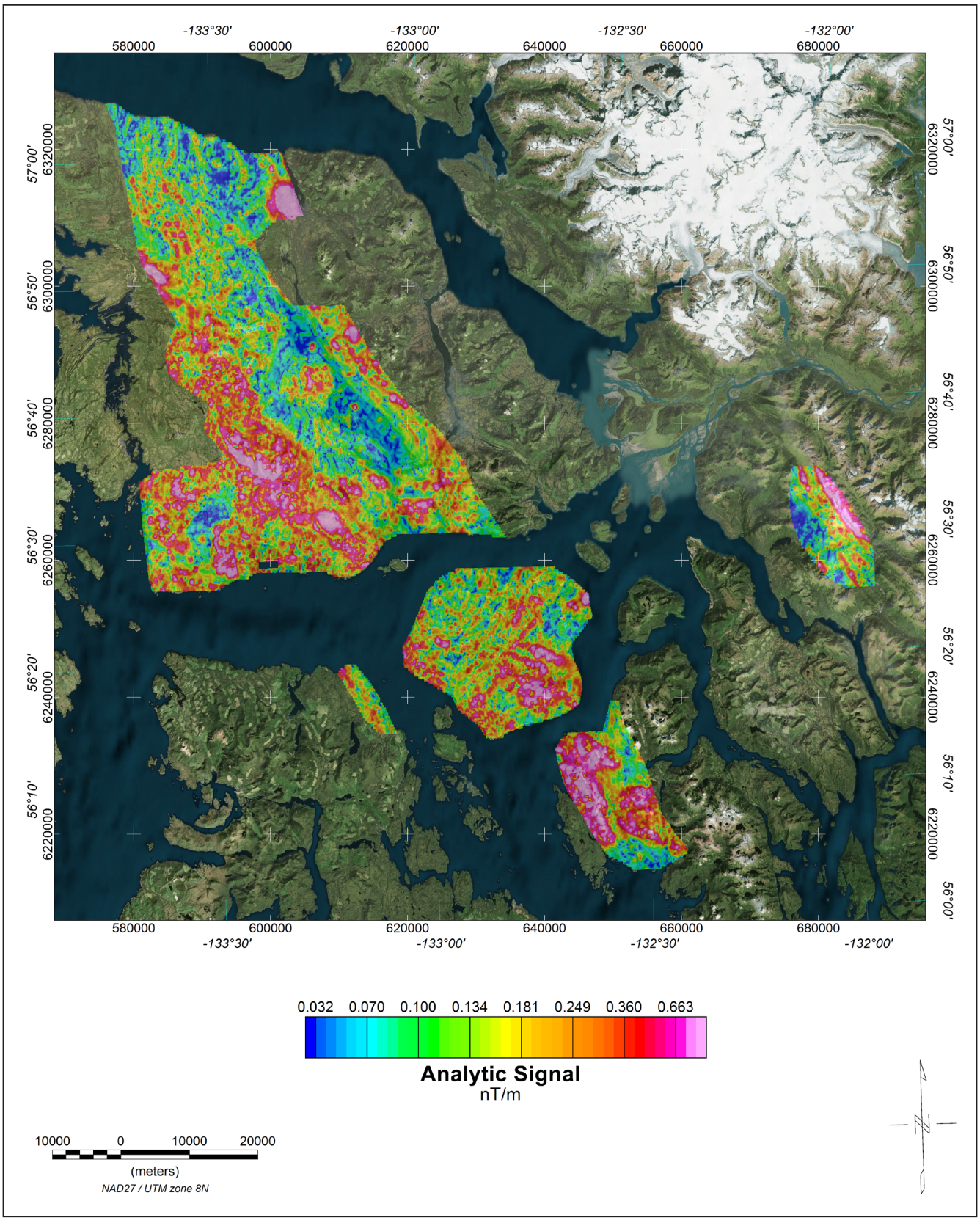


Figure 5. Analytic signal grid with orthometric image. Analytic signal is the total amplitude of all directions of magnetic gradient calculated from the sum of the squares of the three orthogonal gradients. Mapped highs in the calculated analytic signal of magnetic parameter locate the anomalous source body edges and corners (such as contacts, fault/shear zones, etc.). Analytic signal maxima are located directly over faults and contacts, regardless of structural dip, and independent of the direction of the induced and/or remanent magnetizations

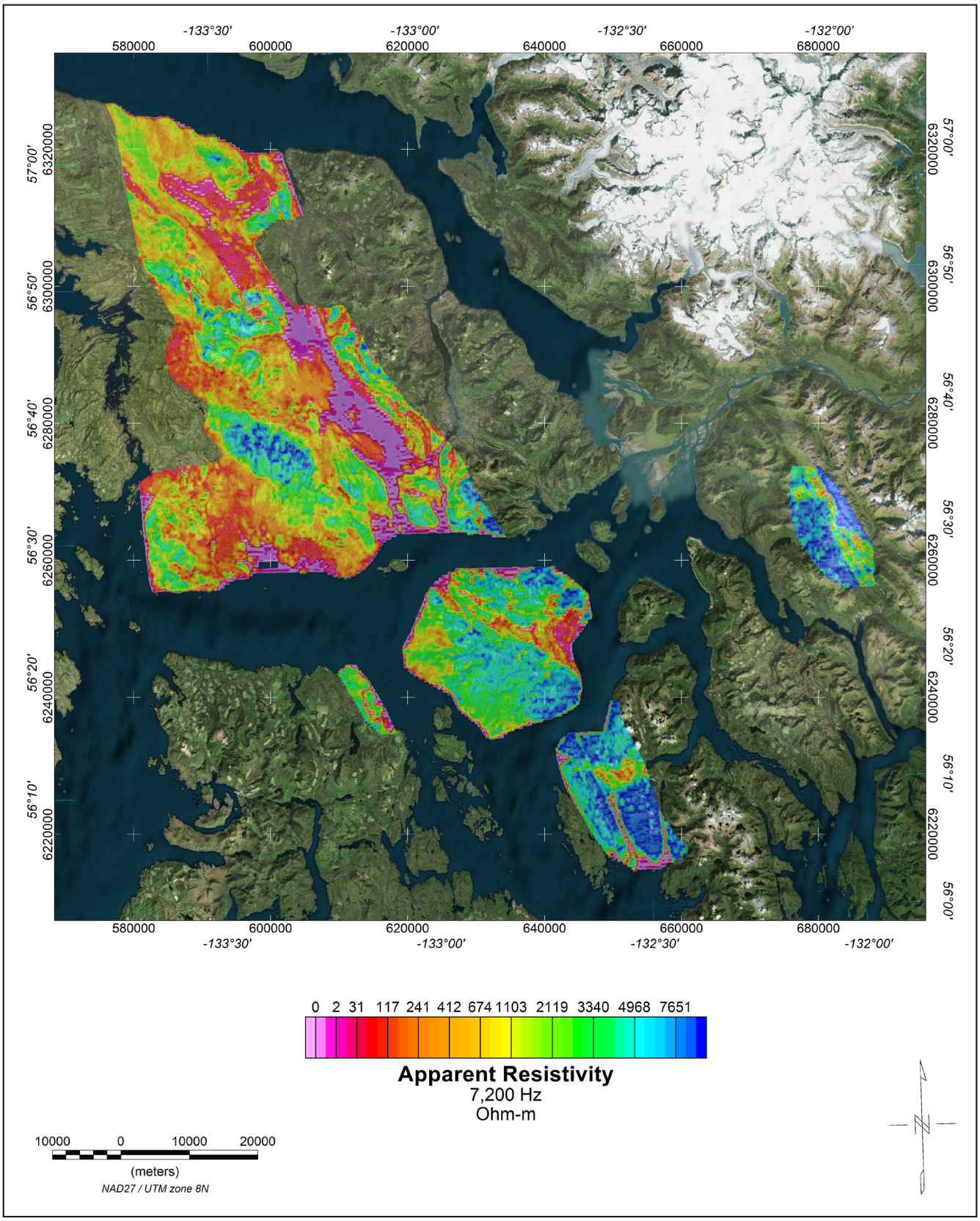


Figure 6. 7,200 Hz coplanar apparent resistivity grid with orthometric image. The DIGHEM^{V} EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial coil-pairs operated at 900 and 5000 Hz while three horizontal coplanar coil-pairs operated at 900, 7,200 and 56,000 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 7,200 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 100 m grid using a modified Akima (1970) technique

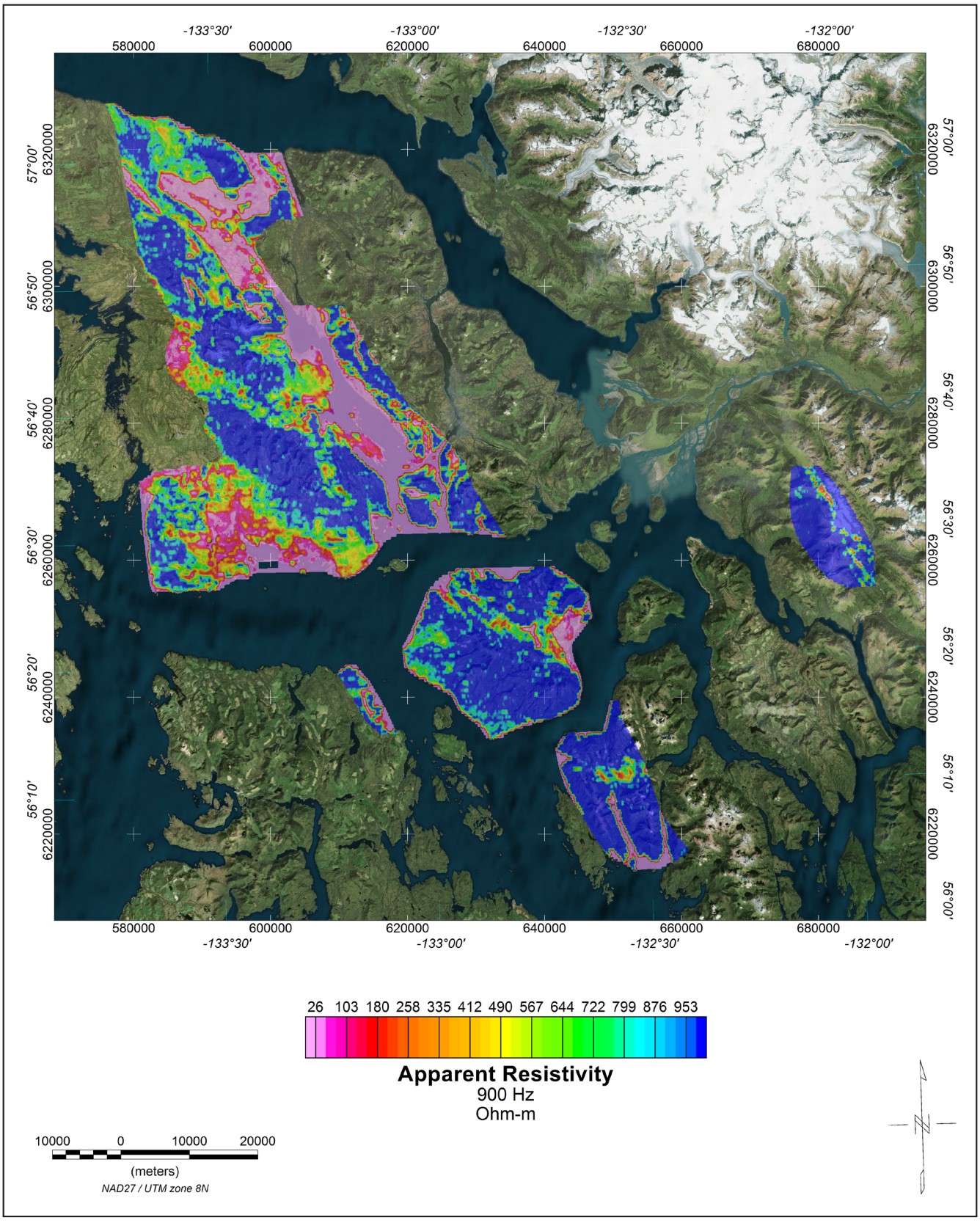


Figure 7. 900 Hz coplanar apparent resistivity grid with orthometric image. The DIGHEM^{V} EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial coil-pairs operated at 900 and 5000 Hz while three horizontal coplanar coil-pairs operated at 900, 7,200 and 56,000 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 900 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 100 m grid using a modified Akima (1970) technique

Table 1. Copies of the following maps are included at the end of this booklet. The low-resolution, page-size maps included in this booklet are intended to be used as a search tool and are not the final product. Large-scale, full-resolution versions of each map are available to download on this publication's citation page: http://doi.org/10.14509/30457

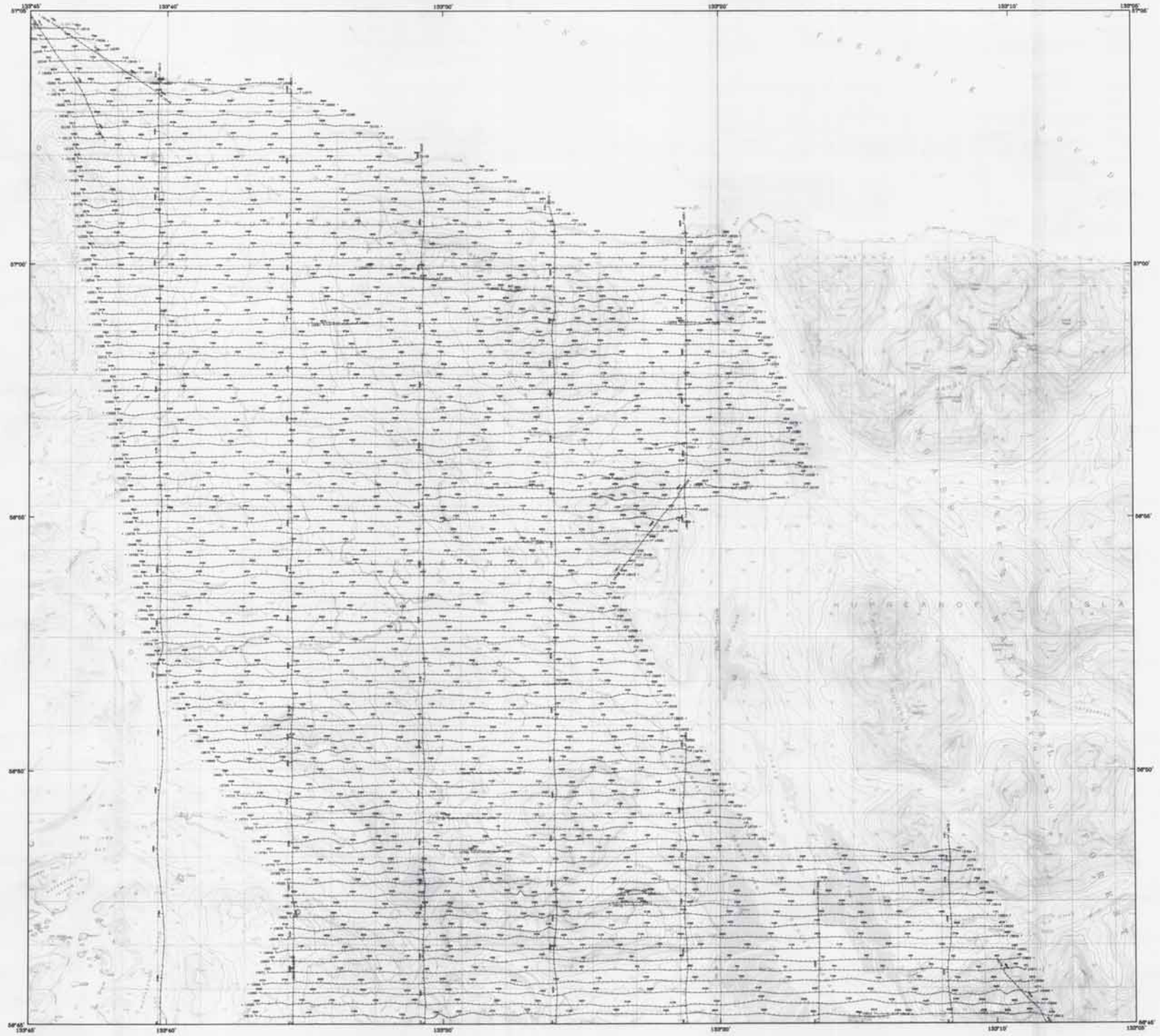
Map Title	Description
stikine_flightpath_topo_map_1of5.pdf	flightpath with topographic base map
stikine_flightpath_topo_map_2of5.pdf	flightpath with topographic base map
stikine_flightpath_topo_map_3of5.pdf	flightpath with topographic base map
stikine_flightpath_topo_map_4of5.pdf	flightpath with topographic base map
stikine_flightpath_topo_map_5of5.pdf	flightpath with topographic base map
stikine_emanomalies_sim_magtf_bw_contours_topo_map_1of5.pdf	black and white electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_bw_contours_topo_map_2of5.pdf	black and white electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_bw_contours_topo_map_3of5.pdf	black and white electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_bw_contours_topo_map_4of5.pdf	black and white electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_bw_contours_topo_map_5of5.pdf	black and white electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_res900hz_contours_plss_map_1of5.pdf	900 Hz apparent resistivity data contours with public land survey system base layer
stikine_res900hz_contours_plss_map_2of5.pdf	900 Hz apparent resistivity data contours with public land survey system base layer
stikine_res900hz_contours_plss_map_3of5.pdf	900 Hz apparent resistivity data contours with public land survey system base layer
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stikine_res7200hz_contours_plss_map_1of5.pdf	7,200 Hz apparent resistivity data contours with public land survey system base layer
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stikine_res7200hz_contours_plss_map_4of5.pdf	7,200 Hz apparent resistivity data contours with public land survey system base layer
stikine_res7200hz_contours_plss_map_5of5.pdf	7,200 Hz apparent resistivity data contours with public land survey system base layer
stikine_interpretation_plss_map_1of5.pdf	interpretation based on the geophysical data with public land survey system base layer
stikine_interpretation_plss_map_2of5.pdf	interpretation based on the geophysical data with public land survey system base layer
stikine_interpretation_plss_map_3of5.pdf	interpretation based on the geophysical data with public land survey system base layer
stikine_interpretation_plss_map_4of5.pdf	interpretation based on the geophysical data with public land survey system base layer
stikine_interpretation_plss_map_5of5.pdf	interpretation based on the geophysical data with public land survey system base layer
stikine_emanomalies_sim_magtf_contours_detailed_topo_map_01of11.pdf	detailed electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_contours_detailed_topo_map_02of11.pdf	detailed electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_contours_detailed_topo_map_03of11.pdf	detailed electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_contours_detailed_topo_map_04of11.pdf	detailed electromagnetic anomaly map with simulated magnetic total field contours and topographic base map

Table 1, continued. Copies of the following maps are included at the end of this booklet. The low-resolution, page-size maps included in this booklet are intended to be used as a search tool and are not the final product. Large-scale, full-resolution versions of each map are available to download on this publication's citation page: http://doi.org/10.14509/30457

Map Title	Description
stikine_emanomalies_sim_magtf_contours_detailed_topo_map_05of11.pdf	detailed electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_contours_detailed_topo_map_06of11.pdf	detailed electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_contours_detailed_topo_map_07of11.pdf	detailed electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_contours_detailed_topo_map_08of11.pdf	detailed electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_contours_detailed_topo_map_09of11.pdf	detailed electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_contours_detailed_topo_map_10of11.pdf	detailed electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_contours_detailed_topo_map_11of11.pdf	detailed electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_contours_topo_map_1of5.pdf	electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_contours_topo_map_2of5.pdf	electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_contours_topo_map_3of5.pdf	electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_contours_topo_map_4of5.pdf	electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_emanomalies_sim_magtf_contours_topo_map_5of5.pdf	electromagnetic anomaly map with simulated magnetic total field contours and topographic base map
stikine_sim_magtf_plss_map_1of5.pdf	simulated magnetic total field grid with public land survey system base layer
stikine_sim_magtf_plss_map_2of5.pdf	simulated magnetic total field grid with public land survey system base layer
stikine_sim_magtf_plss_map_3of5.pdf	simulated magnetic total field grid with public land survey system base layer
stikine_sim_magtf_plss_map_4of5.pdf	simulated magnetic total field grid with public land survey system base layer
stikine_sim_magtf_plss_map_5of5.pdf	simulated magnetic total field grid with public land survey system base layer
stikine_res900hz_plss_map_1of5.pdf	900 Hz apparent resistivity grid with public land survey system base layer
stikine_res900hz_plss_map_2of5.pdf	900 Hz apparent resistivity grid with public land survey system base layer
stikine_res900hz_plss_map_3of5.pdf	900 Hz apparent resistivity grid with public land survey system base layer
stikine_res900hz_plss_map_4of5.pdf	900 Hz apparent resistivity grid with public land survey system base layer
stikine_res900hz_plss_map_5of5.pdf	900 Hz apparent resistivity grid with public land survey system base layer
stikine_res7200hz_plss_map_1of5.pdf	7,200 Hz apparent resistivity grid with public land survey system base layer
stikine_res7200hz_plss_map_2of5.pdf	7,200 Hz apparent resistivity grid with public land survey system base layer
stikine_res7200hz_plss_map_3of5.pdf	7,200 Hz apparent resistivity grid with public land survey system base layer
stikine_res7200hz_plss_map_4of5.pdf	7,200 Hz apparent resistivity grid with public land survey system base layer
stikine_res7200hz_plss_map_5of5.pdf	7,200 Hz apparent resistivity grid with public land survey system base layer

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-37A
Map A - North Duncan Canal





SCALE 1:63,300

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS

FLIGHT LINES
OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP A - NORTH DUNCAN CANAL

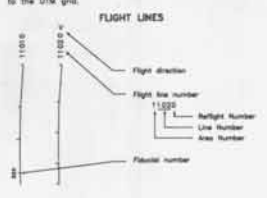
1997

DESCRIPTIVE NOTES

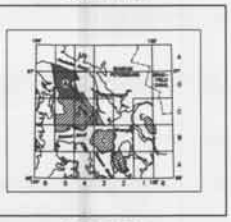
The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

FLIGHT LINES



LOCATION INDEX



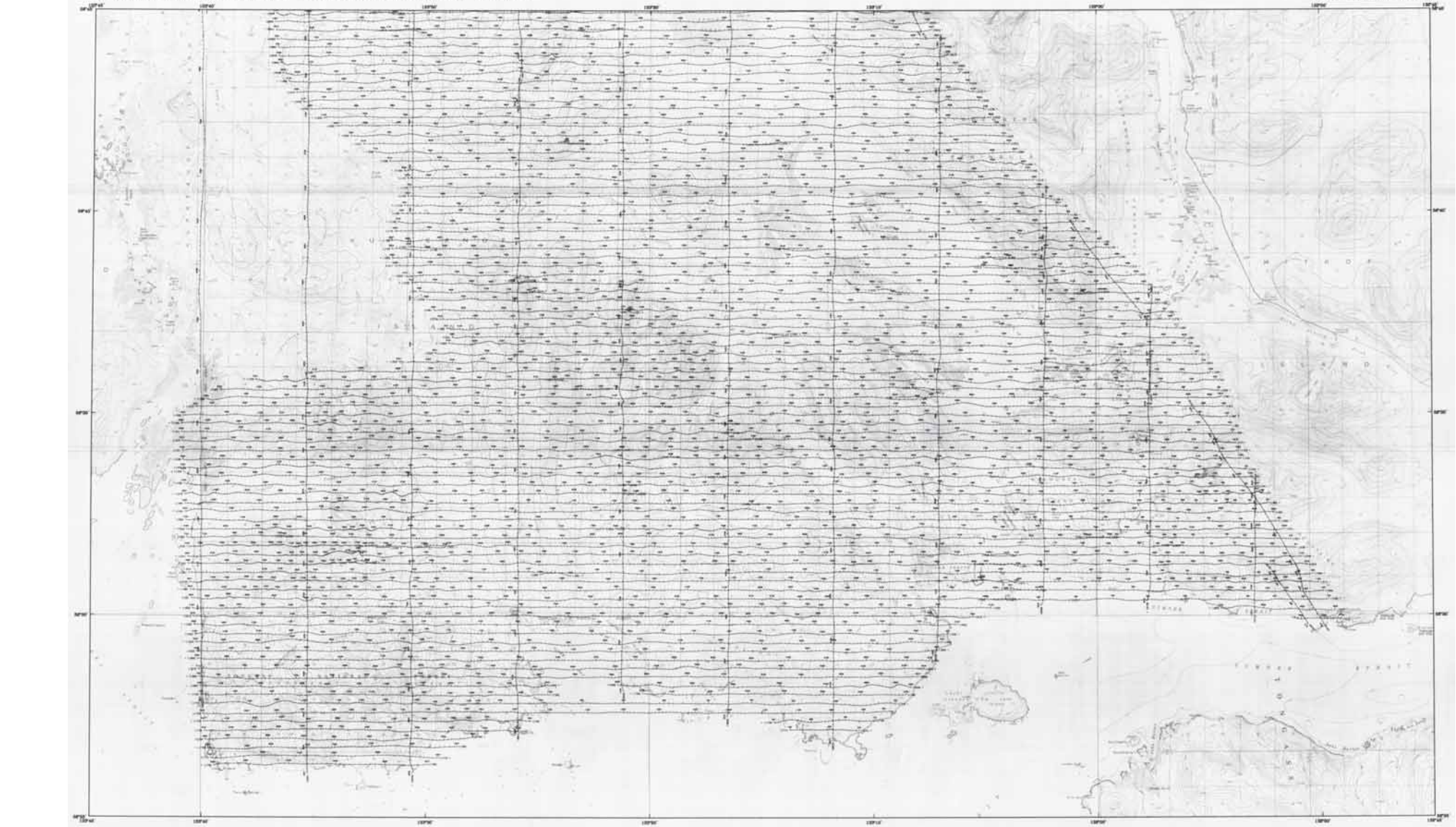
SURVEY HISTORY

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 WGM, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.
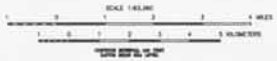
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ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-37B
Map B - South Duncan Canal









FLIGHT LINES
OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP B - SOUTH DUNCAN CANAL

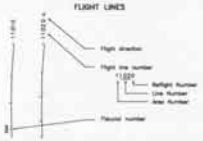
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DESCRIPTIVE NOTES

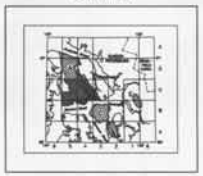
The geophysical data were acquired with a DIGHEM^{V} Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Honi VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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 2 miles.

A Satnav Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (CPM) spheroid, 1927 North American datum using a central meridian (CM) of 132°, 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.

FLIGHT LINES



LOCATION INDEX



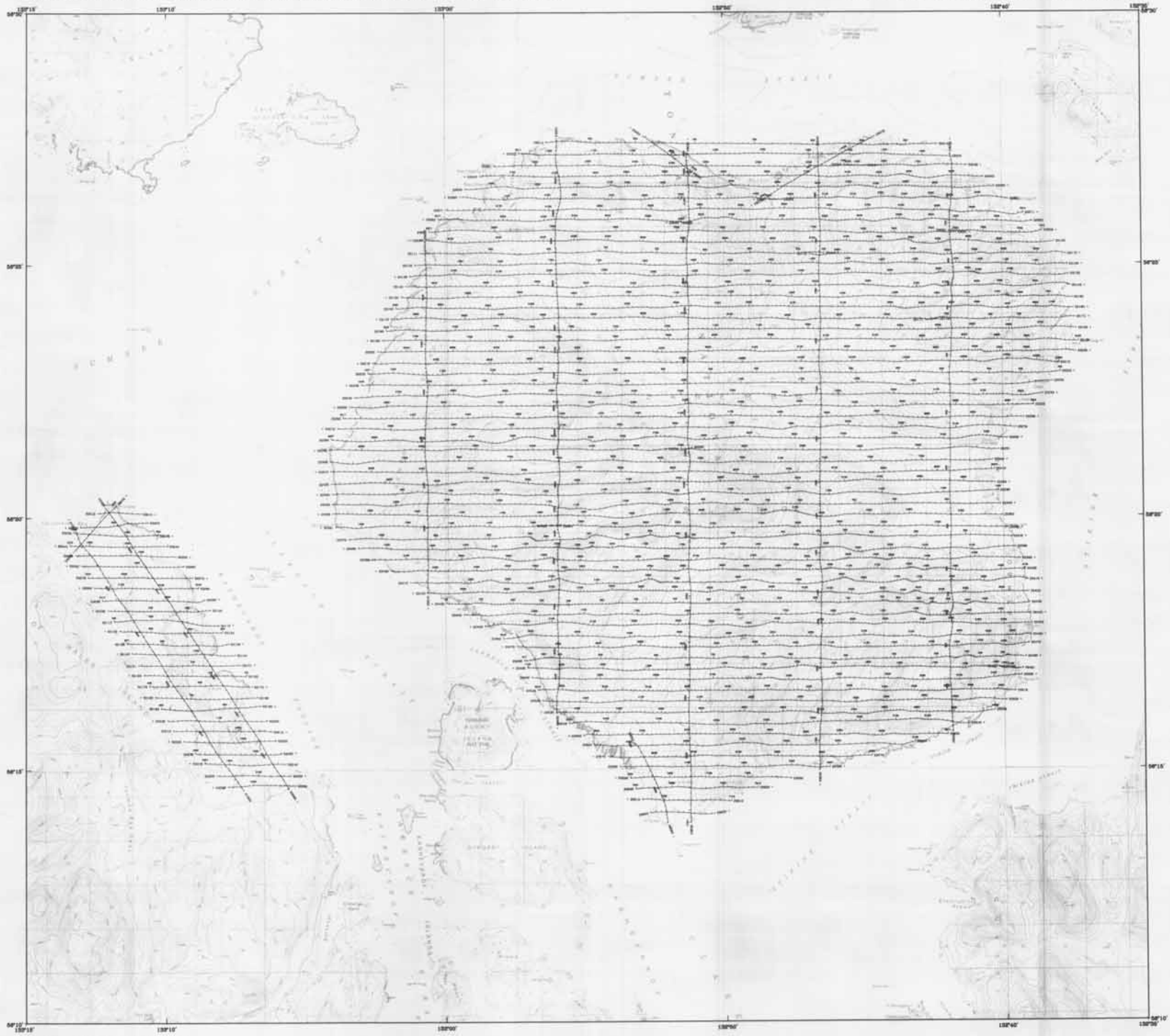
SURVEY HISTORY

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ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-37C
Map C - Zarembo Island & Eastern Prince of Wales Island





SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS

FLIGHT LINES
OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP C - ZAREMBO ISLAND & EASTERN PRINCE OF WALES ISLAND

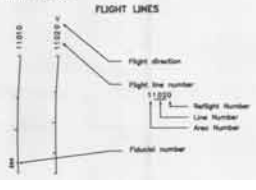
1997

DESCRIPTIVE NOTES

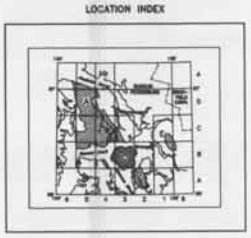
The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

FLIGHT LINES



LOCATION INDEX



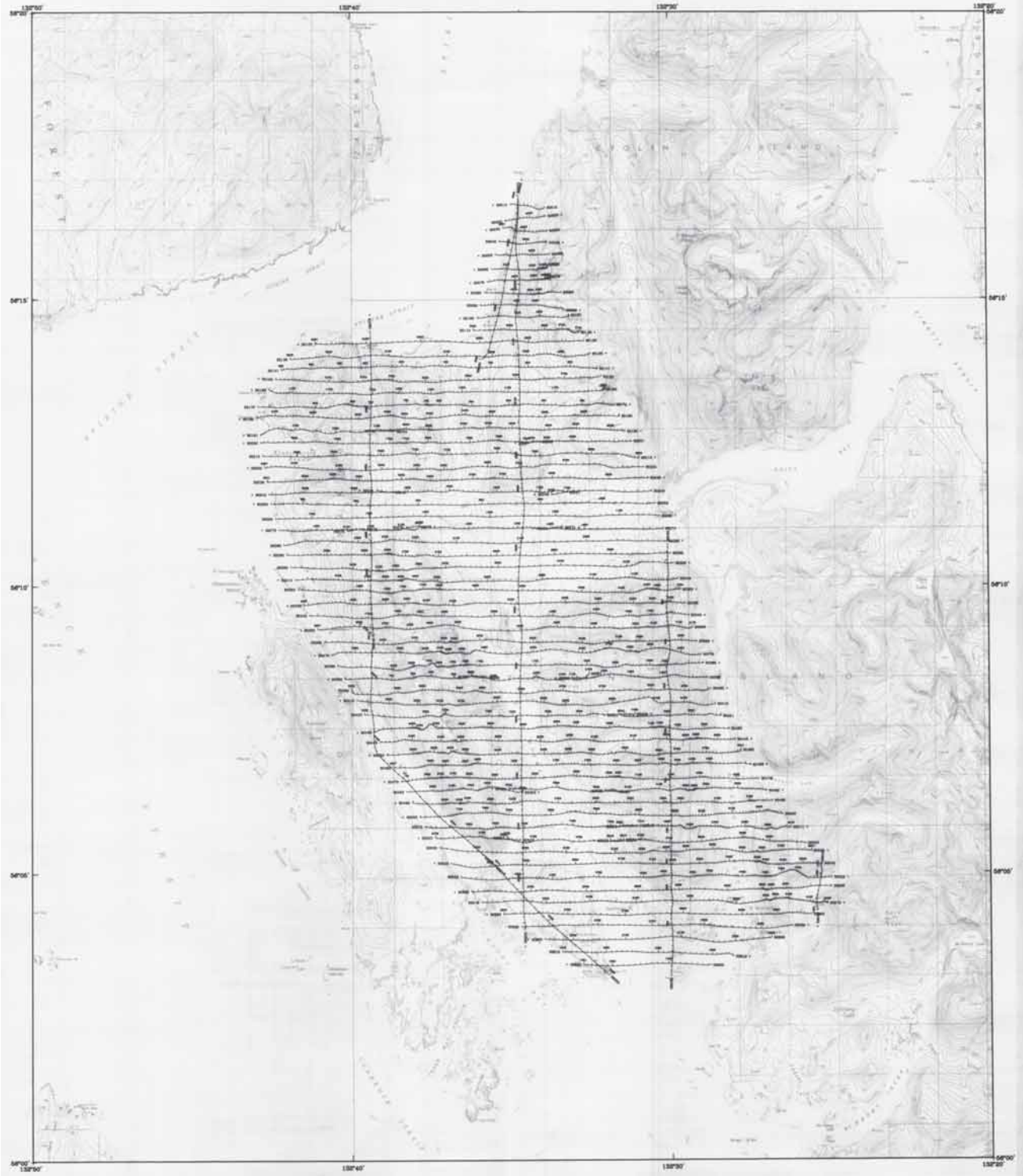
SURVEY HISTORY

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 WDM, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geotarrya-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

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ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-37D
Map D - Western Etolin Island



SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS

FLIGHT LINES OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP D - WESTERN ETOLIN ISLAND

1997

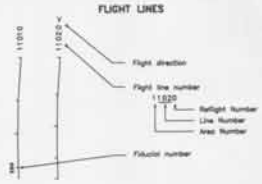


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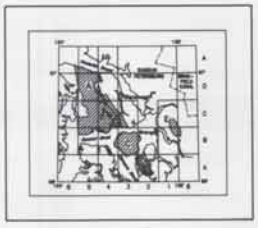
The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

FLIGHT LINES



LOCATION INDEX



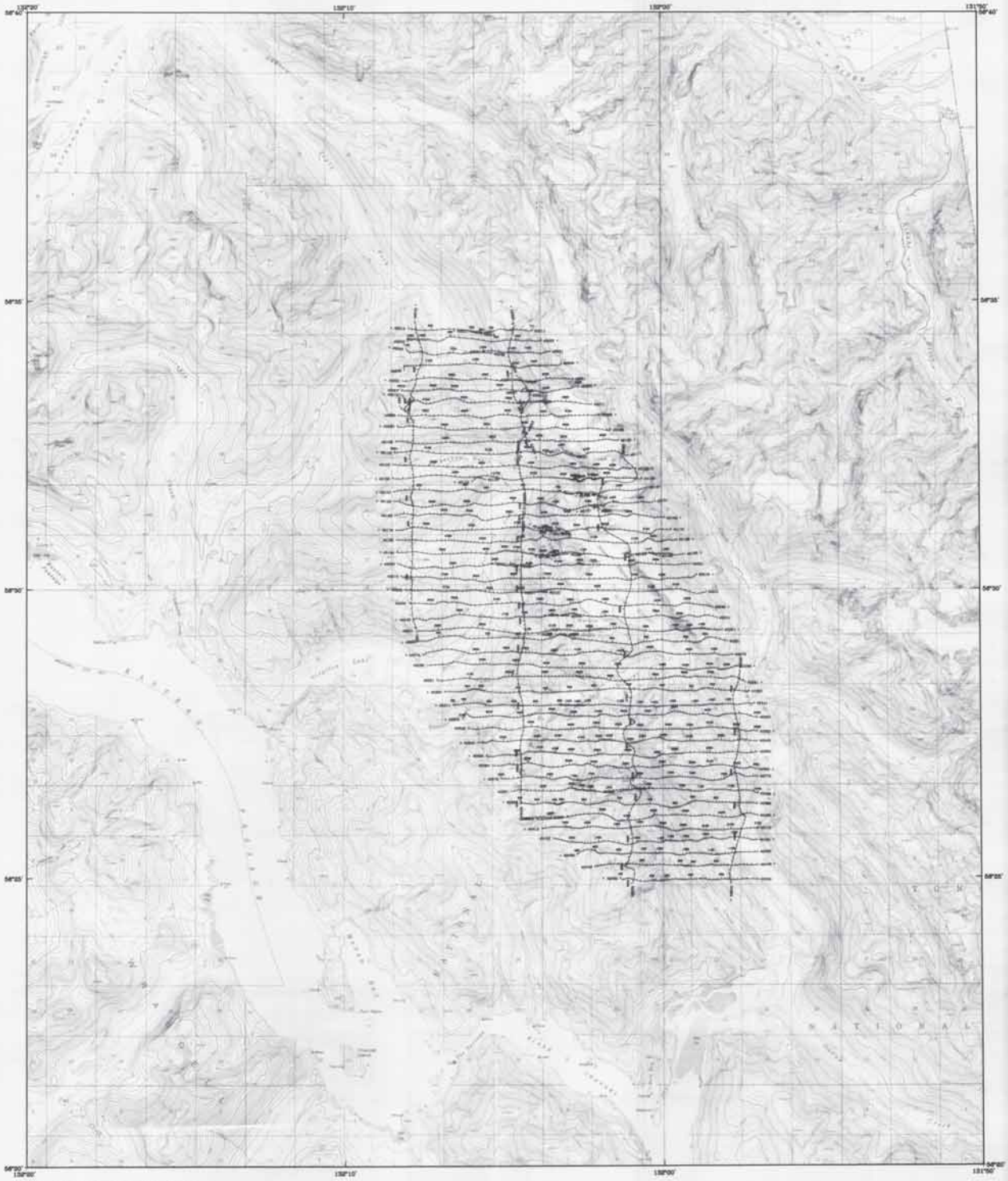
SURVEY HISTORY

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 WGM, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CDG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

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ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
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PUBLIC-DATA FILE 97-37E
Map E - Groundhog Basin



SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS

FLIGHT LINES OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP E - GROUNDHOG BASIN

1997

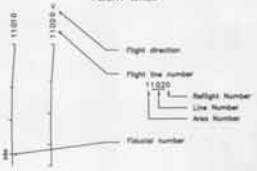


DESCRIPTIVE NOTES

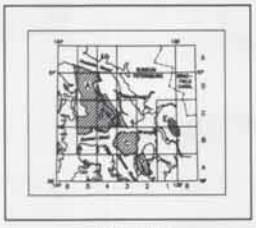
The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

FLIGHT LINES



LOCATION INDEX



SURVEY HISTORY

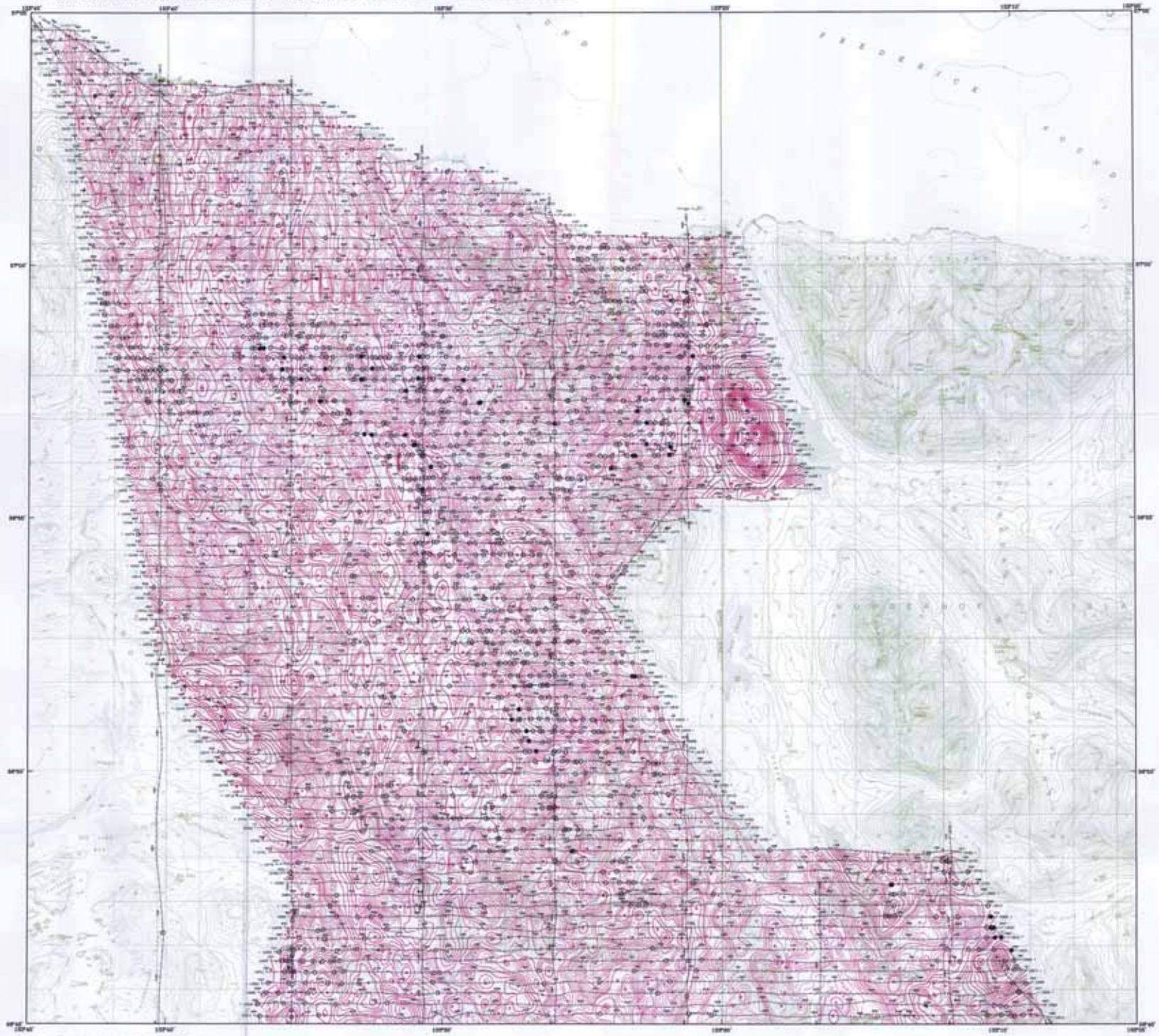
This map has been compiled and drawn under contract between the State of Alaska, Department of Natural Resources, Division of Geological & Geophysical Surveys (DGGS), and MDA, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

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RI97-16A-SH1

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-16A
Map A - North Duncan Canal





TOTAL FIELD MAGNETICS AND ELECTROMAGNETIC ANOMALIES, OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP A - NORTH DUNCAN CANAL

1997

DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Trent VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 35/70 hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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 2 miles.

A Garrod Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a resolve accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (CONUS) spheroid, 1927 North American datum using a central meridian (CM) of 133°, 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.

ELECTROMAGNETICS

To determine the location of EM anomalies or their boundaries, the DIGHEM^V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial–coil pairs operated at 900 and 5000 Hz while three horizontal coplanar–coil pairs operated at 856, 7200, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to bedrock conductors, conductive overburden, and cultural sources. The power line monitor and the flight track video were examined to locate cultural sources. The EM anomalies that are indicated are classified by conductance.

ELECTROMAGNETIC ANOMALIES

Anomaly — Conductance
- >30 siemens
- <30 siemens
- Questionable anomaly
- Weak conductivity associated with an EM magnetite response

MAGNETIC CONTOUR INTERVAL

- 250 nT
- 50 nT
- 10 nT
- 2 nT
- magnetic low
- magnetic high

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 MAX Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex–Dighem, a division of Core Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

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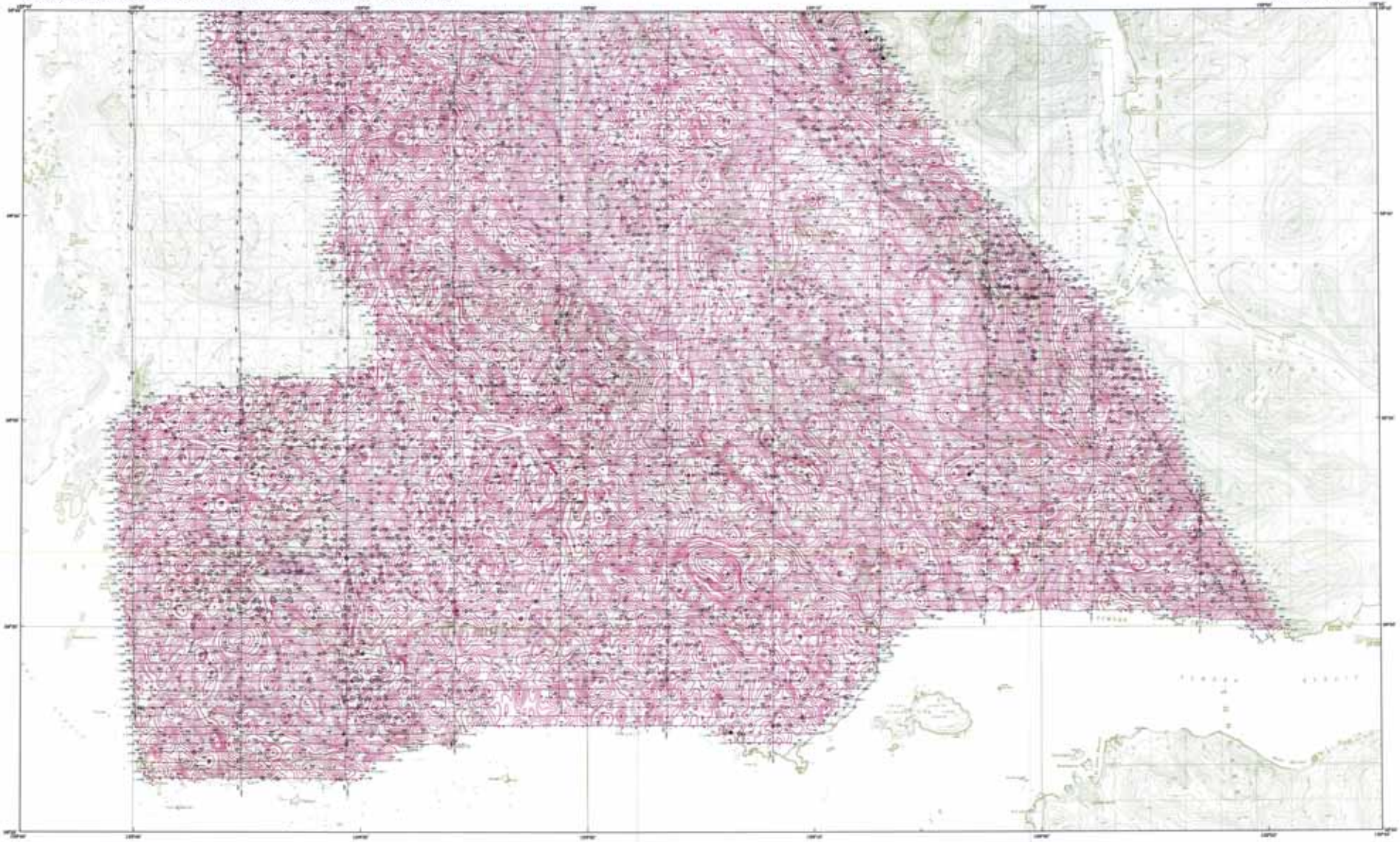
TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a sampling interval of 0.1 seconds, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional variation (or IGRF gradient, 1985, updated to October 1996) was removed from the levered magnetic data.

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.

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-16B
Map B - South Duncan Canal





TOTAL FIELD MAGNETICS AND ELECTROMAGNETIC ANOMALIES, OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP B - SOUTH DUNCAN CANAL

1997

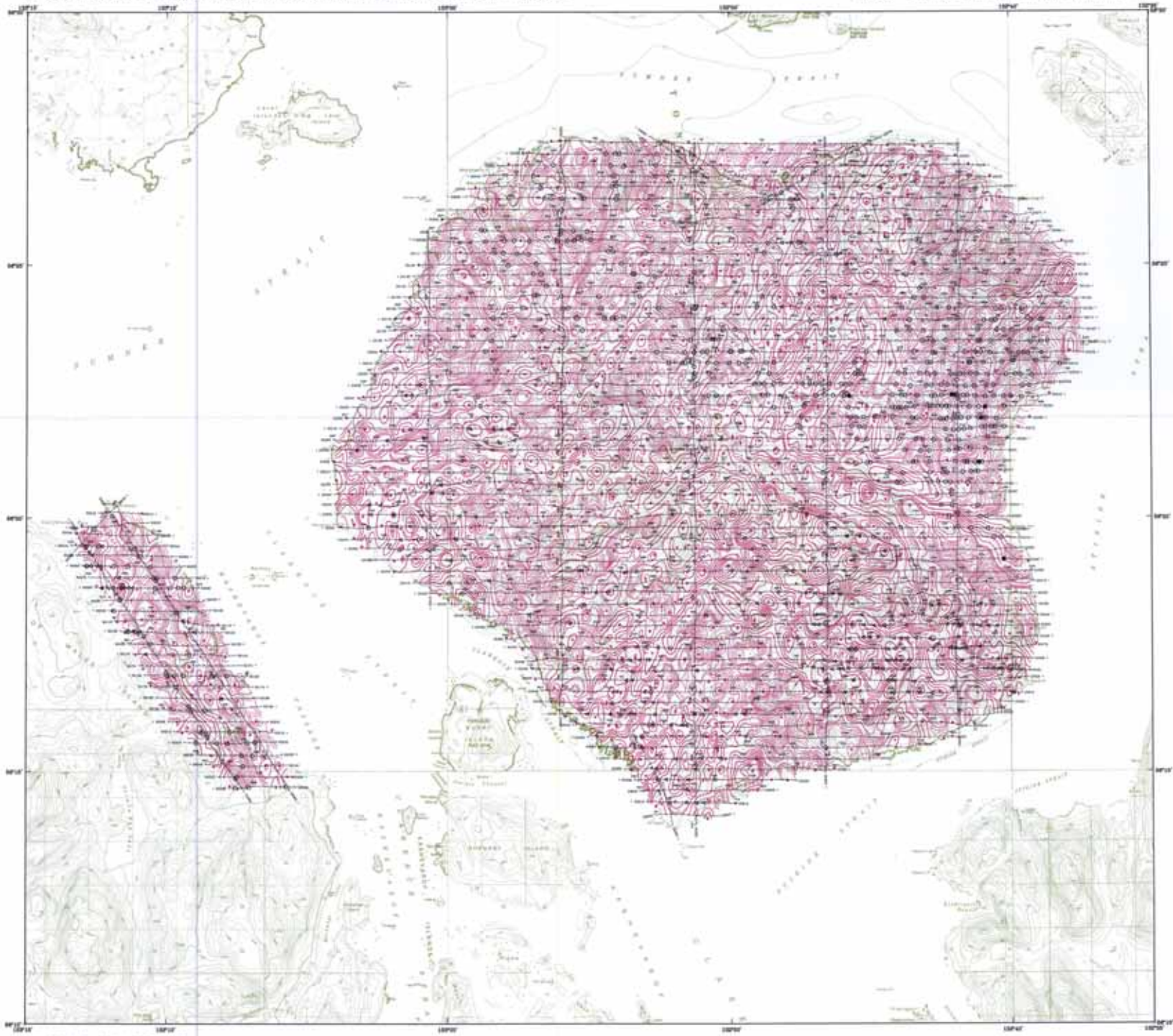




RI97-16C-SH1

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-16C
Map C - Zarembo Island & Eastern Prince of Wales Island





SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS

TOTAL FIELD MAGNETICS AND ELECTROMAGNETIC ANOMALIES, OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP C - ZAREMBO ISLAND & EASTERN PRINCE OF WALES ISLAND

1997

LOCATION INDEX



Publication of this report by the Alaska Division of Geological & Geophysical Surveys is sponsored by Alaska Mining Inc. To determine the potential of mineral and oil production of cobalt, minerals, rare and geothermal resources, the location and quantity of ground water and construction materials for potential geologic hazards to buildings, roads, bridges and other man-made structures and also compiled basic data on geology and investigations in an economic inventory of the geology of Alaska.

Suggested citation:
Alaska Geological & Geophysical Surveys, 1997, Total field magnetics and electromagnetic anomalies of the Stikine area, Southeast Alaska: Alaska Division of Geological & Geophysical Surveys Report of Investigations 97-16C, scale 1:63,360.

DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 300 feet along survey flight lines with a spacing of a quarter of a mile. The lines were flown perpendicular to the flight lines at intervals of approximately 2 miles.

A Garcel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position were derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

ELECTROMAGNETICS

To determine the location of EM anomalies on their boundaries, the DIGHEM^V EM system measured in-phase and quadrature components of five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5000 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to bedrock conductors, conductive overburden, and cultural sources. The power line monitor and the flight track video were examined to locate cultural sources. The EM anomalies that are indicated are classified by conductance.

ELECTROMAGNETIC ANOMALIES

Anomaly	Conductance
●	>30 siemens
○	<30 siemens
★	Questionable anomaly
△	Weak conductivity associated with an EM magnetic response

MAGNETIC CONTOUR INTERVAL

- 250 nT
- 50 nT
- 10 nT
- 2 nT
- magnetic low
- magnetic high

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 MDM Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

This map and other products from this survey are available by mail, order or in person from DGGS, 794 University Ave., Suite 200, Fairbanks, Alaska, 99709. Some products are also available in person only at the BLM's Juneau Mineral Information Center, Mayflower Island, Juneau, Ak.

TOTAL FIELD MAGNETICS

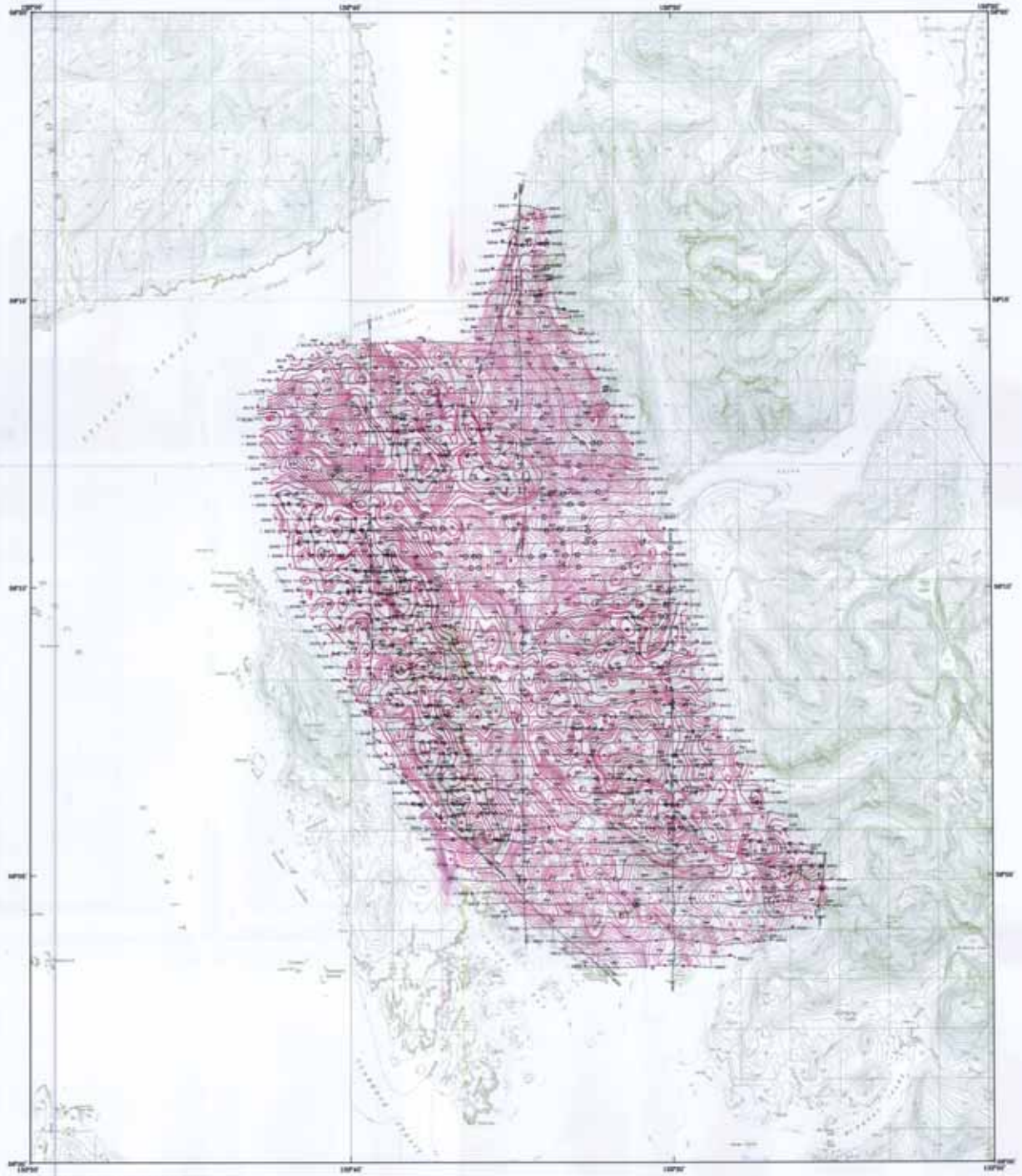
The total field magnetic data were acquired with a sampling interval of 0.1 seconds, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional correction (or IGRF gradient, 1985, updated to October 1996) was removed from the leveled magnetic data.

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.

RI97-16D-SH1

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-16D
Map D - Western Etolin Island

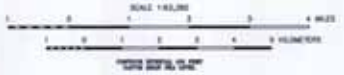


TOTAL FIELD MAGNETICS AND ELECTROMAGNETIC ANOMALIES, OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP D - WESTERN ETOLIN ISLAND

1997





LOCATION INDEX



DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM[V] Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 35/35 mi monitors and video camera. Flights were performed at a mean terrain clearance of 300 feet along 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 2 miles.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter positions were derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clarke 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

ELECTROMAGNETICS

To determine the location of EM anomalies or their boundaries, the DIGHEM[V] EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5000 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to bedrock conductors, conductive overburden, and cultural sources. The power line monitor and the flight track video were examined to locate cultural sources. The EM anomalies that are indicated are classified by conductance.

ELECTROMAGNETIC ANOMALIES

Anomaly	Conductance
●	>30 siemens
○	<30 siemens
★	Questionable anomaly
A	Weak conductivity associated with an EM magnetite response

MAGNETIC CONTOUR INTERVAL

- 200 nT
- 50 nT
- 10 nT
- 5 nT
- magnetic low
- magnetic high

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 Wiltz Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

The map and other products from the survey are available by mail order or in person from DGGS, 794 University Ave., Suite 200, Fairbanks, Alaska, 99709. Some products are also available in person only at the BLM's Alaska Mineral Information Center, Mayflower Island, Juneau, Ak.

TOTAL FIELD MAGNETICS

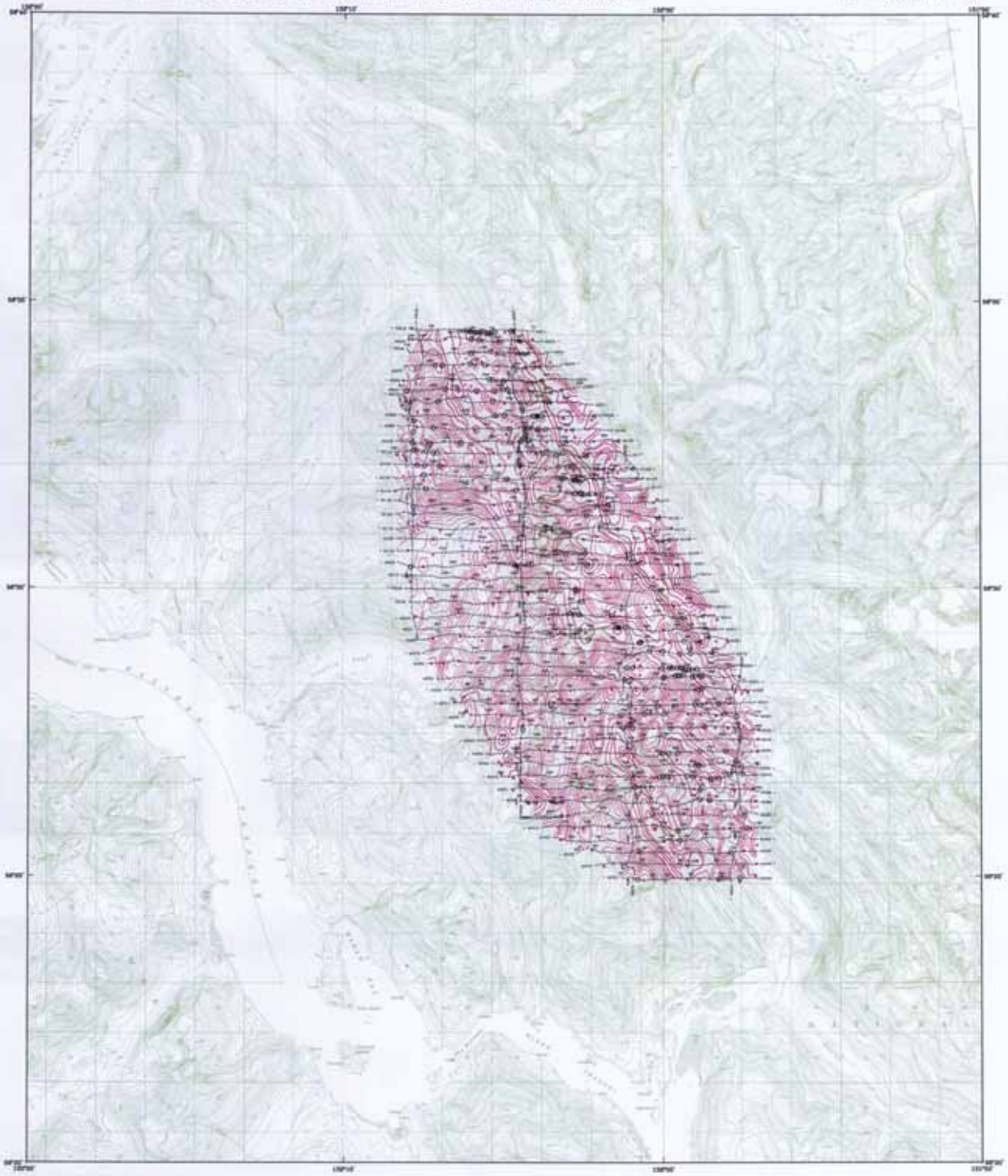
The total field magnetic data were acquired with a sampling interval of 0.1 seconds, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified akima (1978) technique. The regional correction (or IGRF gradient), 1980, updated to October 1995, was removed from the leveled magnetic data.

Akima, H.,1978, 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.

RI 97-16E-SH1

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-16E
Map E - Groundhog Basin



Base from U.S. Geological Survey digital data at 1:63,360
Projection is UTM, NAD 27, Zone 8, Central Meridian 135°W

Publication of this report by the Alaska Division of Geological & Geophysical Surveys is authorized by AS 41.08.021. No determination has been made by the publication of natural resources, fuels, and geothermal resources. The location and identities of private water and construction hazards, as obtained geologic records by buildings, roads, bridges, and other subdivisions are approximate and should contain such other surveys and investigations as an advance knowledge of the geology of Alaska.

Suggested citation:
Fugro Airborne Surveys & Geophysical Survey, 1997, Total field magnetics and electromagnetic anomalies of the Stikine area, Southeast Alaska: Alaska Division of Geological and Geophysical Surveys Report of Investigations 97-16E, scale 1:63,360.

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

TOTAL FIELD MAGNETICS AND ELECTROMAGNETIC ANOMALIES, OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP E - GROUNDHOG BASIN

1997



LOCATION INDEX



DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 35MM flic monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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 2 miles.

A Garcel Real-Time Differential Global Positioning System (WF-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (CN) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

ELECTROMAGNETICS

To determine the location of EM anomalies or their boundaries, the DIGHEM^V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 7200 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to tectonic conductors, conductive overburden, and cultural sources. The power line monitor and the flight track video were examined to locate cultural sources. The EM anomalies that are indicated are classified by conductance.

ELECTROMAGNETIC ANOMALIES

Anomaly	Conductance
●	>30 siemens
○	<30 siemens
✱	Questionable anomaly
△	Weak conductivity associated with an EM magnetic response

MAGNETIC CONTOUR INTERVAL

- 250 nT
- 50 nT
- 10 nT
- 5 nT
- magnetic low
- magnetic high

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 MDM, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

This map and other products from this survey are available by mail order or in person from DGGS, 794 University Ave., Suite 200, Fairbanks, Alaska, 99709. Some products are also available in person only at the BLM's Juneau Mineral Information Center, Mayflower Island, Juneau, Ak.

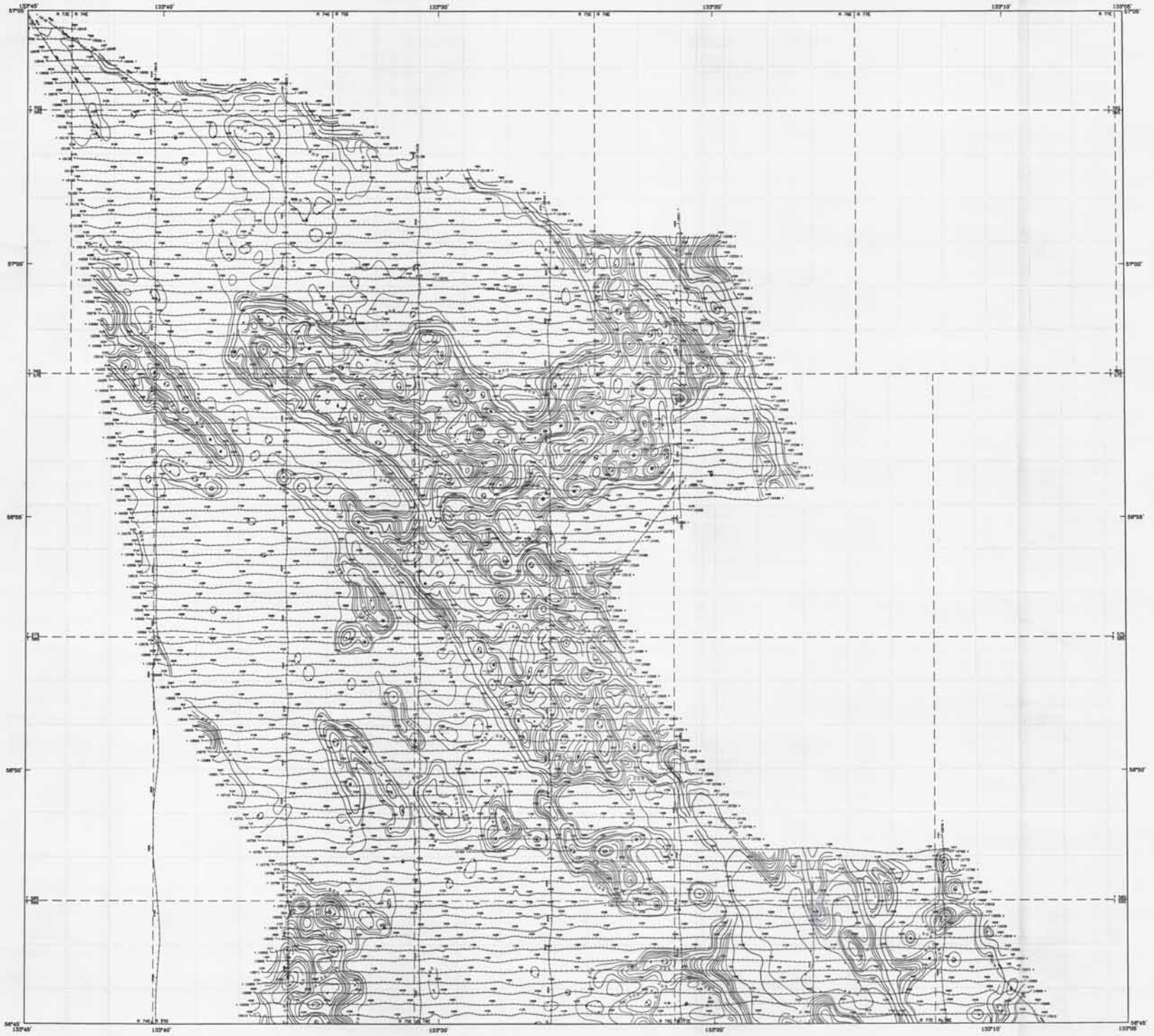
TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a sampling interval of 0.1 seconds, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional correction (or IGRF gradient, 1985, updated to October 1996) was removed from the leveled magnetic data.

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

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
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PUBLIC-DATA FILE 97-39A
Map A - North Duncan Canal



Revised residuals from U.S. Geological Survey Petersburg D-4, 1951; D-5, 1948; D-6, 1951; Ketchikan A-4, 1951; A-5, A-6, 1948; Quadrangles, Alaska



SCALE 1:63,360
1 0 1 2 3 4 MILES
1 0 1 2 3 4 5 KILOMETERS



900 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP A - NORTH DUNCAN CANAL

1997

DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 133°, 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.

RESISTIVITY

The DIGHEM^V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5000 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 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 900 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 100 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.

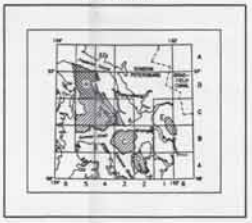
RESISTIVITY CONTOURS

1000
800
600
500
400
300
250
200
150
125
100

Contours in ohm-m at 10 intervals per decade

resistivity low

LOCATION INDEX



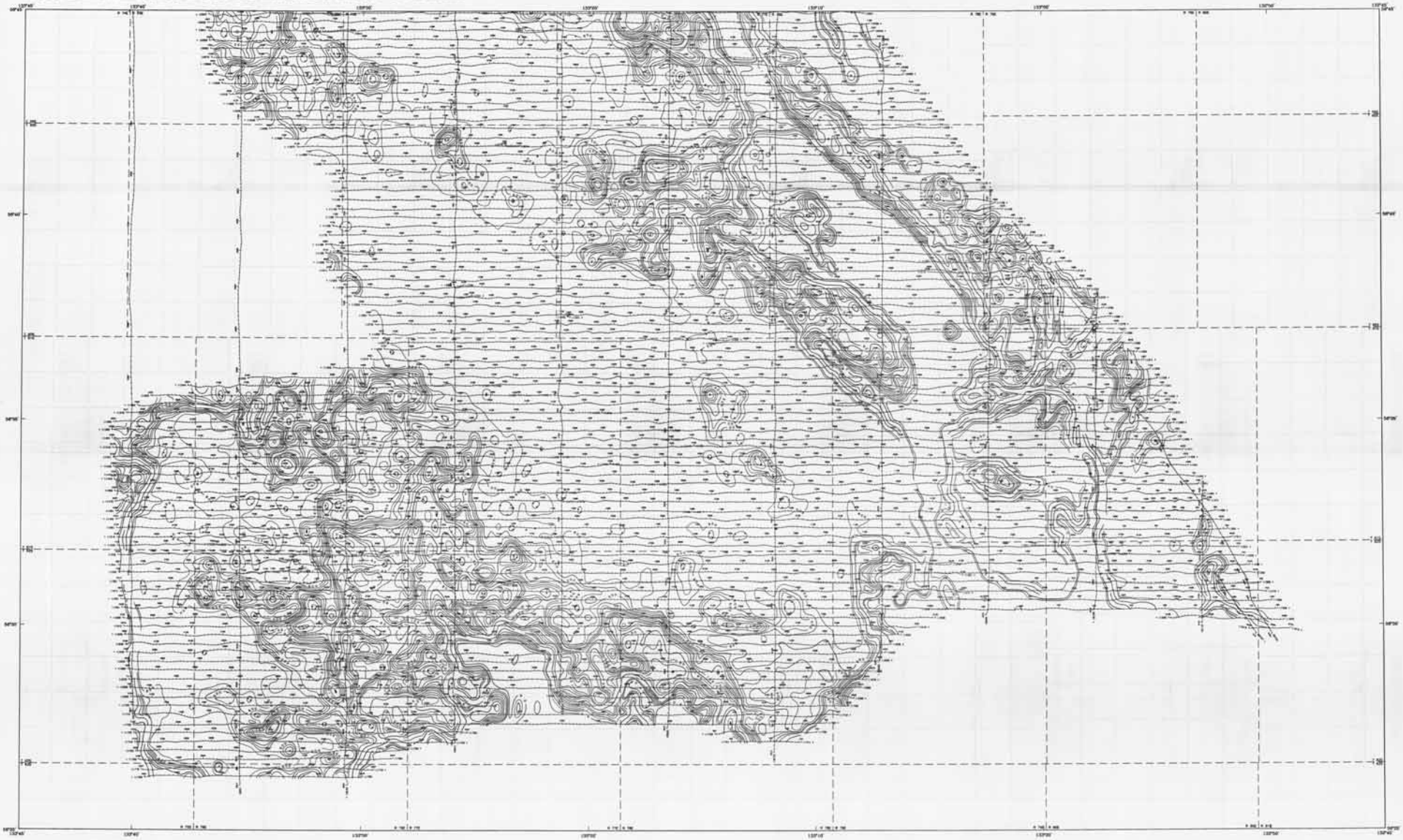
SURVEY HISTORY

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ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
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PUBLIC-DATA FILE 97-39B
Map B - South Duncan Canal





SCALE 1:63,360

1 0 1 2 3 4 MILES
1 0 1 2 3 4 5 KILOMETERS

900 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP B - SOUTH DUNCAN CANAL

1997

DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^{V} Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Honeywell laser inertial navigation system (INS) installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 35/50 mm monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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 2 miles.

A Special Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 133°, 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.

RESISTIVITY

The DIGHEM^{V} EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5000 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 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 components of the coplanar 900 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 100 m grid using a modified Akima (1970) technique.

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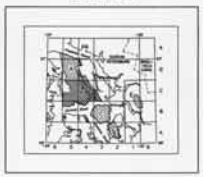
RESISTIVITY CONTOURS

1000
800
600
500
400
300
250
200
150
125
100

Contours in ohm-m at 10 intervals per decade

resistivity low

LOCATION INDEX



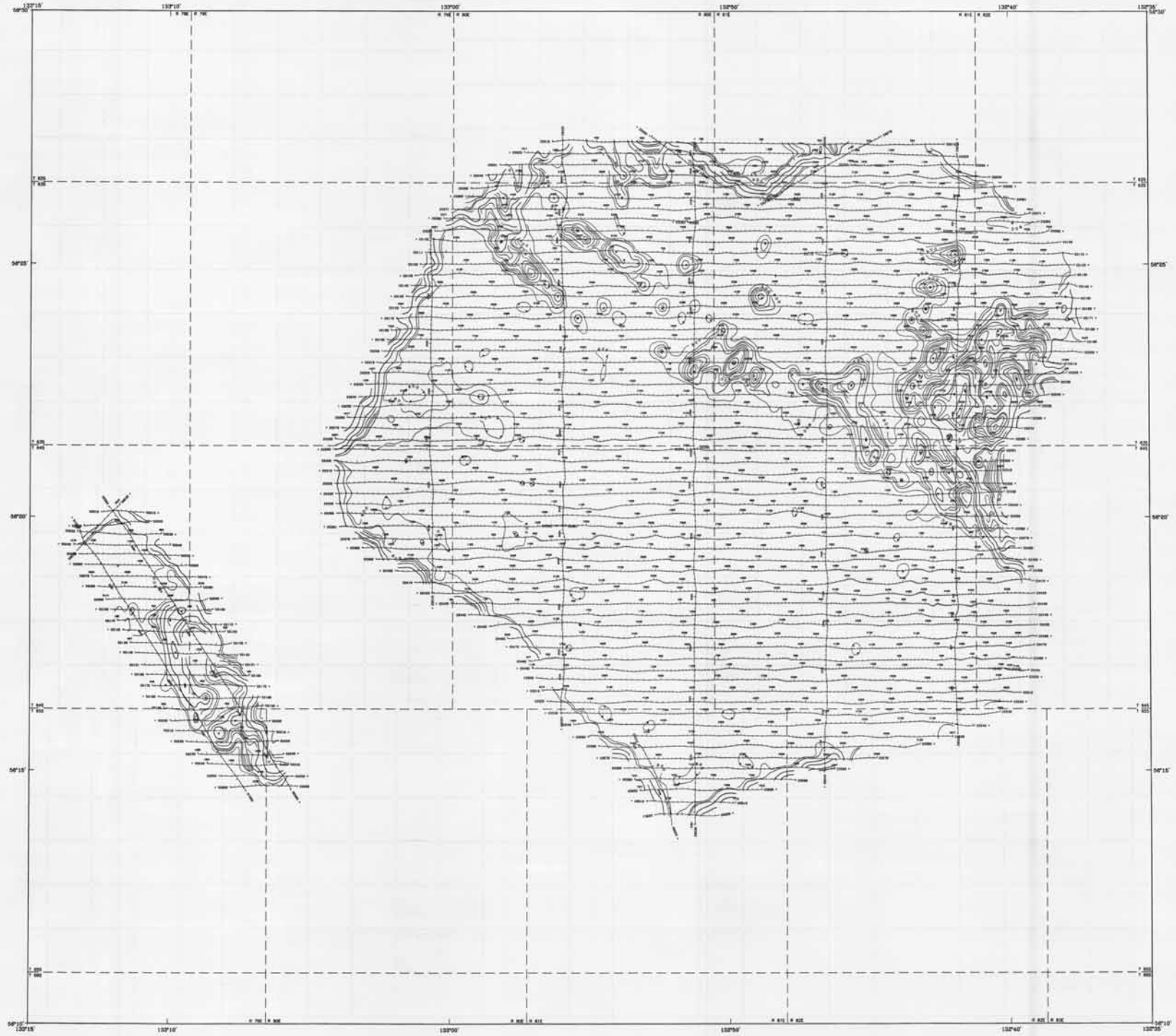
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ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-39C
Map C - Zarembo Island & Eastern Prince of Wales Island





SCALE 1:63,360
1 0 1 2 3 4 MILES
1 0 1 2 3 4 5 KILOMETERS

TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1998

900 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP C - ZAREMBO ISLAND & EASTERN PRINCE OF WALES ISLAND

1997

DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS.350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

RESISTIVITY

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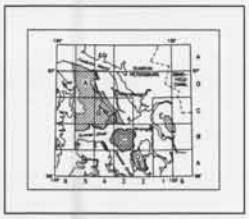
RESISTIVITY CONTOURS

1000
800
600
500
400
300
250
200
150
125
100

Contours in ohm-m at 10 intervals per decade

resistivity low

LOCATION INDEX



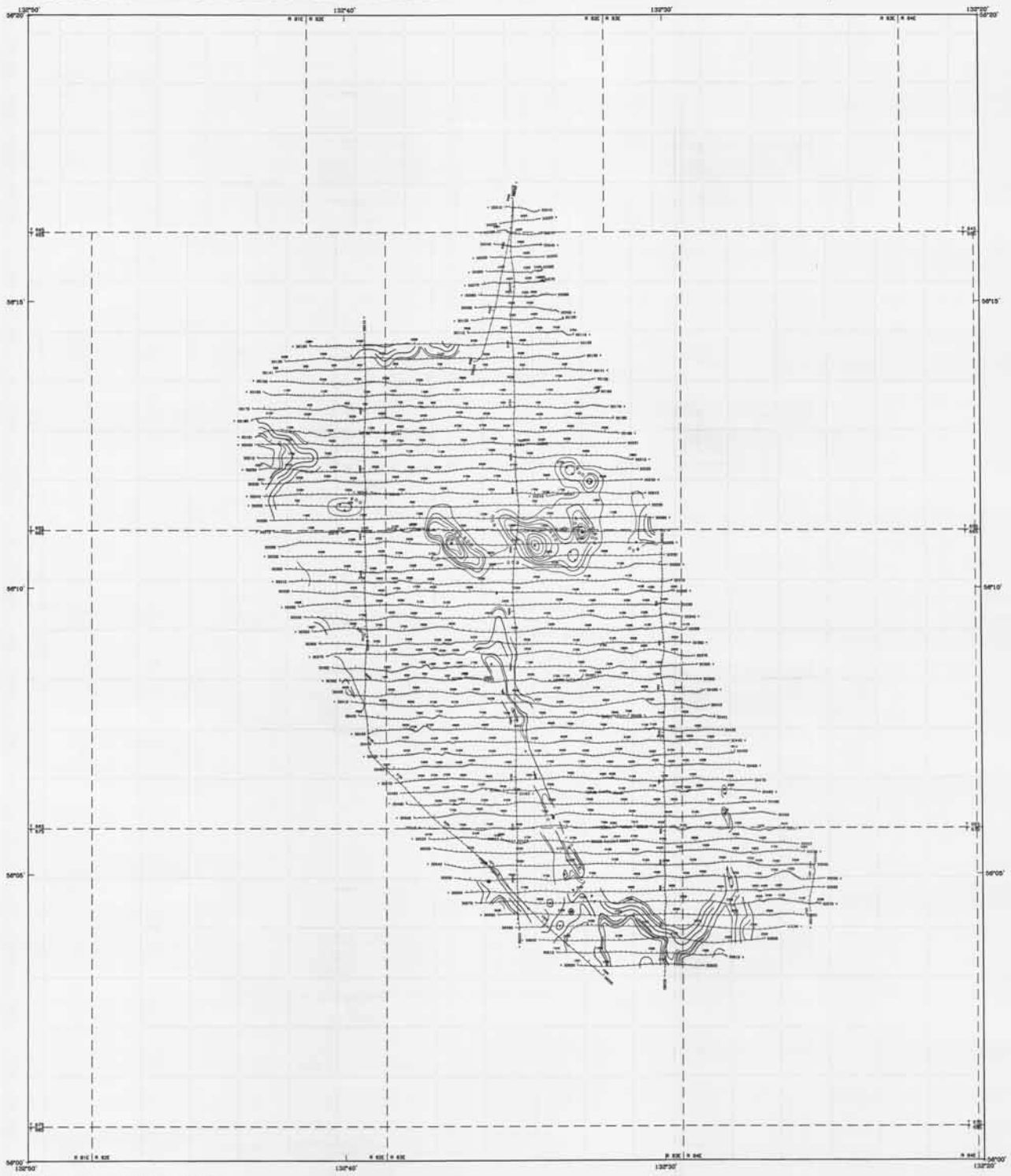
SURVEY HISTORY

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ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-39D
Map D - Western Etolin Island



Base from USGS 1:63,360 topographic maps

SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS

900 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP D - WESTERN ETOLIN ISLAND

1997

DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

RESISTIVITY

The DIGHEM^V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5000 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 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 900 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 100 m grid using a modified Akima (1970) technique.

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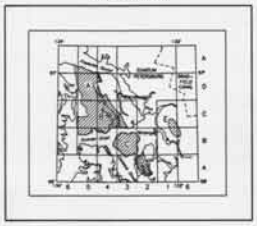
RESISTIVITY CONTOURS

1000
800
600
500
400
300
250
200
150
125
100

Contours in ohm-m at 10 intervals per decade

resistivity low

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 WGM, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

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ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-39E
Map E - Groundhog Basin



Various editions from U.S. Geological Survey Bradfield Canal B-6, C-6, 1956; Petersburg B-1, 1955; C-1, 1953 Quadrangles, Alaska

SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS

900 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP E - GROUNDHOG BASIN

1997



RESISTIVITY CONTOURS

1000
800
600
500
400
300
250
200
150
125
100

Contours in ohm-m at 10 intervals per decade

resistivity low



DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

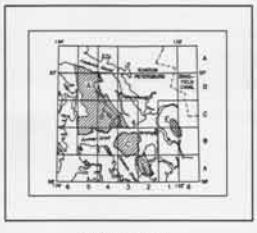
A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

RESISTIVITY

The DIGHEM^V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5000 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 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 900 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 100 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.

LOCATION INDEX



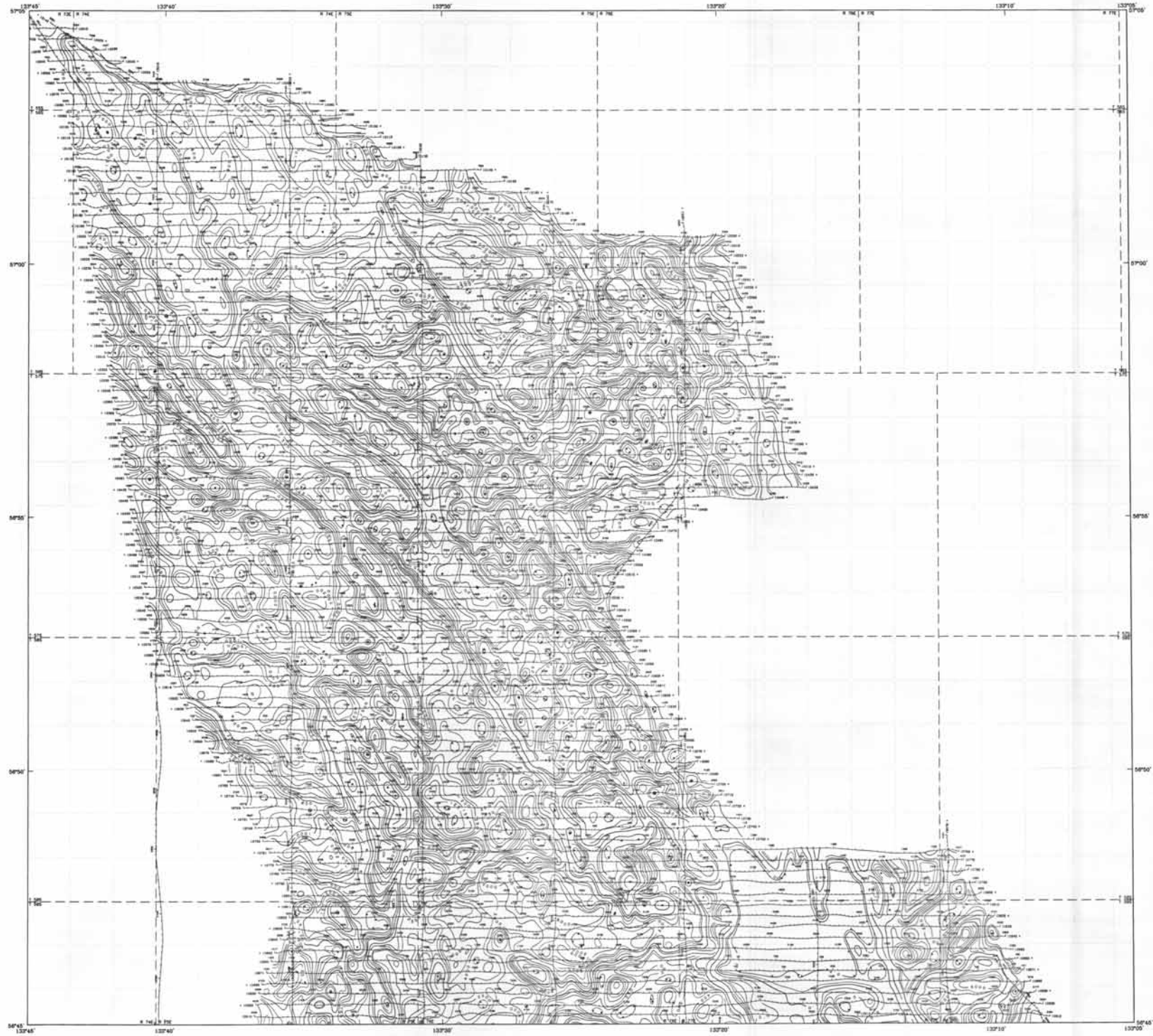
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ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
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PUBLIC-DATA FILE 97-40A
Map A - North Duncan Canal



SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS



7200 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP A - NORTH DUNCAN CANAL

1997

DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

RESISTIVITY

The DIGHEM^V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5000 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 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 7200 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 100 m grid using a modified Akima (1970) technique.

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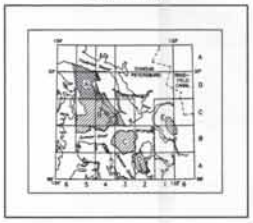
RESISTIVITY CONTOURS

1000
800
600
500
400
300
250
200
150
125
100

Contours in ohm-m at 10 intervals per decade

resistivity low

LOCATION INDEX



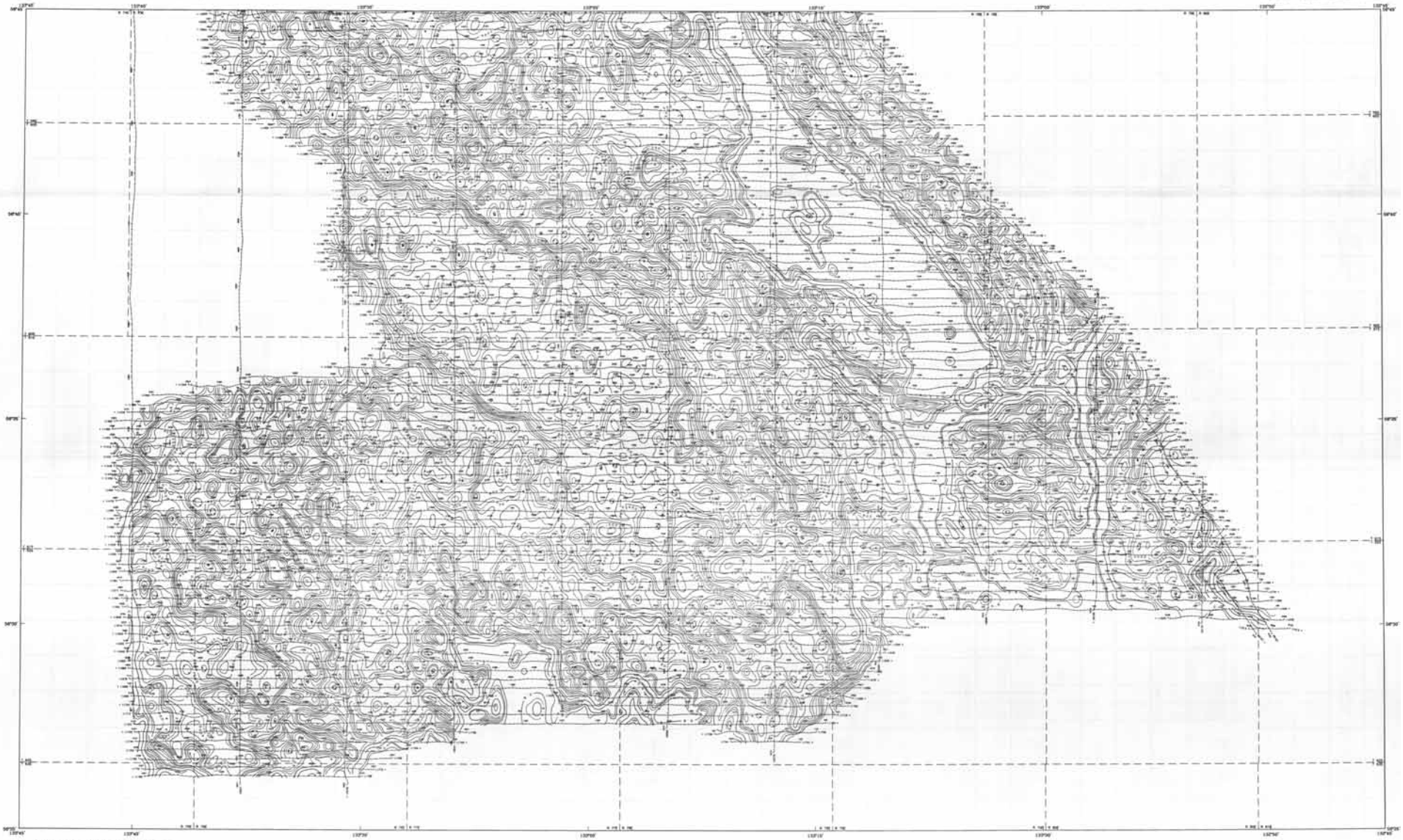
SURVEY HISTORY

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PUBLIC-DATA FILE 97-40B
Map B - South Duncan Canal









7200 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP B - SOUTH DUNCAN CANAL

1997

RESISTIVITY CONTOURS



DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^{V} Electromagnetic (EM) system, a Sander Geophysics Limited (SGL) survey [illegible], contracted in an AS350B-2 Squirrel helicopter (in addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera). Flights were performed at a mean terrain clearance of 200 feet along 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.

A Sercel Real-Time Differential Global Positioning System (NT-GDPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 138°, 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.

RESISTIVITY

The DIGHEM^{V} EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5000 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 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 7200 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 100 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.

LOCATION INDEX



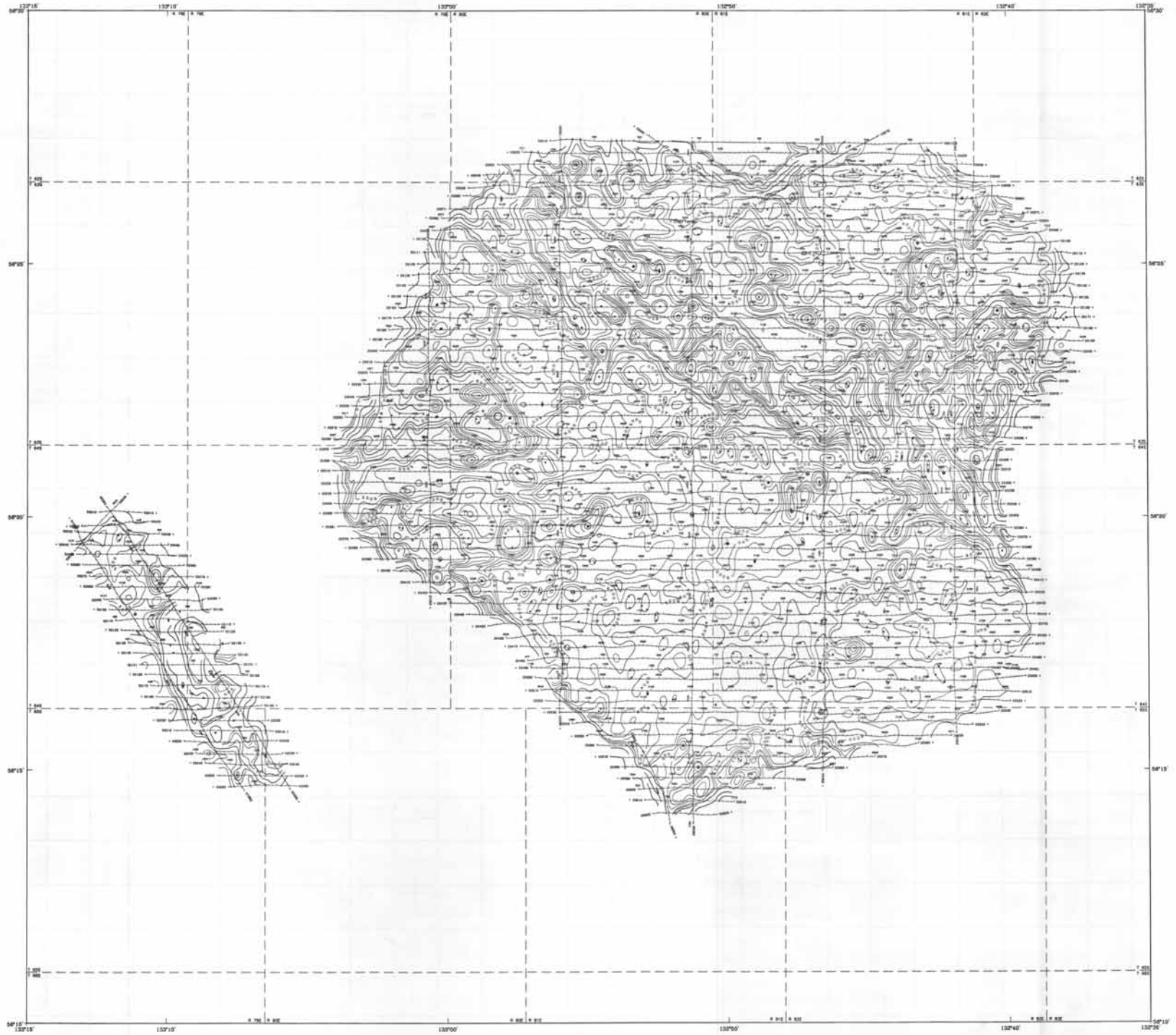
SURVEY HISTORY

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 ROM, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

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PUBLIC-DATA FILE 97-40C
Map C - Zarembo Island & Eastern Prince of Wales Island





SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS



7200 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP C - ZAREMBO ISLAND & EASTERN PRINCE OF WALES ISLAND

1997

DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^{V} Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS.350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

RESISTIVITY

The DIGHEM^{V} EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5000 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 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 7200 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 100 m grid using a modified Akima (1970) technique.

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RESISTIVITY CONTOURS

1000
800
600
500
400
300
250
200
150
125
100

Contours in ohm-m at 10 intervals per decade

resistivity low

LOCATION INDEX



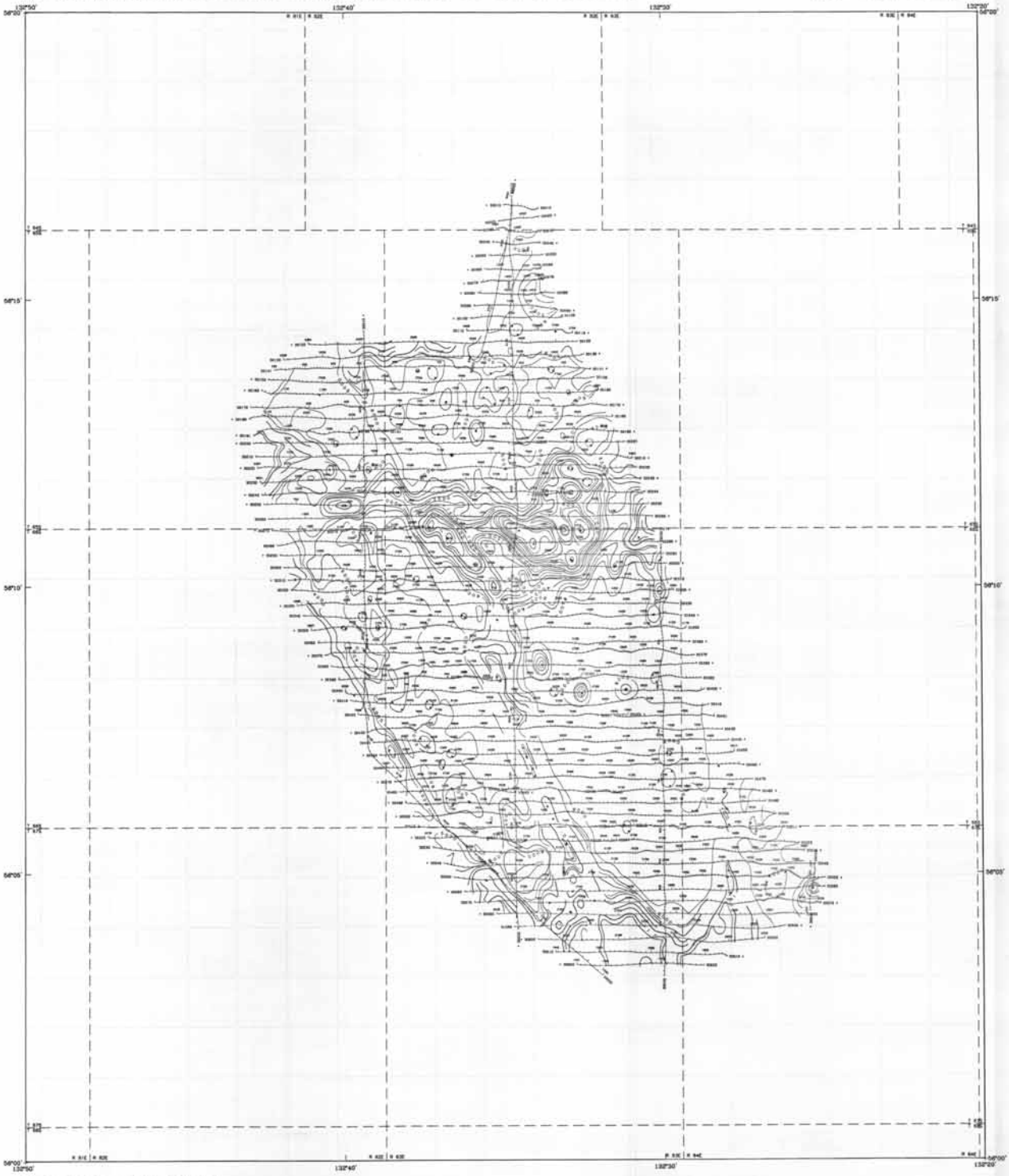
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PUBLIC-DATA FILE 97-40D
Map D - Western Etolin Island



SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS

7200 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP D - WESTERN ETOLIN ISLAND

1997



RESISTIVITY CONTOURS

1000
800
600
500
400
300
250
200
150
125
100

Contours in ohm-m at 10 intervals per decade

resistivity low

DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

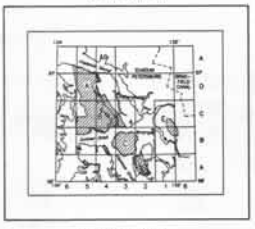
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RESISTIVITY

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LOCATION INDEX



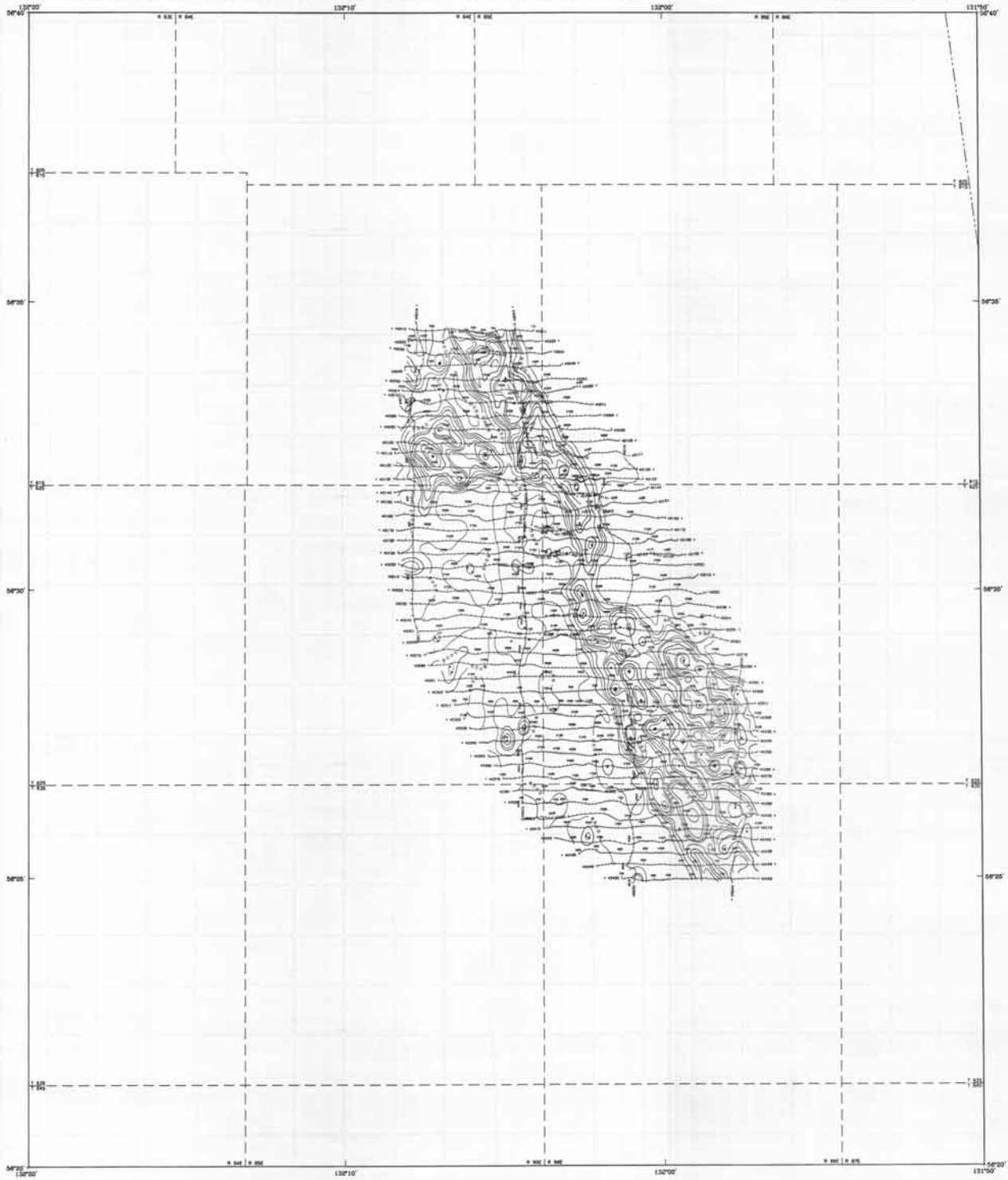
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PUBLIC-DATA FILE 97-40E
Map E - Groundhog Basin



Section outlines from U.S. Geological Survey Bradfield Canal B-6, C-6, 1986, Petersburg B-1, 1985, C-1, 1985 Quadrangles, Alaska

SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS

7200 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP E - GROUNDHOG BASIN

1997



RESISTIVITY CONTOURS

1000
800
600
500
400
300
250
200
150
125
100

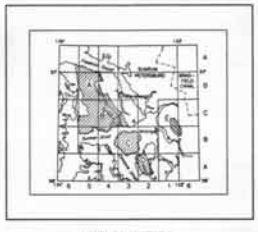
Contours in ohm-m at 10 intervals per decade

resistivity low

TRUE NORTH

APPROXIMATE MEAN DECLINATION, 1997

LOCATION INDEX



DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS.350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

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RESISTIVITY

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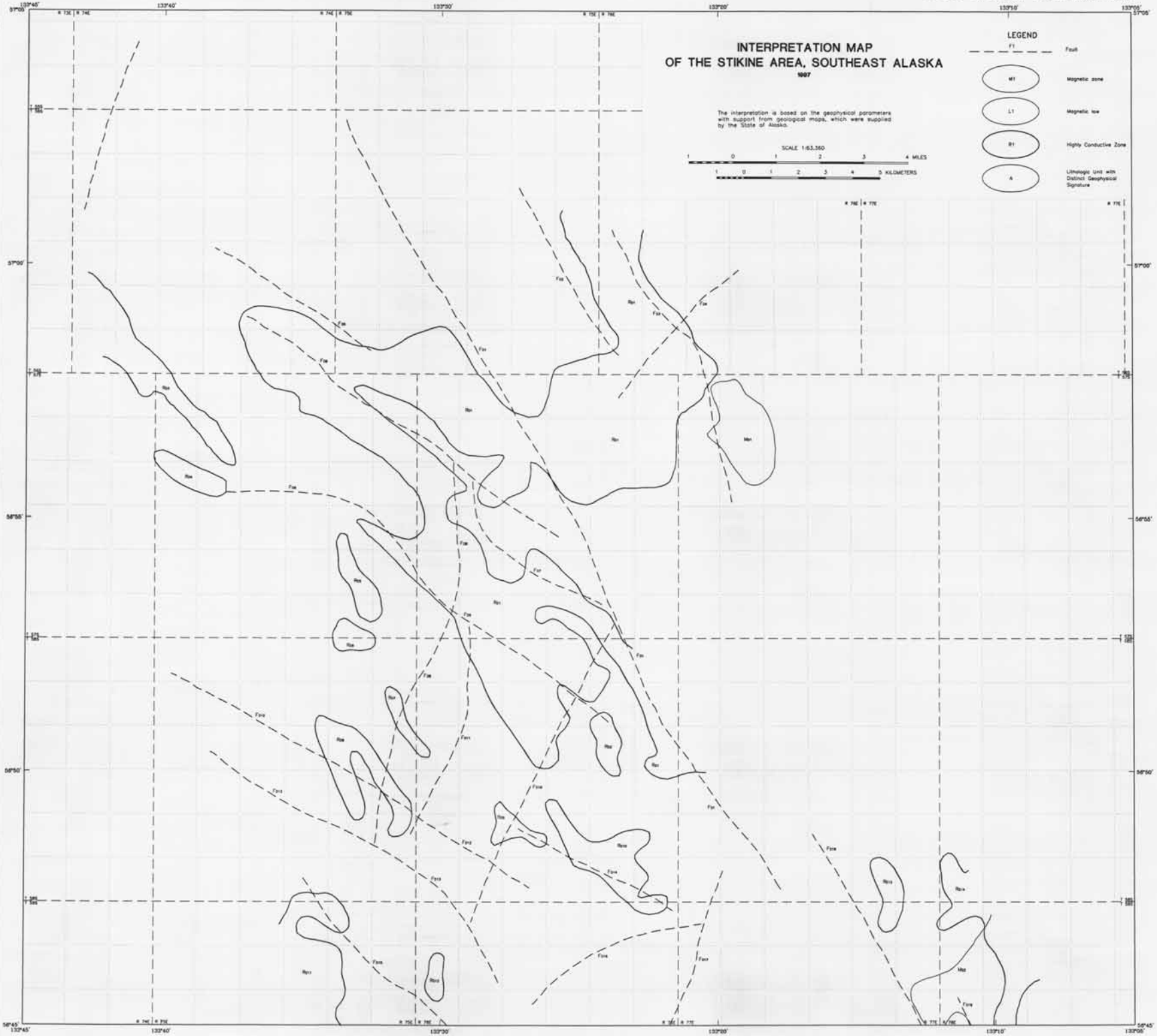
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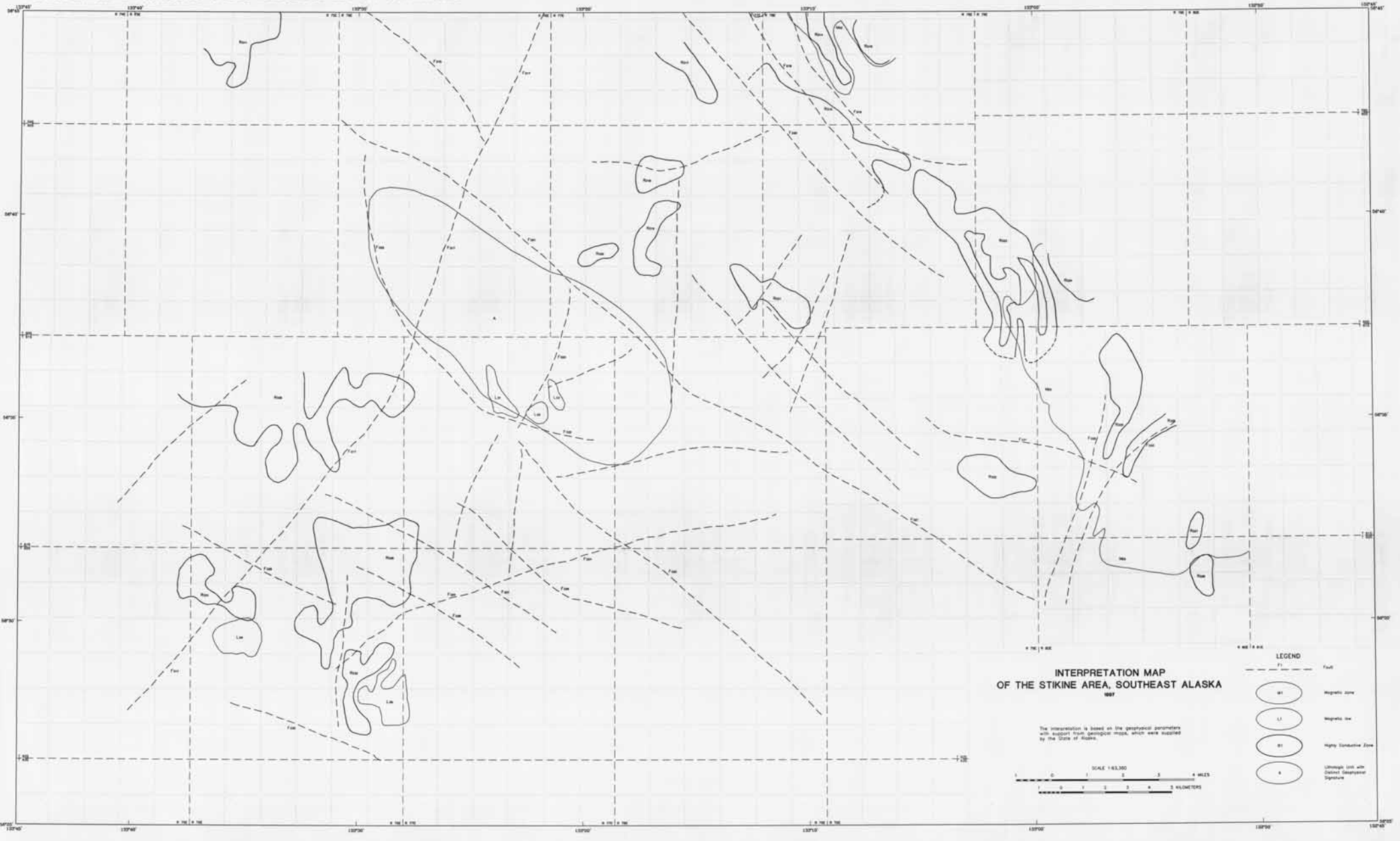
ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-44A
INTERPRETATION STIKINE AREA, SOUTHEAST ALASKA
FIGURE 4-1, Map A - North Duncan Canal



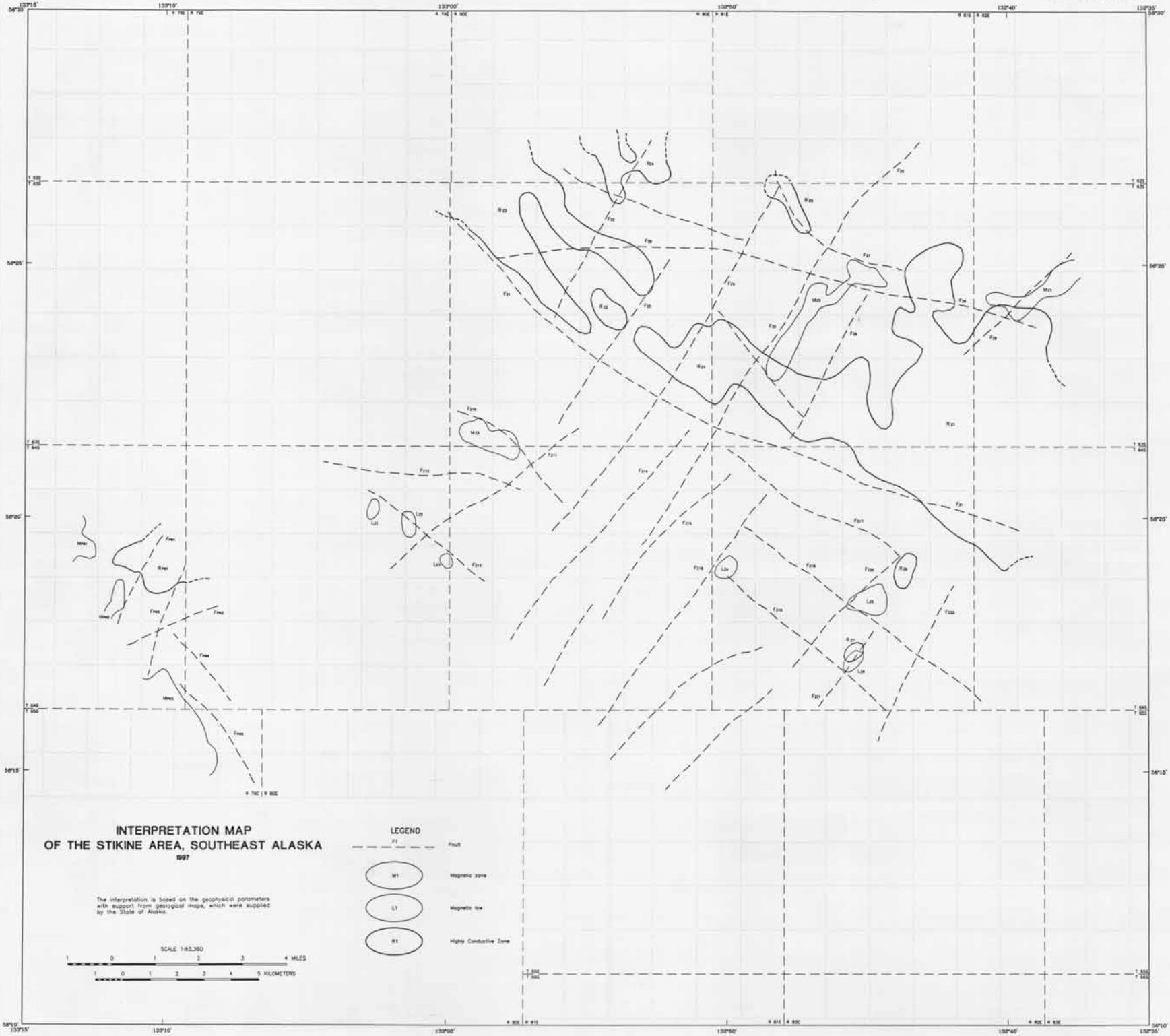
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PUBLIC-DATA FILE 97-44B
INTERPRETATION STIKINE AREA
FIGURE 4-2, Map B - South Duncan Canal



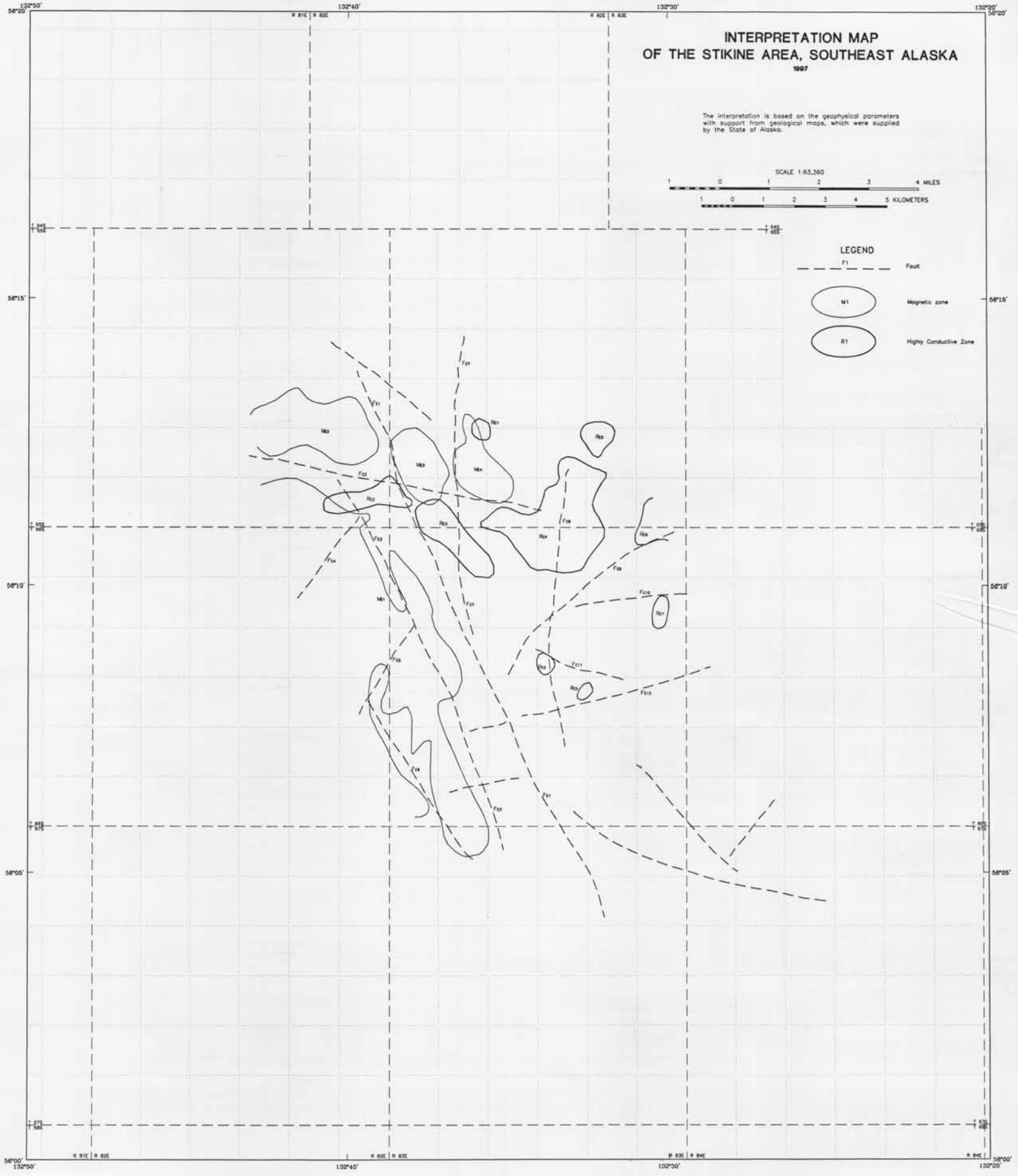
ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-44C
INTERPRETATION STIKINE AREA
FIGURE 4-3, Map C - Zarembo Island & Eastern Prince of Wales Island



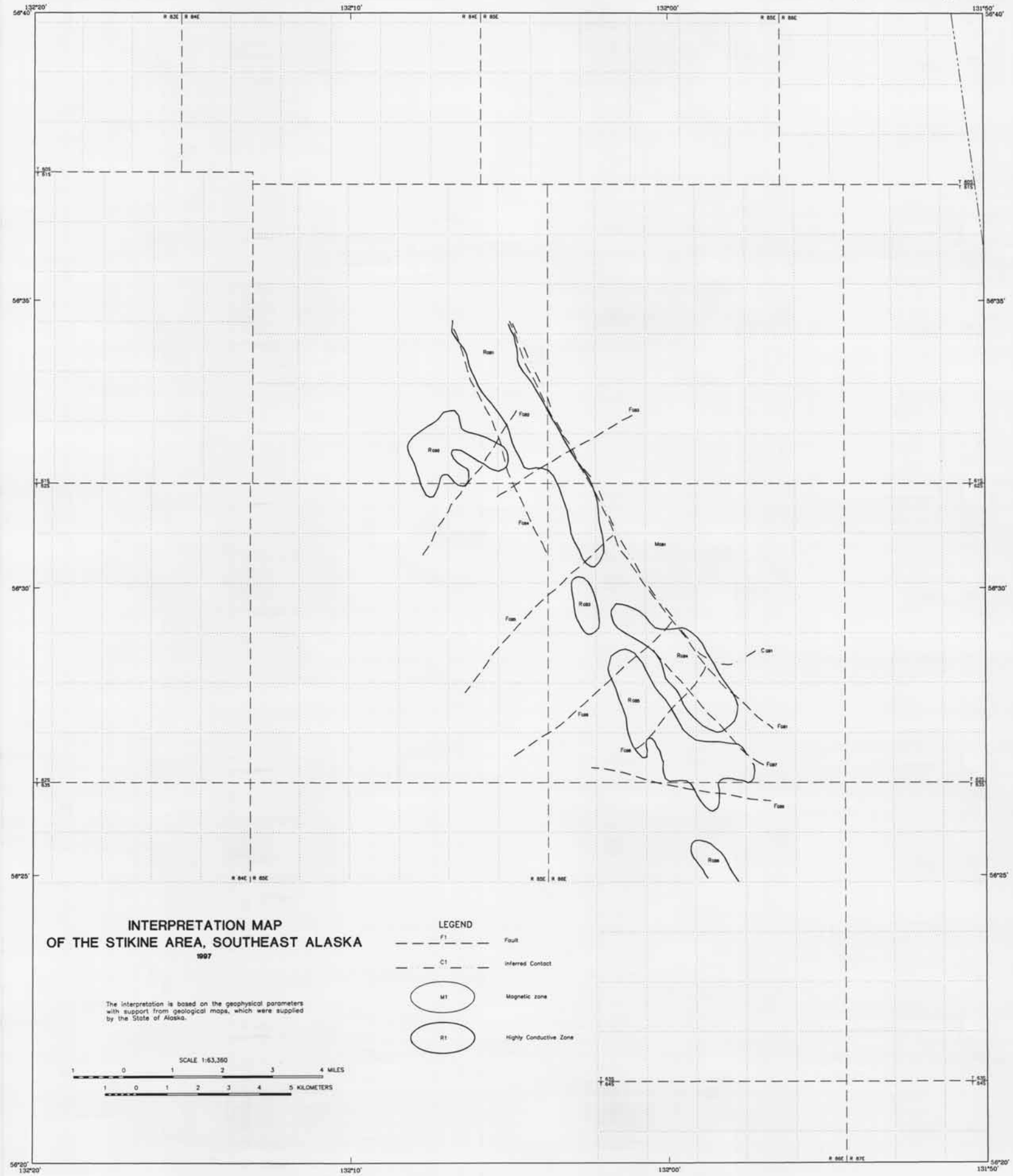
ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-44D
INTERPRETATION STIKINE AREA
FIGURE 4-4, Map D - Western Etolin Island



ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-44E
INTERPRETATION STIKINE AREA
FIGURE 4-5, Map E - Groundhog Basin



INTERPRETATION MAP OF THE STIKINE AREA, SOUTHEAST ALASKA

1997

The interpretation is based on the geophysical parameters with support from geological maps, which were supplied by the State of Alaska.

SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS

LEGEND

F1 — Fault

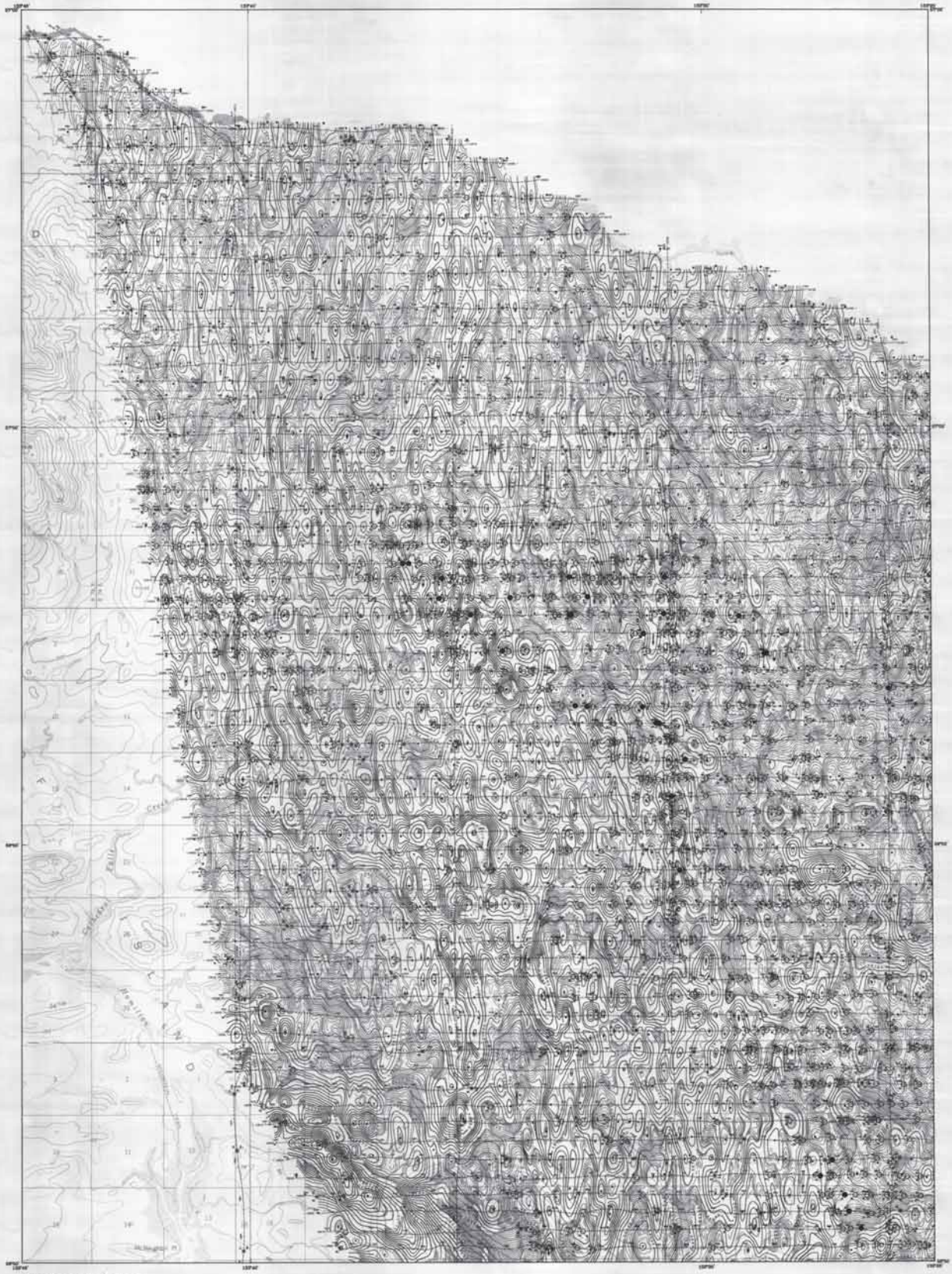
C1 — Inferred Contact

M1 — Magnetic zone

R1 — Highly Conductive Zone

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-45A





SCALE 1:31,680

0.5 0 0.5 1 1.5 2 MILES

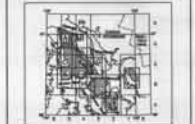
0.5 0 0.5 1 1.5 2 2.5 KILOMETERS

TOTAL FIELD MAGNETICS AND DETAILED ELECTROMAGNETIC ANOMALIES OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP A

1997

LOCATION INDEX FOR SCALE 1:31,680



DESCRIPTIVE NOTES

The geophysical data were acquired with a GEOTEM® Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Geometrics optical magnetometer on N33509-3 Bound Helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 35/70 mm monitors and video camera. Flights were performed on a mean terrain clearance of 200 feet along 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.

A Garmin Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. The data were recorded in geographic coordinates (Lat/Long - NAD 1927 spheroid), UTM zone 8 (Western datum using a central meridian (CM) of 135° + 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.

ELECTROMAGNETICS

To determine the location of the anomalies on their boreholes, the GEOTEM® system measured inphase and quadrature components of five frequencies. Two vertical coaxial coil pairs operated at 900 and 5000 Hz while three horizontal coplanar coil pairs operated at 856, 7205, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM system response to bedrock conductors, conductive overburden, and cultural sources. The type of conductor is indicated on the aeromagnetic map by the interpretive symbol attached to each EM anomaly. Determination of the type of conductor is based on the overall shapes of the coaxial- and coplanar-coil responses, together with conductivity and magnetic patterns and topography. The power line monitor and the flight track video were examined to locate cultural sources.

ELECTROMAGNETIC ANOMALIES



MAGNETIC CONTOUR INTERVAL

100 nT

25 nT

5 nT

2 nT

magnetic low

magnetic high

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 Wiik, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

This map and other products from this survey are available by mail order or in person from DGGS, 794 University Ave., Suite 200, Fairbanks, Alaska, 99709. Some products are also available in person only at the BLM's Juneau Mineral Information Center, Mayflower Island, Juneau, AK.

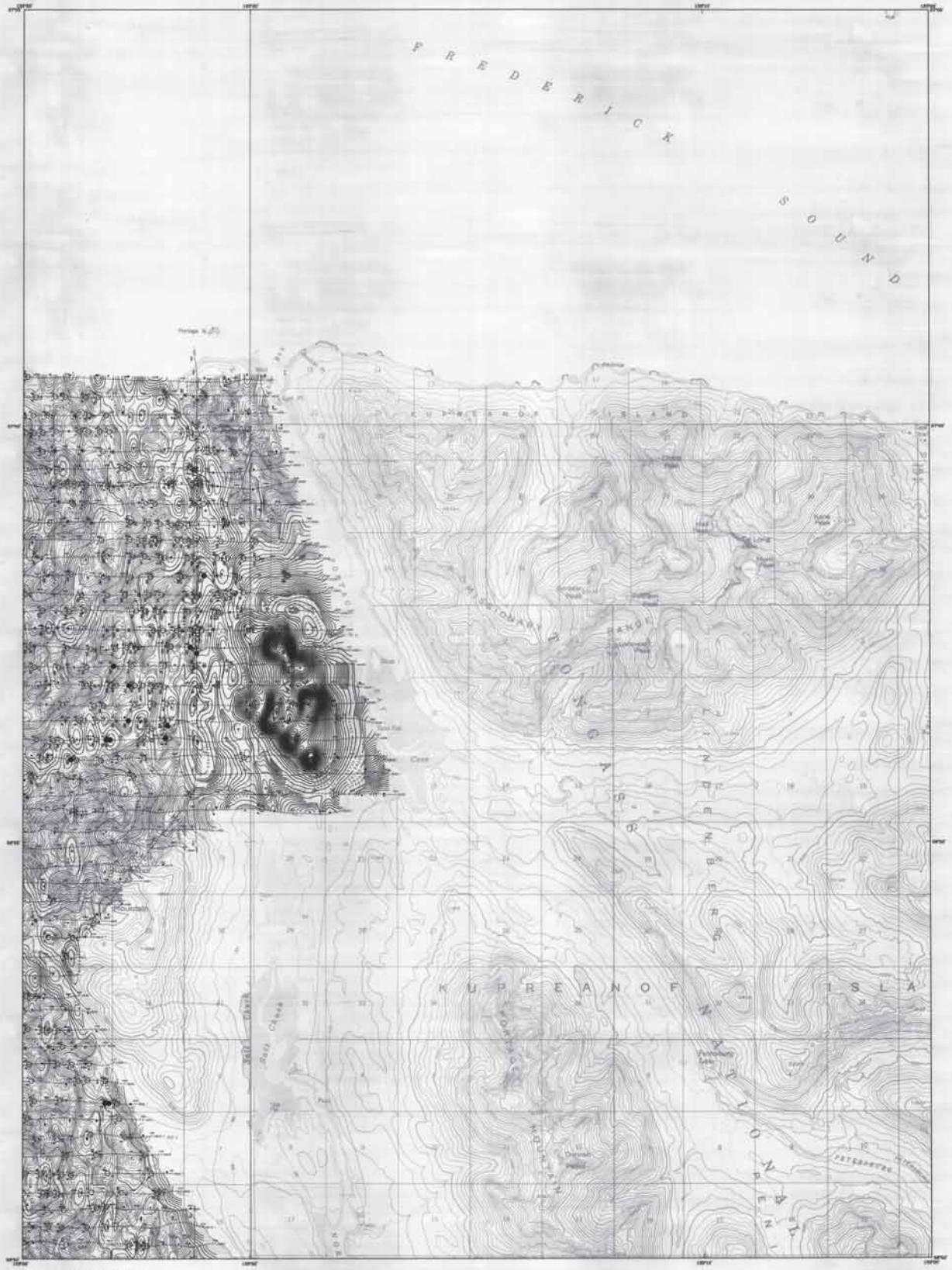
TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a sampling interval of 0.1 seconds, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional correction (or IGRF) grade, 1980, updated to October 1990, was removed from the leveled magnetic data.

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.

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-45B





SCALE 1:31,680

0.5 0 0.5 1 1.5 2 MILES

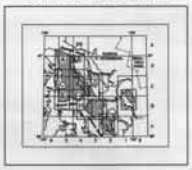
0.5 0 0.5 1 1.5 2 2.5 KILOMETERS

TOTAL FIELD MAGNETICS AND DETAILED ELECTROMAGNETIC ANOMALIES OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP B

1997

LOCATION INDEX FOR SCALE 1:31,680



DESCRIPTIVE NOTES

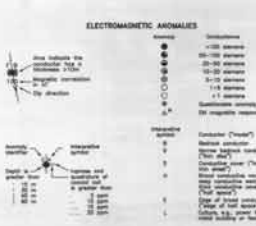
The geophysical data were acquired with a DIGHEM^{V} Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Trisk VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 35mm slr cameras and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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 2 miles.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was sampled every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (CNA) spheroid, 1927 North American datum using a central meridian (CM) of 132°, a north constant of 0 and an east constant of 500,000. Positional accuracy of the processed data is better than 10 m with respect to the UTM grid.

ELECTROMAGNETICS

To determine the location of EM anomalies or their boundaries, the DIGHEM^{V} EM system measured inphase and quadrature components at five frequencies, two vertical coaxial-coil pairs operated at 900 and 5000 Hz, three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to bedrock conductors, conductive overburden, and cultural sources. The type of conductor is indicated on the electromagnetic map by the interpretive symbol attached to each EM anomaly. Determination of the type of conductor is based on EM anomaly shapes of the coaxial- and coplanar-coil responses, together with conductor dip, magnetic patterns and topography. The power line monitor and the flight track video were examined to locate cultural sources.

ELECTROMAGNETIC ANOMALIES



MAGNETIC CONTOUR INTERVAL

100 nT

20 nT

4 nT

2 nT

magnetic low

magnetic high

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 Wide, Wrong and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of Core Consult Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

The map and other products from this survey are available by mail order or in person from DGGS, 794 University Ave., Suite 200, Fairbanks, Alaska, 99709. Some products are also available in person only at the BLM's Juneau Mineral Information Center, Mayflower Island, Juneau, AK.

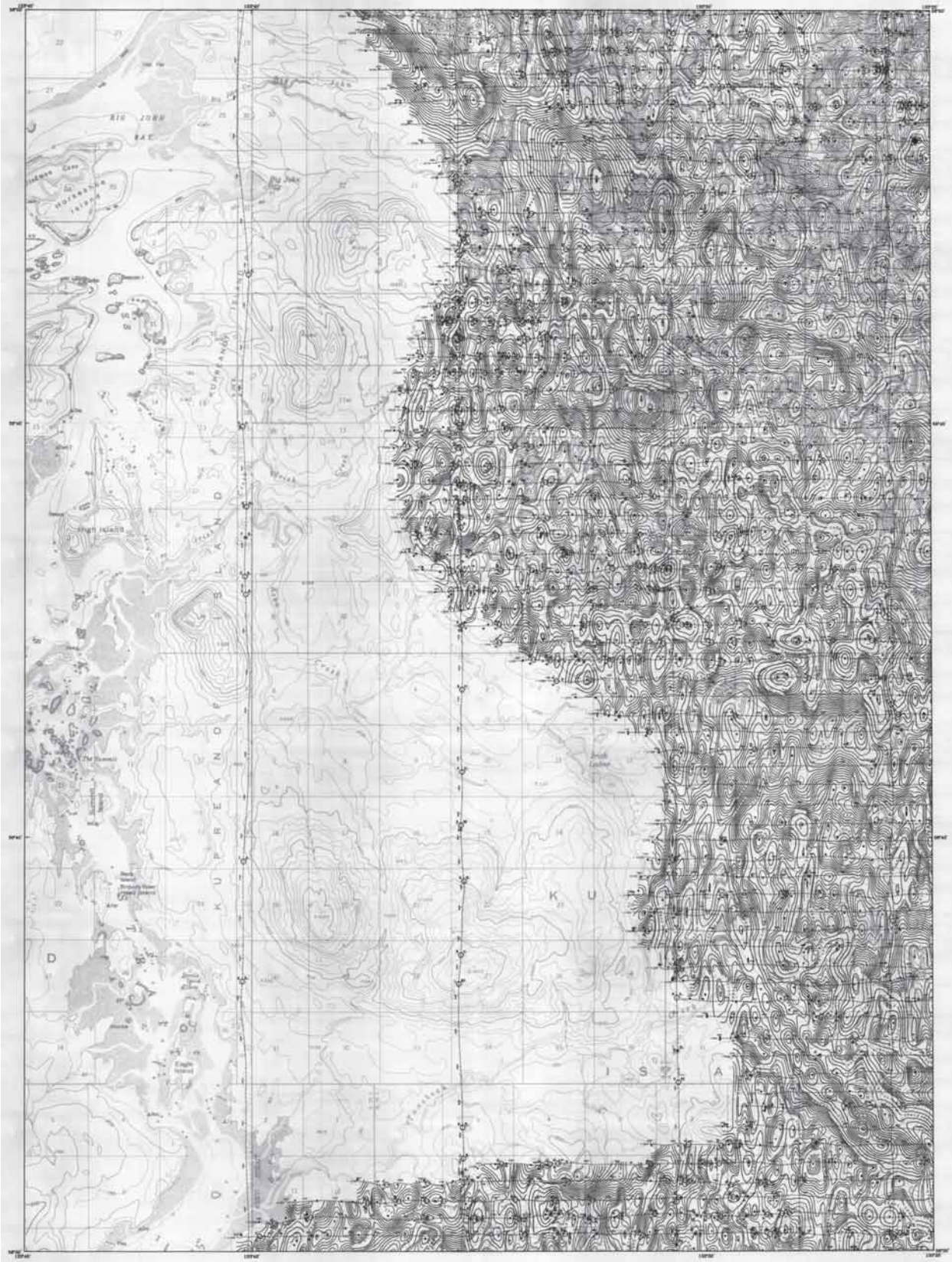
TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a sampling interval of 0.1 seconds, and were (1) corrected for diurnal variations by subtraction of the mean of the measured base station values, and (2) leveled to tie the line and control (TC) intersection points a regular 100 m grid using a modified Akima (1970) technique. The regional variation (or IGRF gradient, 1985, updated to October 1995) was removed from the leveled magnetic data.

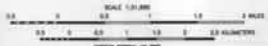
Akima, H. 1970, A new method of interpolation and smooth curve fitting based on local procedures: Journal of the Association of Computing Machinery, v. 17, no. 4, p. 589-602.

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-45C









TOTAL FIELD MAGNETICS AND DETAILED ELECTROMAGNETIC ANOMALIES OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP C

1997



DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^{V} (electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Trisy YLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 35/70 VLF monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

A Garmin Real-Time Differential Global Positioning System (WI-GDPS) was used for both navigation and flight path recovery. The helicopter position was sampled every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135° W, 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.

ELECTROMAGNETICS

To determine the location of EM anomalies or their boundaries, the DIGHEM^{V} EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5000 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to bedrock conductors, conductive overburden, and cultural sources. The type of conductor is indicated on the aeromagnetic map by the interpretive symbol attached to each EM anomaly. Determination of the type of conductor is based on EM anomaly shapes of the coaxial- and coplanar-coil responses, together with amplitude and magnetic patterns and topography. The power line monitor and the flight track video were examined to locate cultural sources.

ELECTROMAGNETIC ANOMALIES





MAGNETIC CONTOUR INTERVAL



LOCATION INDEX FOR SCALE 1:31,680

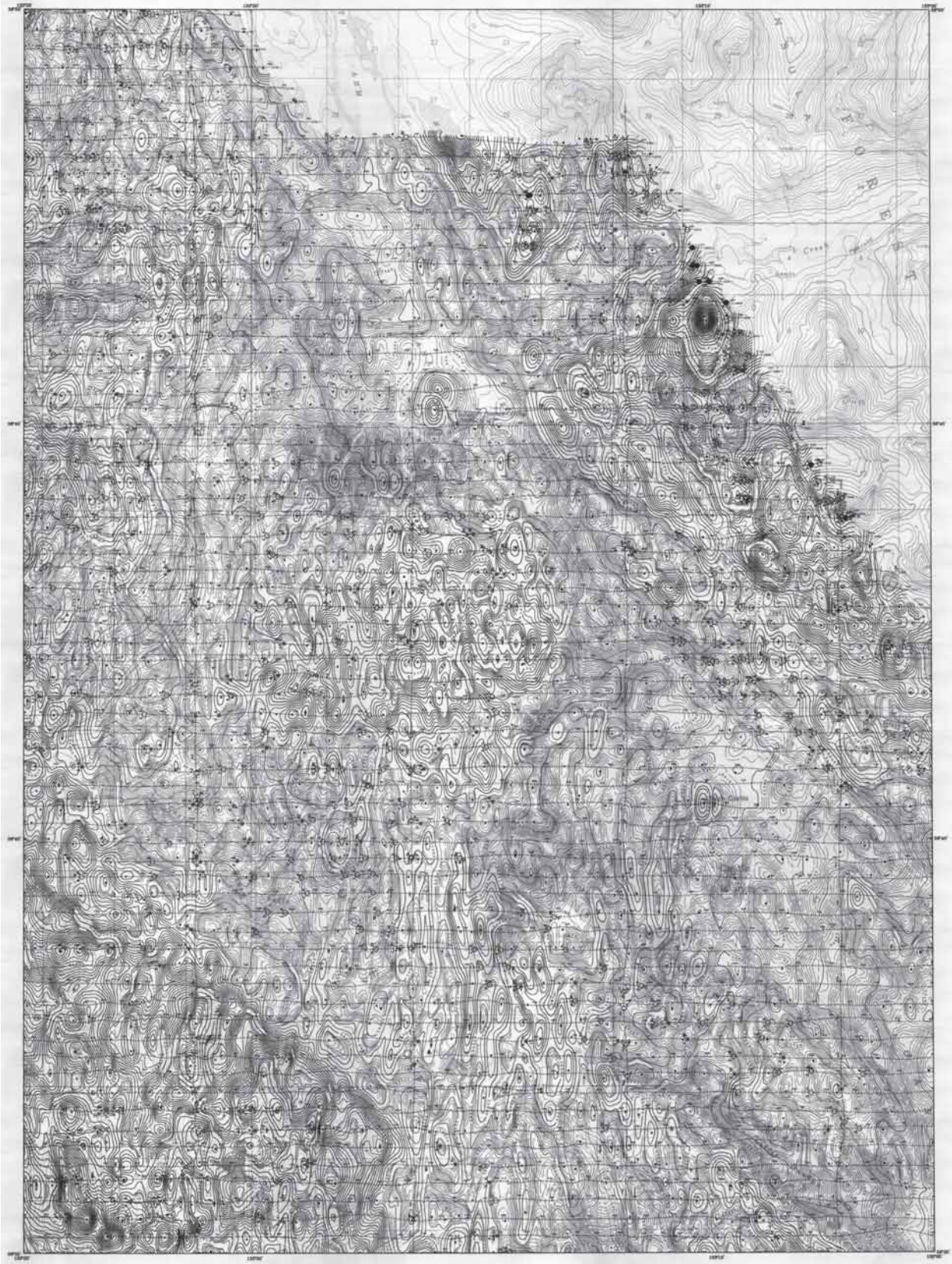
SURVEY HISTORY

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 MDA Mining and Geological Consultants, Inc. Airborne geophysical data for the area were collected by Geotronics-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

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TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a sampling interval of 0.1 seconds, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional variation (or IGRF profile), 1995, as listed by Dobson (1996), was removed from the leveled magnetic data.



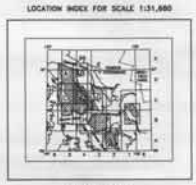


TOTAL FIELD MAGNETICS AND DETAILED ELECTROMAGNETIC ANOMALIES OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP D

1997

LOCATION INDEX FOR SCALE 1:31,680



DESCRIPTIVE NOTES

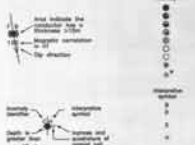
The geophysical data were acquired with a DIGHEM^{V} Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz GLP system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 35/140 Hz inclinors and video camera. Flights were performed at a mean terrain clearance of 300 feet during 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.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

ELECTROMAGNETICS

To determine the location of EM anomalies or their boundaries, the DIGHEM^{V} EM system measured inphase and quadrature components at five frequencies: two vertical coaxial—coil pairs operated at 900 and 5000 Hz while three horizontal coplanar—coil pairs operated at 900, 7200, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to bedrock conductors, conductive overburden, and cultural sources. The type of conductor is indicated on the electromagnetic map by the interpretive symbol attached to each EM anomaly. Determination of the type of conductor is based on EM anomaly shapes of the coplanar- and coaxial—coil responses, together with conductor and magnetic patterns and topography. The power line monitor and the flight track video were examined to locate cultural sources.

ELECTROMAGNETIC ANOMALIES



Anomaly symbol	Conductance
●	>100 siemens
●	50–100 siemens
●	30–50 siemens
●	15–30 siemens
○	5–15 siemens
○	1–5 siemens
○	<1 siemens
⊗	Susceptibility anomaly
⊗*	No magnetic response

Interpretive symbol	
B	Bedrock conductor
S	Narrow bedrock conductor/ "thin sheet"
S	Conductive zone (Horizontal thin sheet)
∿	Conductive rock unit, may include overburden, more conductive cover
F	Flight path
C	Edge of broad conductor
V	Valley half width
L	Culture, e.g. power line, metal building or fence

MAGNETIC CONTOUR INTERVAL

———	100 nT
———	20 nT
———	4 nT
— — — —	2 nT
⊕	magnetic low
⊕	magnetic high

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 NSA, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

This map and other products from this survey are available by mail order or in person from DGGS, 794 University Ave., Suite 200, Fairbanks, Alaska, 99709. Some products are also available in person only at the BLM's Juneau Mineral Information Center, Mayflower Island, Juneau, Ak.

TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with (1) a sampling interval of 0.1 seconds, and were (2) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (3) leveled to the tie line data, and (4) interpolated using a minimum curvature algorithm and a cell size (1/5th) technique. The regional component (for IGRF predated, 1995, updated to October 1995) was removed from the leveled magnetic data.

Reduce to pole (RTP) filtering was applied to the total field magnetic data using the method of Baranov and Naudy (1964). The RTP filter assumes that all magnetization is induced by the present day field and that remanent magnetization is negligible. The RTP filter was applied using an inclination of 74.5° and a declination of 23.5°.

Analytic signal was calculated from the RTP data using the method of Nabighian (1972). The analytic signal is independent of the magnetization direction and is centered over the causative body.

Horizontal gradients were calculated from the RTP data using a fourth order finite difference equation. Maxima in the horizontal gradient were used to locate lithologic contacts.

Vertical gradients were calculated from the RTP data using a fourth order finite difference equation. Zero crossings in the vertical gradient were used to locate lithologic contacts.

Analytic signal, horizontal gradients, and vertical gradients were calculated using a 3 x 3 window.

Euler deconvolution was performed on the RTP data using a structural index of 0 and a window size of 7 x 7 stations. Euler solutions were filtered to remove solutions with depth errors greater than 20% and location errors greater than 20%.

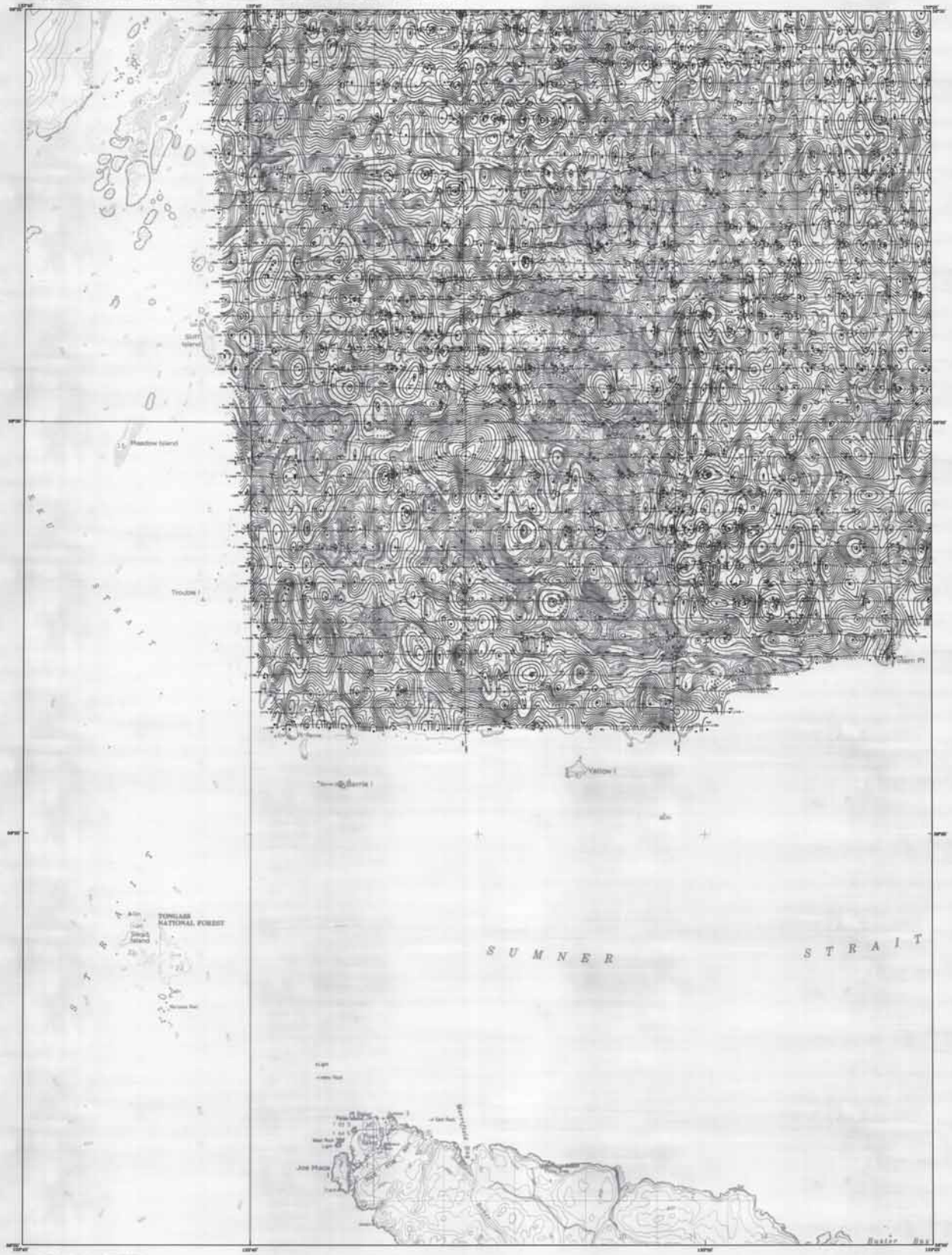
REFERENCES

Baranov, V., and Naudy, H., 1964, Numerical calculation of the formula of reduction to the magnetic pole: Geophysics, v. 29, no. 1, p. 67–79.

Nabighian, M.N., 1972, The analytic signal of two-dimensional magnetic bodies with polygonal cross-section: its properties and use for automated anomaly interpretation: Geophysics, v. 37, no. 3, p. 507–517.

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-45E





WRANGELL SURVEY AREA

SCALE 1:31,680

0.5 0 0.5 1 1.0 2 MILES

0.5 0 0.5 1 1.0 2 2.5 KILOMETERS

TOTAL FIELD MAGNETICS AND DETAILED ELECTROMAGNETIC ANOMALIES OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP E

1997

LOCATION INDEX FOR SCALE 1:31,680



DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^{V} Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Trimble 12 system installed in an AS.350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, SGL90 ski mounted and video camera. Flights were performed at a mean terrain clearance of 200 feet along survey lines with a spacing of a quarter of a mile. The lines were flown perpendicular to the flight lines at intervals of approximately 3 miles.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clarke 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

ELECTROMAGNETICS

To determine the location of EM anomalies or their boundaries, the DIGHEM EM system measured horizontal and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5000 Hz while two horizontal coplanar-coil pairs operated at 870, 7200 and 56,000 Hz. All data were sampled at 0.1 second intervals. The EM system is sensitive to thin conductive overburden, and cultural sources. The type of conductor is indicated on the aeromagnetic map by the interpretive symbols attached to each EM anomaly. Determination of the type of conductor is based on EM anomaly shapes at the coaxial- and coplanar-coil responses, together with conductor and magnetic patterns and topography. The power line monitor and fair track video were examined to locate cultural sources.

ELECTROMAGNETIC ANOMALIES

Anomaly identifier

Area indicate the conductor has a thickness (>10m)

Magnetic correlation (+ or -)

Dip direction

Anomaly identifier

Interpretive symbol

Depth to conductor (in metres)

Thickness and conductivity of overall unit, in greater than

Depth to conductor (in metres)	Thickness and conductivity of overall unit, in greater than
0 m	0 ppm
15 m	10 ppm
30 m	20 ppm
60 m	50 ppm
	100 ppm
	200 ppm

Amplitude (Conductance)

- >100 siemens
- 50-100 siemens
- 20-50 siemens
- 10-20 siemens
- 5-10 siemens
- 1-5 siemens
- <1 siemens

Conductive anomaly

DX magnetite response

Interpretive symbol	Conductor ("model")
B	Bedrock conductor
C	Narrow bedrock conductor ("thin sheet")
D	Conductive cover ("horizontal thin sheet")
E	Broad conductive rock unit, may conductive weathering
F	Thick conductive cover ("half-space")
G	Edge of broad conductive cover ("half-space")
H	Vertical, E-W, steep dike, narrow bedding or fault

MAGNETIC CONTOUR INTERVAL

- 100 nT
- 20 nT
- 5 nT
- 2 nT
- magnetic low
- magnetic high

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 WGM, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

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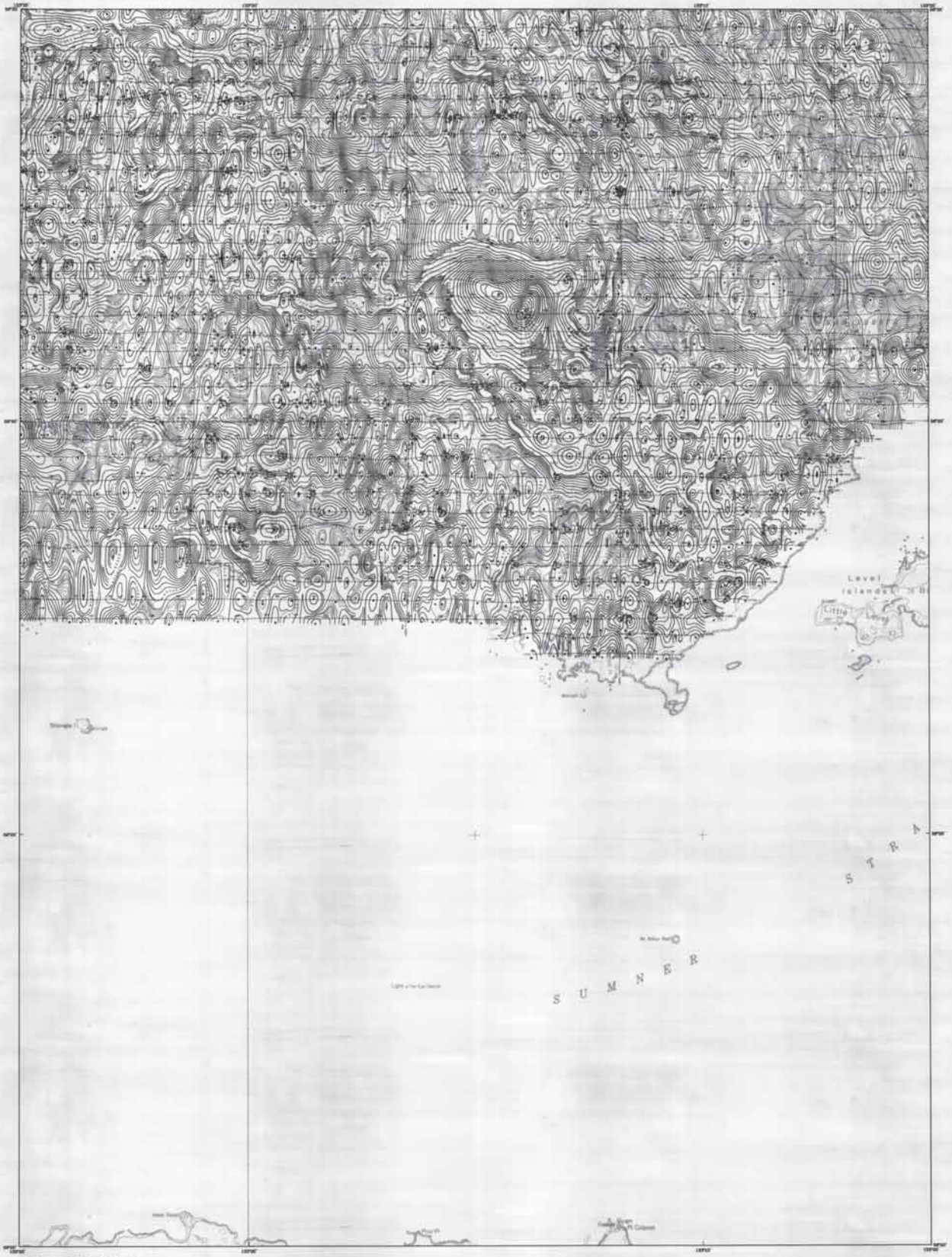
TOTAL FIELD MAGNETICS

The total field (magnetic) data were acquired with a sensitivity of 0.01 nT, recorded digitally, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional variation (an IGRF gradient, 1985, updated to October 1996) was removed from the leveled magnetic data.

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

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
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PUBLIC-DATA FILE 97-45F





TOTAL FIELD MAGNETICS AND DETAILED ELECTROMAGNETIC ANOMALIES OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP F

1997

DESCRIPTIVE NOTES

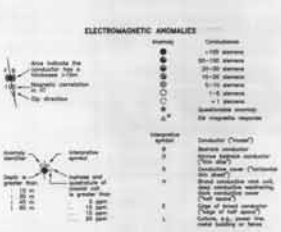
The geophysical data were acquired with a DIGHEM^{V} Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Honi GLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 35/65 tie monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along survey flight lines with a spacing of ¼ quarter of a mile. Tie lines were flown perpendicular to the flight lines at intervals of approximately 2 miles.

A Garmin Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was sensed every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 129°, 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.

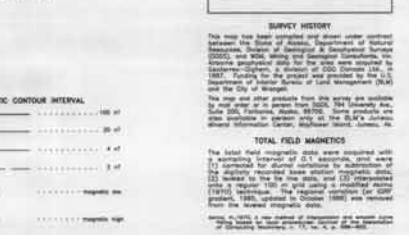
ELECTROMAGNETICS

To determine the location of EM anomalies or their boundaries, the DIGHEM^{V} EM system measured inphase and quadrature components of the frequencies: two vertical coaxial-coil pairs operated at 900 and 5000 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to bedrock conductors, conductive overburden, and cultural sources. The type of conductor is indicated on the aeromagnetic map by the interpretive symbol assigned to each EM anomaly. Determination of the type of conductor is based on EM anomaly shapes of the coaxial- and coplanar-coil responses, together with conductor and magnetic patterns and topography. The power line monitor and the flight track video were examined to locate cultural sources.

ELECTROMAGNETIC ANOMALIES



MAGNETIC CONTOUR INTERVAL



LOCATION INDEX FOR SCALE 1:31,680



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 WGM, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

This map and other products from this survey are available by mail order or in person from DGGS, 794 University Ave., Suite 200, Fairbanks, Alaska, 99701. Some products are also available in person only at the BLM's Juneau Mineral Information Center, Mayflower Island, Juneau, Ak.

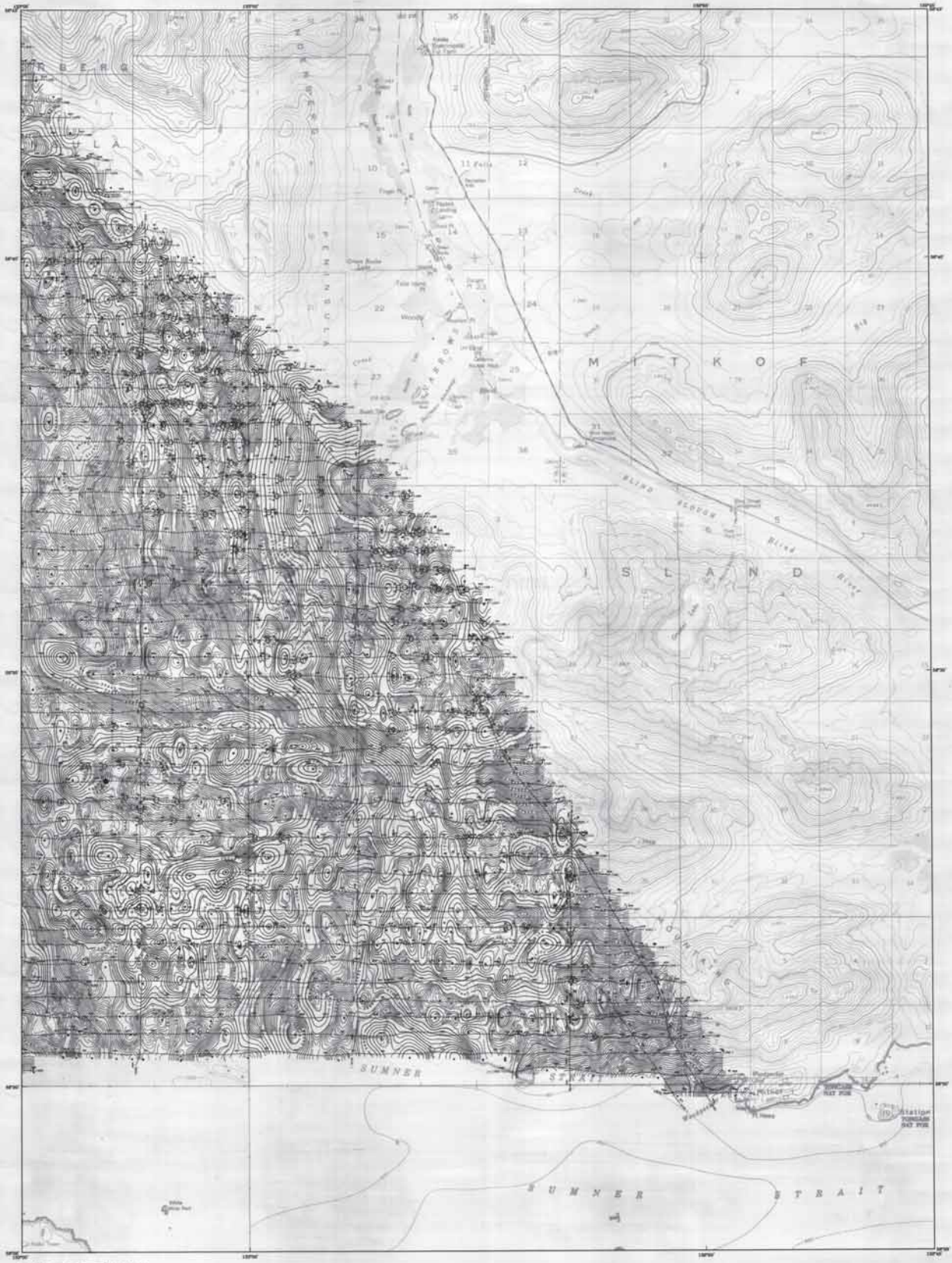
TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a sampling interval of 0.1 seconds, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional variation (an IGRF system, 1985, updated to October 1988) was removed from the leveled magnetic data.

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.

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-45G





WRANGELL SURVEY AREA

SCALE 1:31,680

0.5 0 0.5 1 1.5 2 MILES

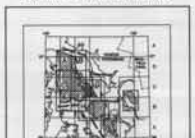
0.5 0 0.5 1 1.5 2 0.5 KILOMETERS

TOTAL FIELD MAGNETICS AND DETAILED ELECTROMAGNETIC ANOMALIES OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP G

1997

LOCATION INDEX FOR SCALE 1:31,680



DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^{V} Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Trent VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 35/70 Hz monitors and video cameras. Flights were performed at a mean terrain clearance of 280 feet along survey flight lines with a spacing of a quarter of ½ mile. Tie lines were flown perpendicular to the flight lines at intervals of approximately 2 miles.

A Trimble Real-Time Differential Global Positioning System (WI-DGPS) was used for both navigation and flight path recovery. The helicopter position was defined every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

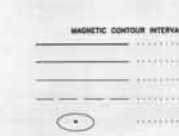
ELECTROMAGNETICS

To determine the location of EM anomalies or their boundaries, the DIGHEM^{V} EM system measured inphase and quadrature components at five frequencies, two vertical coaxial–coil pairs operated at 900 and 5000 Hz while three horizontal coplanar–coil pairs operated at 900, 7200, and 56,000 Hz. EM data were surveyed at 0.1 second intervals. The EM system responds to bedrock conductors and conductive overburden materials. The type of conductor is indicated on the electromagnetic map by the interpretive symbol attached to each EM anomaly. Determination of the type of conductor is based on EM anomaly shapes of the coaxial– and coplanar–coil responses, together with anomalous total magnetic patterns and topography. The power line monitor and the flight trace video were examined to locate cultural sources.

ELECTROMAGNETIC ANOMALIES



MAGNETIC CONTOUR INTERVAL



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 MIM, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex–Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

This map and other products from this survey are available by mail order or in person from DGGS, 794 University Ave., Suite 200, Fairbanks, Alaska, 99709. Some products are also available in person only at the BLM's Bureau Mineral Information Center, Mayflower Island, Juneau, AK.

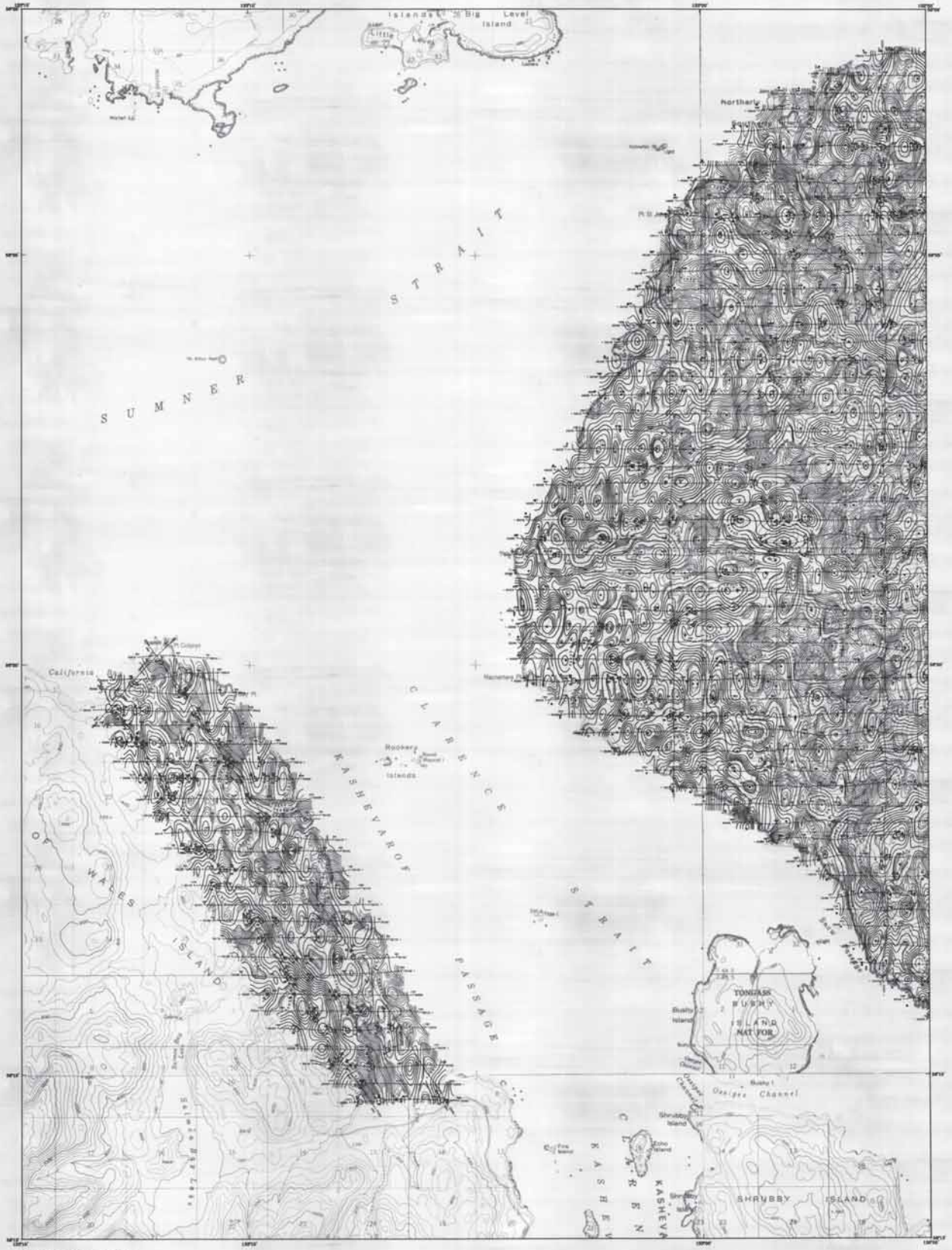
TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a sampling interval of 0.1 seconds, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional correction (or IGRF) model (1985, updated to October 1995) was removed from the leveled magnetic data.

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.

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IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-45H



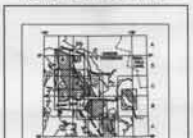


SCALE 1:31,680

0.5 0 0.5 1 1.5 2 MILES

0.5 0 0.5 1 1.5 2 0.5 KILOMETERS

LOCATION INDEX FOR SCALE 1:31,680



TOTAL FIELD MAGNETICS AND DETAILED ELECTROMAGNETIC ANOMALIES OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP H

1997

DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^{V} Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Trent VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. The survey was flown in a north-south direction at approximately 300 foot spacing 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.

A Garmin Real-Time Differential Global Positioning System (RT-GDPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (CM) ellipsoid, 1927 North American datum of 3 degrees central meridian (CM) at 132°, 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.

ELECTROMAGNETICS

To determine the location of EM anomalies on their boundaries, the DIGHEM^{V} EM system measured inphase and quadrature components of five frequencies, two vertical coaxial coil pairs operated at 900 and 5000 Hz, and three horizontal coplanar coil pairs operated at 900, 5000 and 44,000 Hz. The EM data were recorded at 0.1 second intervals. The EM system responds to bedrock conductivity, conductive overburden, and cultural sources. The type of conductor is indicated on the aeromagnetic map by the interpretive symbol attached to each EM anomaly. Determination of the type of conductor is based on EM anomaly shapes of the coaxial- and coplanar-coil responses, together with conductivity and magnetic patterns and topography. The power line monitor and the flight track video were examined to locate cultural sources.

ELECTROMAGNETIC ANOMALIES



MAGNETIC CONTOUR INTERVAL



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 and the U.S. Bureau of Land Management (BLM). Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of 220 Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

The map and other products from this survey are available by mail order or in person from DGGS, 794 University Ave., Suite 200, Fairbanks, Alaska, 99709. Some products are also available in person only at the BLM's Juneau Mineral Information Center, Mayflower Island, Juneau, Ak.

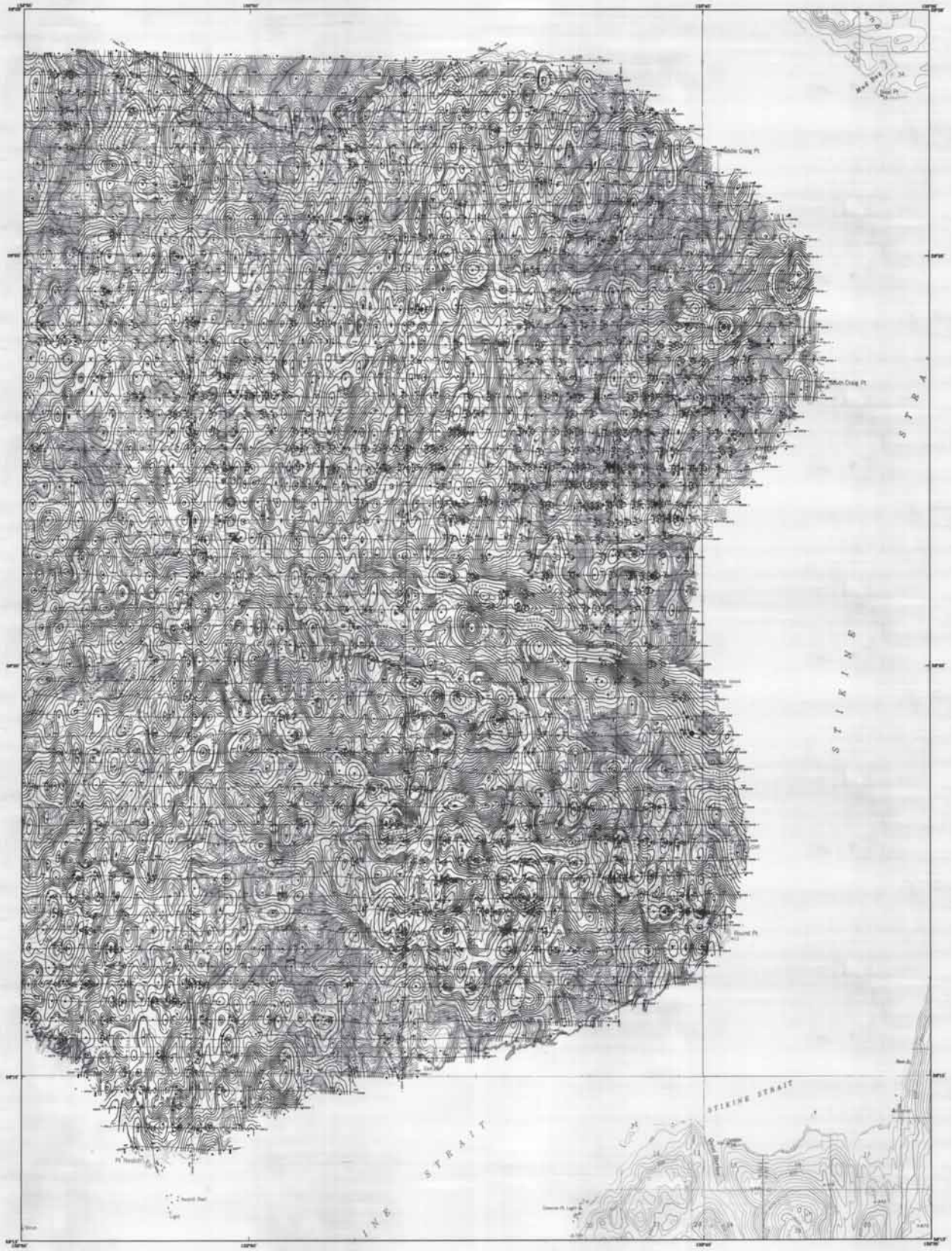
TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a sampling rate/unit of 0.1 seconds, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional variation (or IGRF gradient, 1995, updated to October 1996) was removed from the leveled magnetic data.

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. 589–603.

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-45I



WRANGELL SURVEY AREA

SCALE 1:31,680

TOTAL FIELD MAGNETICS AND DETAILED ELECTROMAGNETIC ANOMALIES OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP I

1997

DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Hard VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and a barometer. Flight lines were oriented N30°E with a nominal separation of 200 feet (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 2 miles.

A Satnav Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (NAD) spheroid, 1927 North American datum, a central meridian (CM) of 132° 30' west, a north constant of 0 and an east constant of 500,000. Positional accuracy of the presented data is better than 15 m with respect to the UTM grid.

ELECTROMAGNETICS

To determine the location of EM anomalies on their boundaries, the DIGHEM EM system measured inphase and quadrature components of five frequencies. Two vertical coaxial coplanar coil pairs operated at 900, 7200, and 56,000 Hz. Two coplanar coil pairs operated at 900, 7200, and 56,000 Hz. All data were sampled at 0.1 second intervals. The EM system responds to bedrock conductors, conductive overburden, and cultural sources. The type of conductor is determined on the aeromagnetic map by the interpretive symbol attached to each EM anomaly. Determination of the type of conductor is based on EM anomaly shapes of the inphase- and quadrature-coil responses, together with conductor and magnetic patterns and topography. The power line monitor and the flight track video were examined to locate cultural sources.

ELECTROMAGNETIC ANOMALIES

Amplitude

Conductance
- >100 siemens
- 50–100 siemens
- 20–50 siemens
- 10–20 siemens
- 5–10 siemens
- 1–5 siemens
- <1 siemens

Questionable anomaly
No magnetic response

Area indicates the conductor has a thickness >15m

Magnetic correlation (or 0)

Dip direction

Anomaly identifier

Interpretive symbol

Depth is greater than
- 120 m
- 80 m
- 60 m
- 40 m
- 20 m

Interpretive symbol
- Bedrock conductor
- Narrow bedrock conductor ("thin dike")
- Conductive cover ("Thalweg" conductor)
- Broad conductive rock unit, broad conductive weathering, or fault zone ("fault valley")
- Edge of broad conductive unit (change of thickness, e.g., paleo channel)
- Culture, e.g., power line, metal building or fence

MAGNETIC CONTOUR INTERVAL

- 100 nT
- 20 nT
- 4 nT
- 2 nT
- magnetic low
- magnetic high

LOCATION INDEX FOR SCALE 1:31,680

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 MDA Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

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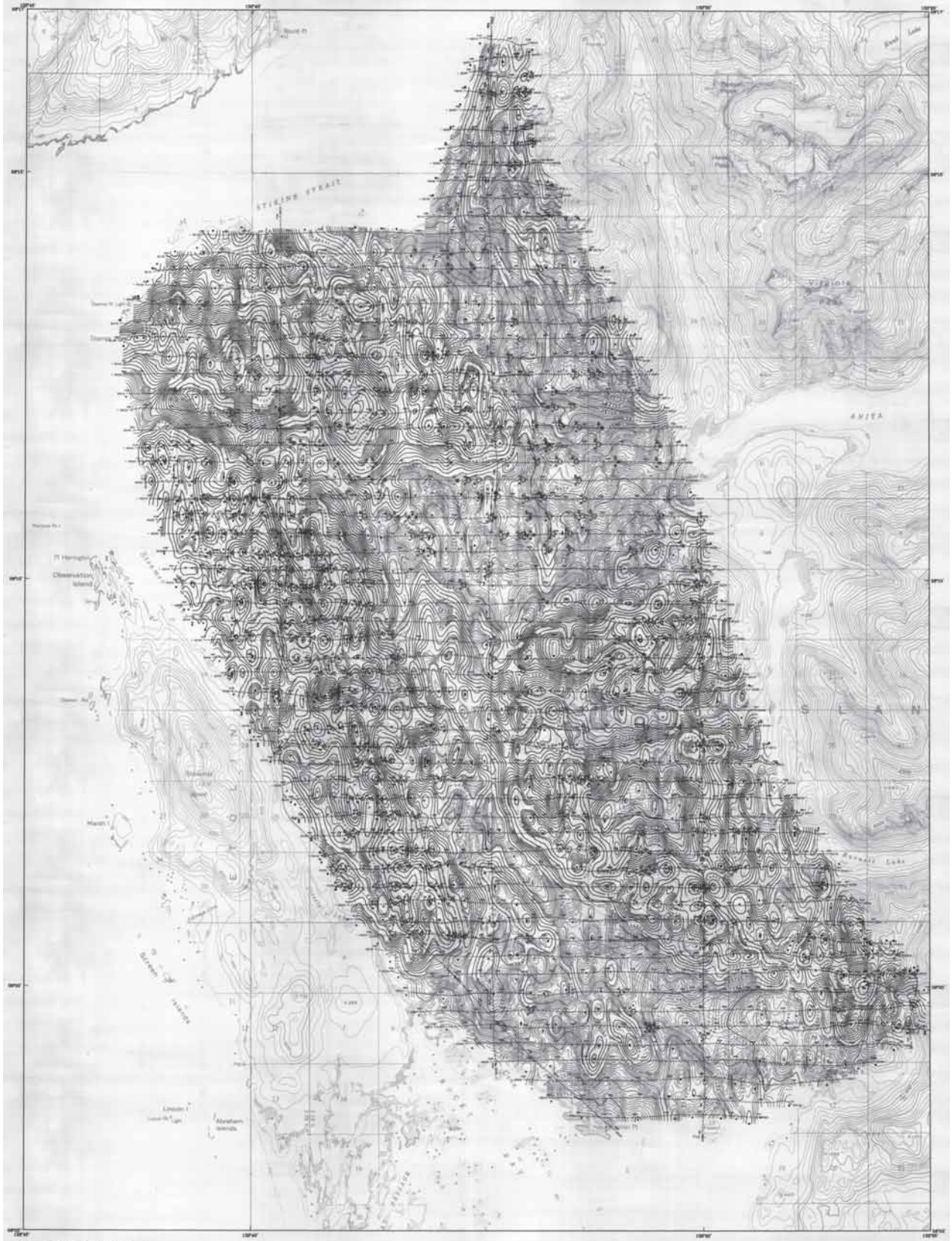
TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a sampling interval of 0.1 seconds, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional correction (or IGRF gradient), 1985, updated to October 1996, was removed from the leveled magnetic data.

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.

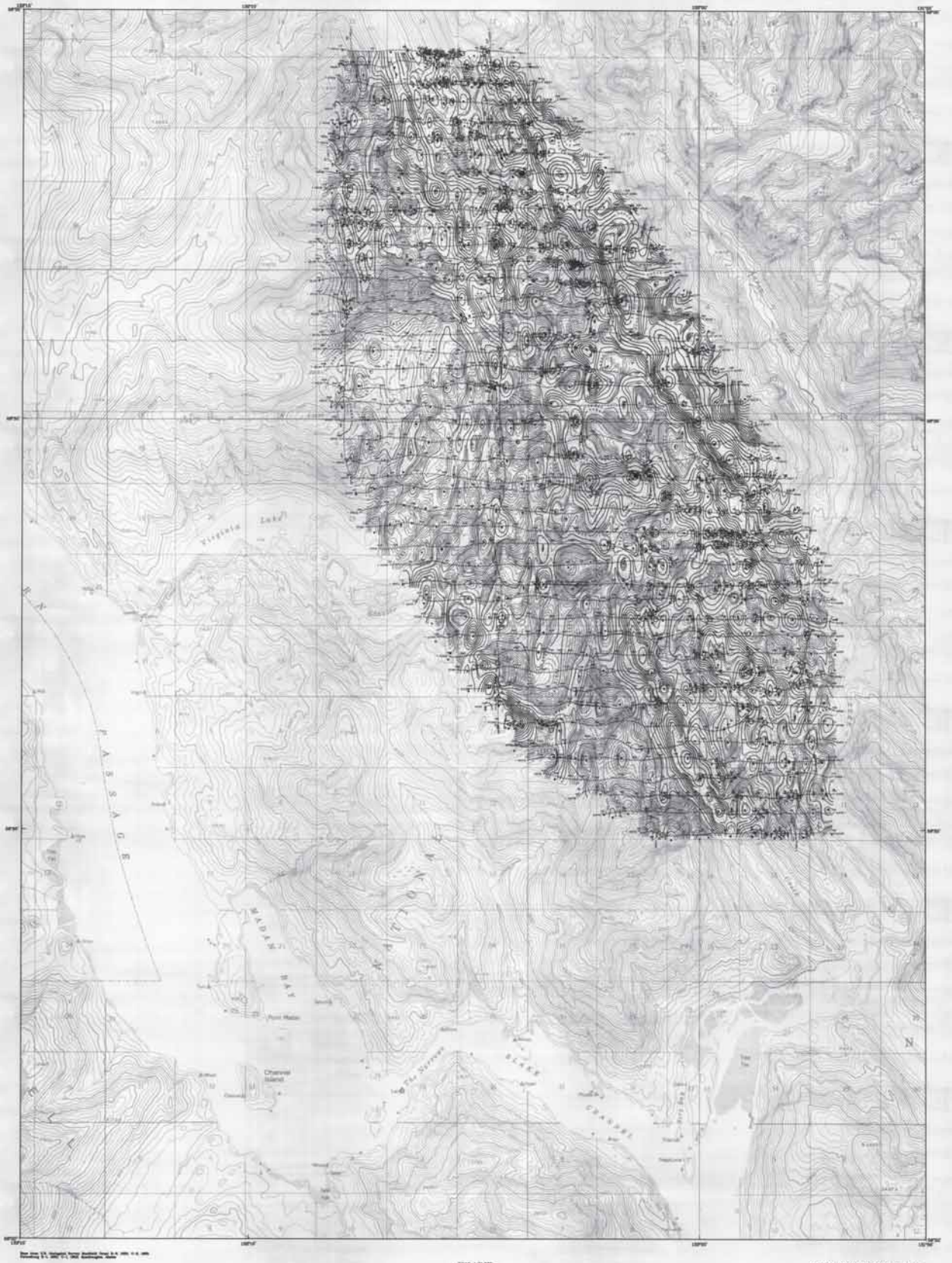
ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-45J


STIKINE STRAIT
Boca de Quadra
Revillagigedo Island
Vallenar Pt.
Point Alava
Ft Herrington
Observation Island
Bessie Pt.
Bessie I.
Marsh I.
Bradfield Canal
Zarembo Island
Thoms Pt.
Lincoln I.
Lincoln Pt.
Lagoon
Abraham Islands
Burnett Inlet
Anita Bay
Anita Lake
Virginia Lake
Virginia Pt.
Virginia Lake
Anita
Wrangell
Wrangell Narrows
Etolin Island
Etolin Island
Etolin Island

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-45K





SCALE 1:31,680

0.5 0 0.5 1 1.5 2 MILES

0.5 0 0.5 1 1.5 2 2.5 KILOMETERS

TOTAL FIELD MAGNETICS AND DETAILED ELECTROMAGNETIC ANOMALIES OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP K

1997

DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 35/70 flu monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was defined every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, a north constant of 0 and an east constant of 500,000. Positional accuracy of the processed data is better than 10 m with respect to the UTM grid.

ELECTROMAGNETICS

To determine the location of EM anomalies or their boundaries, the DIGHEM^V EM system measured inphase and quadrature components of five frequencies. Two vertical coaxial coil pairs operated at 900 and 5000 Hz while three horizontal coplanar coil pairs operated at 800, 7200, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM anomalies are caused by bedrock conductive overburden, and cultural sources. The type of conductor is indicated on the aeromagnetic map by the interpretive symbol attributed to each EM anomaly. Determination of the type of conductor is based on EM anomaly shapes of the coaxial- and coplanar-coil responses, together with conductor and magnetic patterns and topography. The power line monitor and the flight trace video were examined to locate cultural sources.

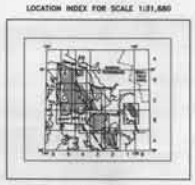
ELECTROMAGNETIC ANOMALIES



MAGNETIC CONTOUR INTERVAL



LOCATION INDEX FOR SCALE 1:31,680



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 Wolfe Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

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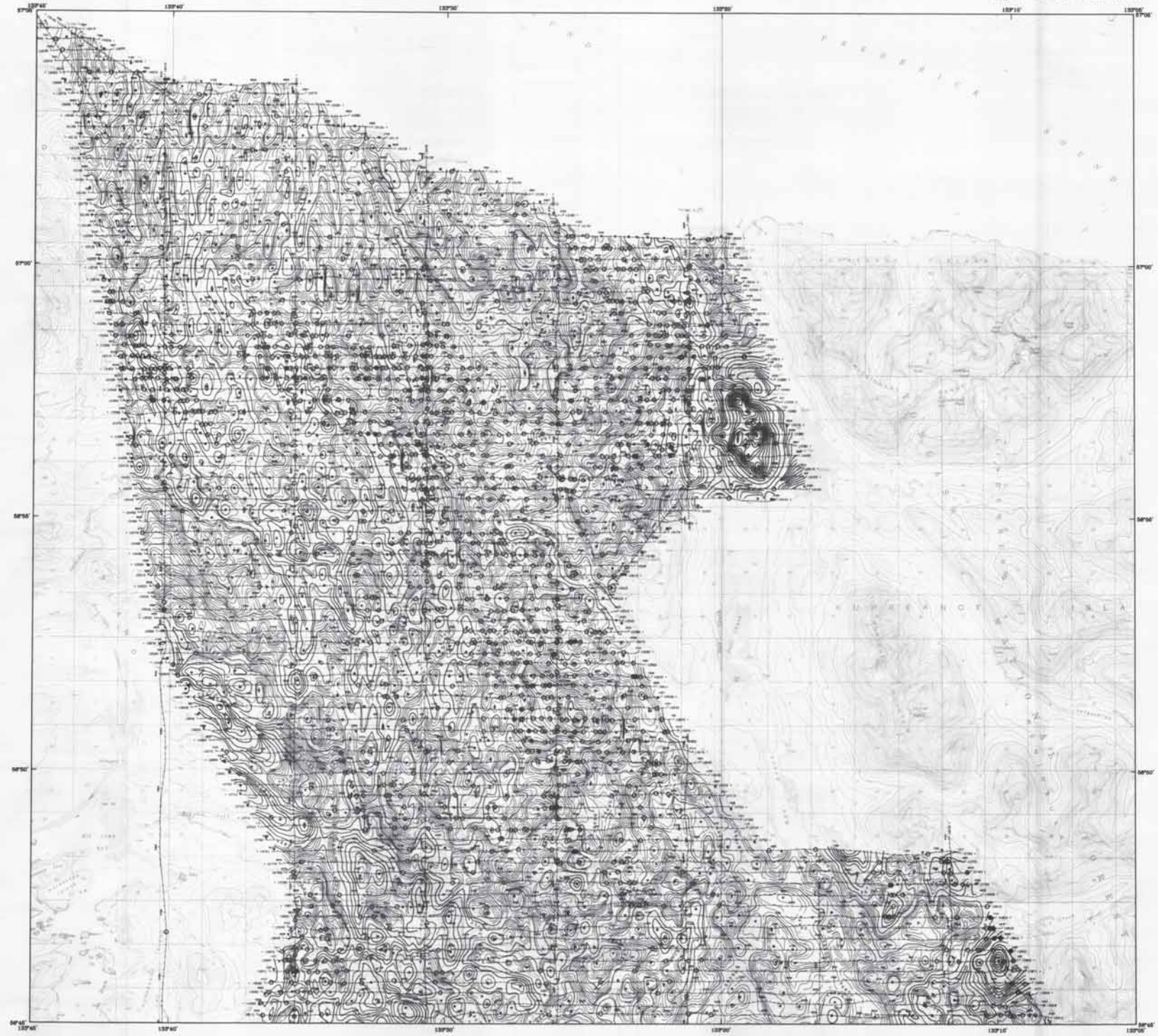
TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a corresponding interval of 0.1 second, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated between the flight lines using a minimum curvature (1970) technique. The International Reference Field gradient, 1985, updated to January 1, 1990, was removed from the leveled magnetic data.

Briggs, I.C. 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. 844–860.

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-38A
Map A - North Duncan Canal





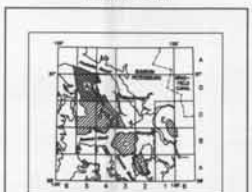
SCALE 1:63,360
1 0 1 2 3 4 MILES
1 0 1 2 3 4 5 KILOMETERS

TOTAL FIELD MAGNETICS AND ELECTROMAGNETIC ANOMALIES, OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP A - NORTH DUNCAN CANAL

1997

LOCATION INDEX



DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

ELECTROMAGNETICS

To determine the location of EM anomalies or their boundaries, the DIGHEM^V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5000 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to bedrock conductors, conductive overburden, and cultural sources. The power line monitor and the flight track video were examined to locate cultural sources. The EM anomalies that are indicated are classified by conductance.

ELECTROMAGNETIC ANOMALIES

Anomaly	Conductance
●	>50 siemens
○	<50 siemens
✱	Questionable anomaly
△	Weak conductivity associated with an EM magnetite response

MAGNETIC CONTOUR INTERVAL

200 nT
50 nT
10 nT
5 nT
magnetic low
magnetic high

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 WGM, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

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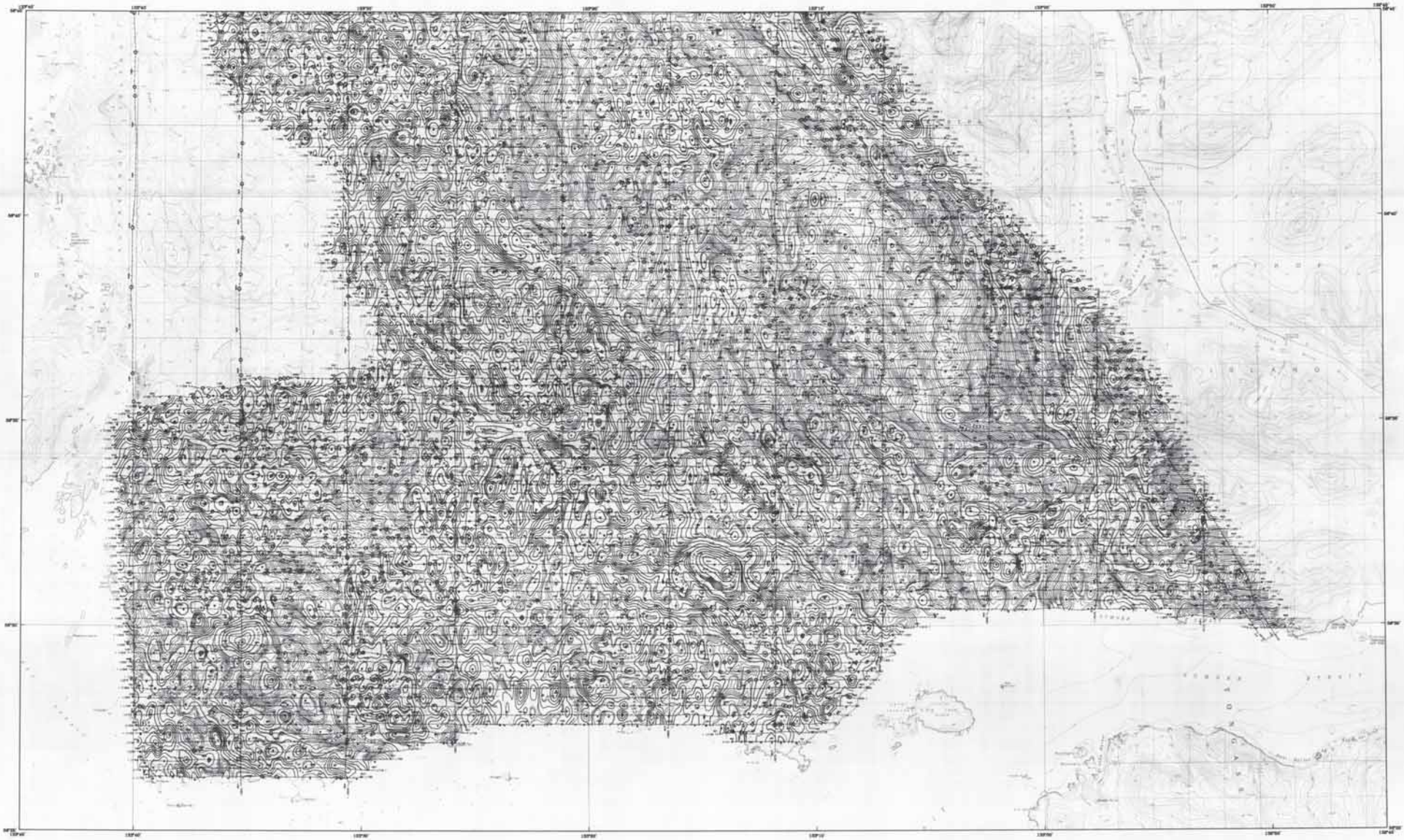
TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a sampling interval of 0.1 seconds, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional variation (or IGRF gradient, 1985, updated to October 1996) was removed from the leveled magnetic data.

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.

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
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PUBLIC-DATA FILE 97-38B
Map B - South Duncan Canal



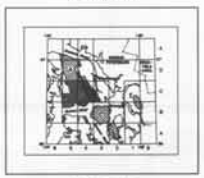


TOTAL FIELD MAGNETICS AND ELECTROMAGNETIC ANOMALIES, OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP B - SOUTH DUNCAN CANAL

1997

LOCATION INDEX



DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^{V} Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS.350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 35/70 hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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 2 miles.

A Satnav Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was defined every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (CNA) spheroid, 1927 North American datum using a central meridian (CM) of 132°, 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.

ELECTROMAGNETICS

To determine the location of EM anomalies or their boundaries, the DIGHEM^{V} EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5000 hz, and three horizontal coplanar-coil pairs operated at 1.8, 7200 and 56,000 hz. The data were recorded at 0.11 second intervals. The EM system responds to bedrock conductors, conductive overburden, and cultural sources. The power line monitor and the flight track video were examined to locate cultural sources. The EM anomalies that are indicated are classified by conductance.

ELECTROMAGNETIC ANOMALIES

Anomaly — Conductance

- ● — >50 siemens
- ○ — <50 siemens
- ✱ — Questionable anomaly
- △ — Area conductivity associated with an EM magnetite response

MAGNETIC CONTOUR INTERVAL

- 250 nT
- 50 nT
- 10 nT
- 2 nT
- Magnetic low
- Magnetic high

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 MDA Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

This map and other products from this survey are available by mail order or in person from DGGS, 794 University Ave., Suite 200, Fairbanks, Alaska, 99709. Some products are also available in person only at the BLM's Juneau Mineral Information Center, Mayflower Island, Juneau, AK.

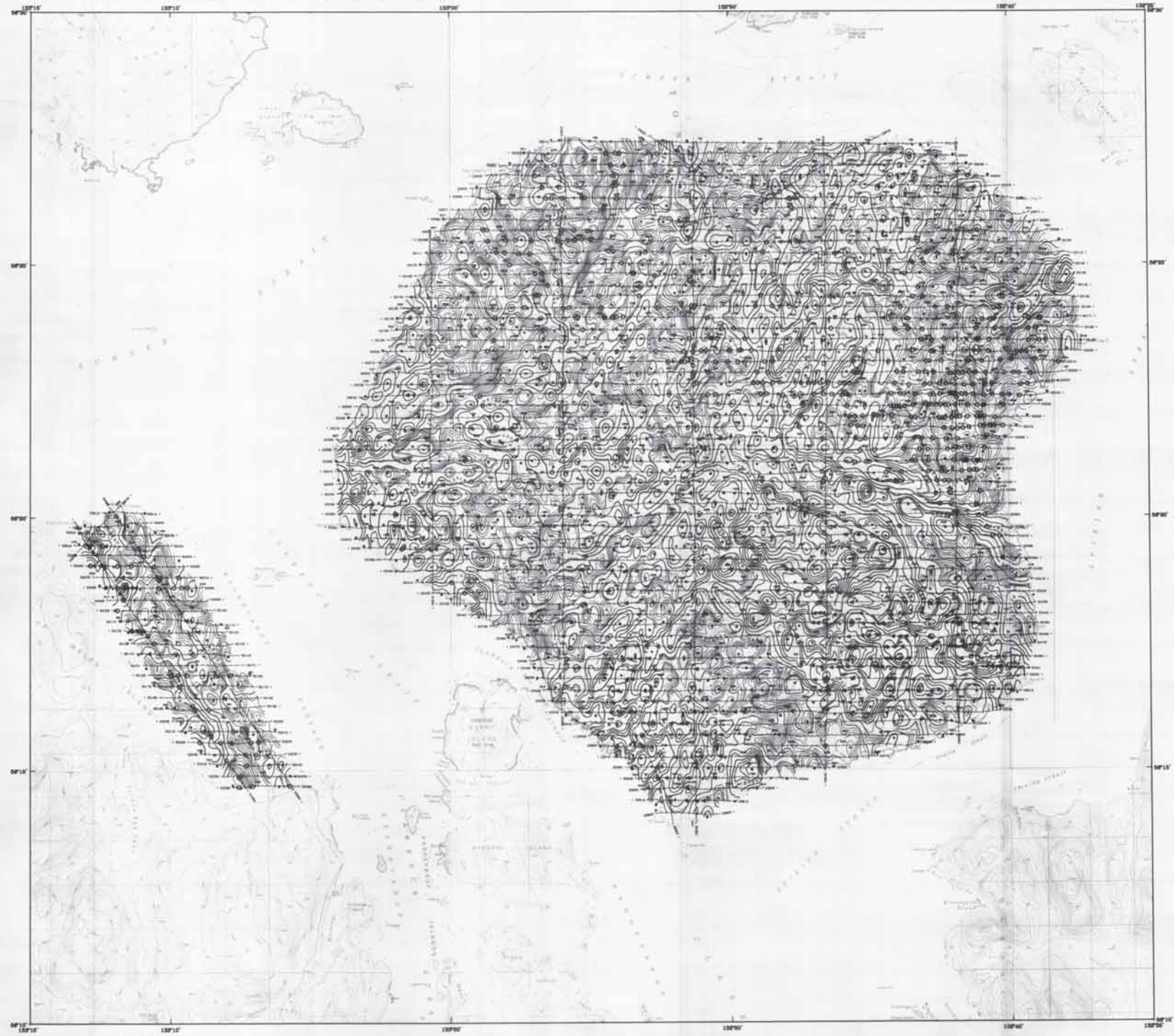
TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a sampling interval of 0.1 seconds, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional variation (an IGRF gradient, 1995, updated to October 1996) was removed from the leveled magnetic data.

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.

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-38C
Map C - Zarembo Island & Eastern Prince of Wales Island





SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS

TOTAL FIELD MAGNETICS AND ELECTROMAGNETIC ANOMALIES, OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP C - ZAREMBO ISLAND & EASTERN PRINCE OF WALES ISLAND

1997

DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Hertz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

ELECTROMAGNETICS

To determine the location of EM anomalies or their boundaries, the DIGHEM^V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5000 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to bedrock conductors, conductive overburden, and cultural sources. The power line monitor and the flight track video were examined to locate cultural sources. The EM anomalies that are indicated are classified by conductance.

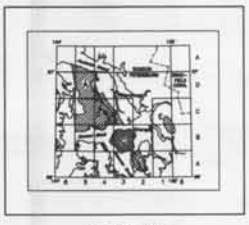
ELECTROMAGNETIC ANOMALIES

Anomaly	Conductance
●	>50 siemens
○	<50 siemens
✱	Questionable anomaly
△	Weak conductivity associated with an EM magnetite response

MAGNETIC CONTOUR INTERVAL

- 250 nT
- 50 nT
- 10 nT
- 5 nT
- magnetic low
- magnetic high

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 WGM, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

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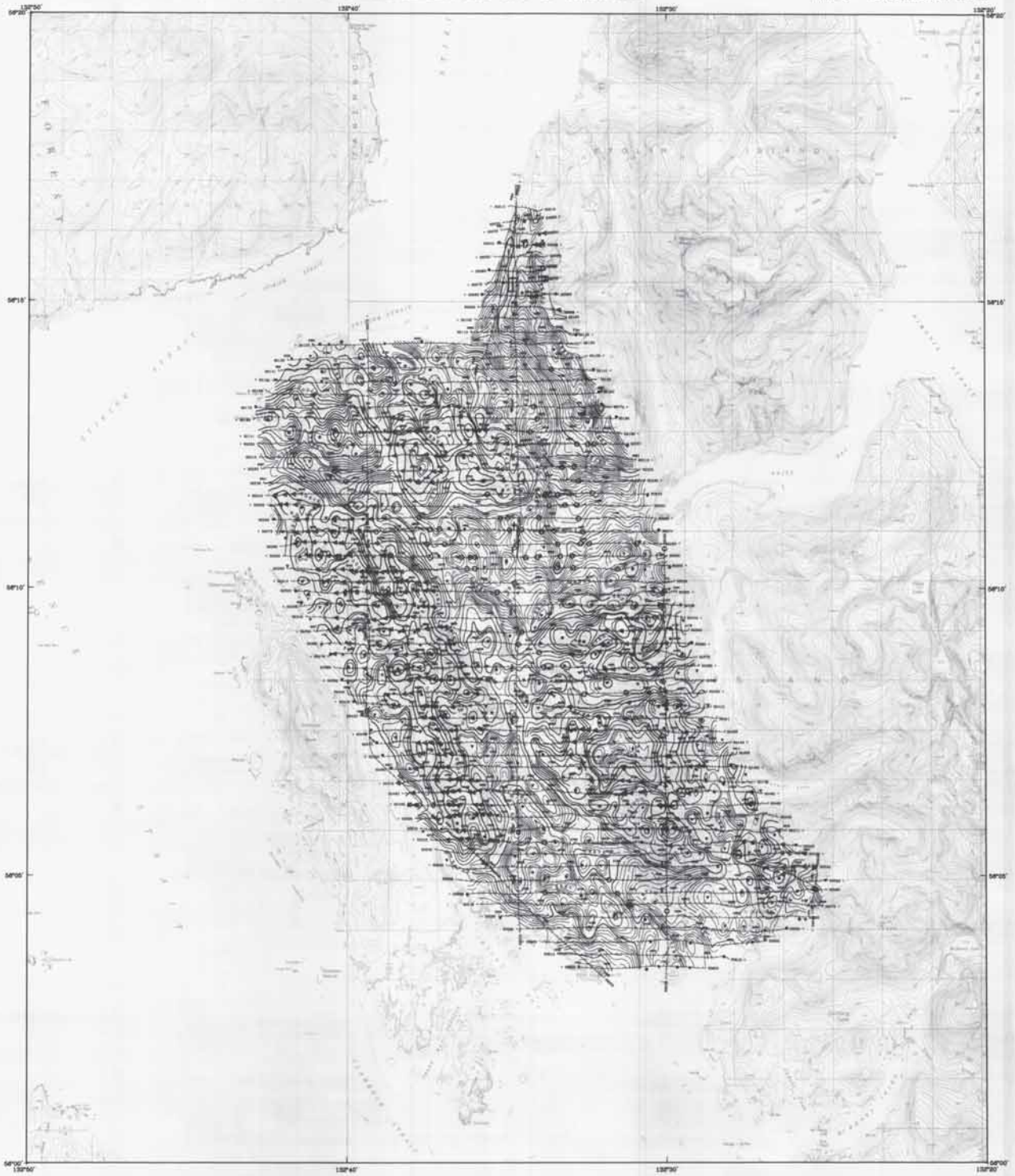
TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a sampling interval of 0.1 seconds, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional variation (or IGRF gradient, 1985, updated to October 1996) was removed from the leveled magnetic data.

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.

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-38D
Map D - Western Etolin Island



SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS

TOTAL FIELD MAGNETICS AND ELECTROMAGNETIC ANOMALIES, OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP D - WESTERN ETOLIN ISLAND

1997



DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

ELECTROMAGNETICS

To determine the location of EM anomalies or their boundaries, the DIGHEM^V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5000 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to bedrock conductors, conductive overburden, and cultural sources. The power line monitor and the flight track video were examined to locate cultural sources. The EM anomalies that are indicated are classified by conductance.

ELECTROMAGNETIC ANOMALIES

Anomaly	Conductance
●	>50 siemens
○	>50 siemens
✱	Questionable anomaly
△	Weak conductivity associated with an EM magnetite response

MAGNETIC CONTOUR INTERVAL

250 nT

50 nT

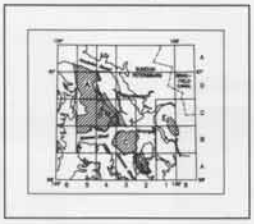
10 nT

5 nT

magnetic low

magnetic high

LOCATION INDEX



SURVEY HISTORY

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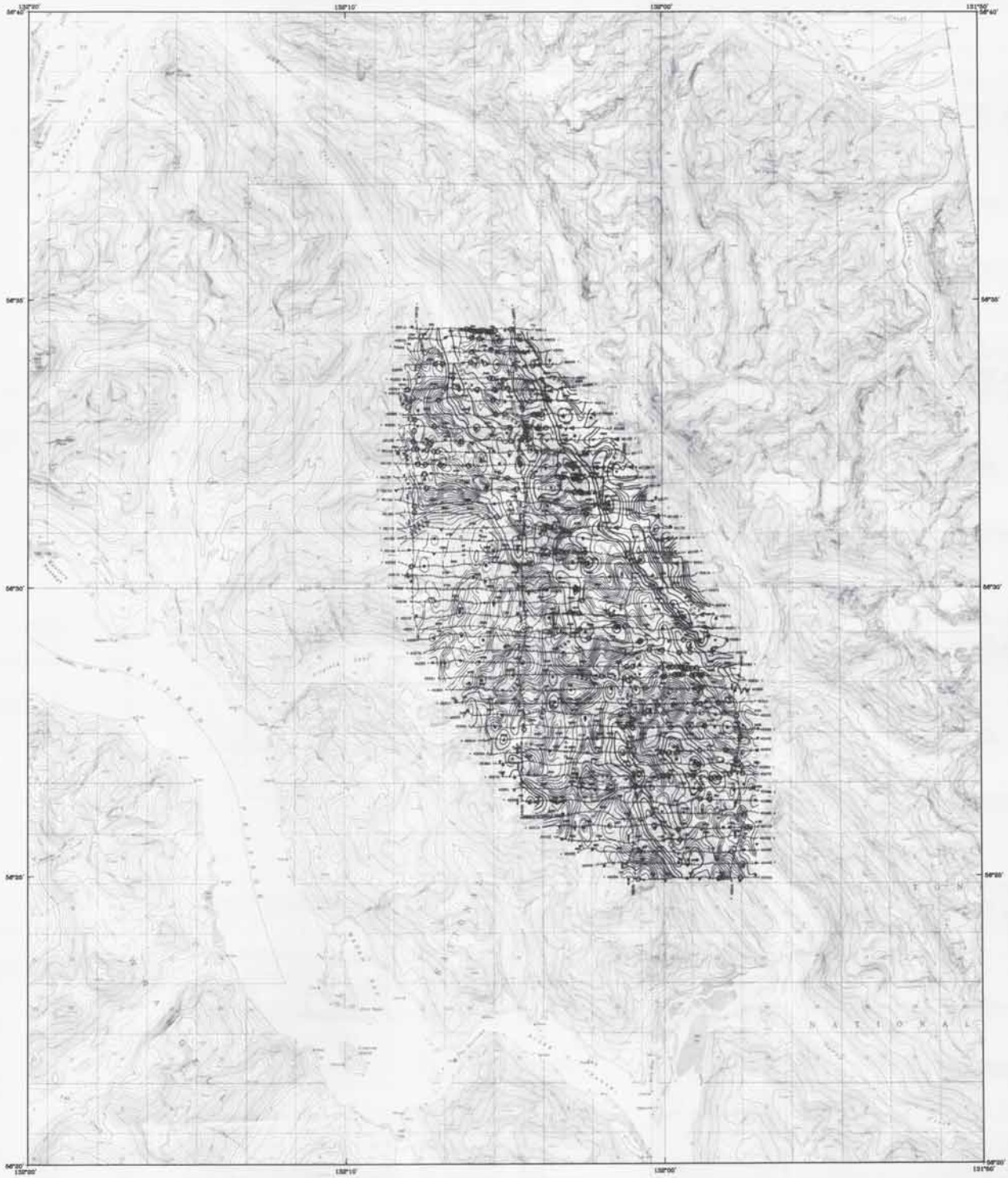
TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a sampling interval of 0.1 seconds, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional variation (or IGRF gradient, 1985, updated to October 1996) was removed from the leveled magnetic data.

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.

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

PUBLIC-DATA FILE 97-38E
Map E - Groundhog Basin



Base from U.S. Geological Survey Stratford Coast, B-4, C-4, 1956;
Petersburg B-1, 1955; C-1, 1955; Bradshaw, Alaska

SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 250 FEET
DATUM: MEAN SEA LEVEL

TOTAL FIELD MAGNETICS AND ELECTROMAGNETIC ANOMALIES, OF THE STIKINE AREA, SOUTHEAST ALASKA

MAP E - GROUNDHOG BASIN

1997





DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Narco VLF system installed in an AS.350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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.

A Sercel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clark 1866 (UTM) spheroid, 1927 North American datum using a central meridian (CM) of 135°, 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.

ELECTROMAGNETICS

To determine the location of EM anomalies or their boundaries, the DIGHEM^V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5000 Hz while three horizontal coplanar-coil pairs operated at 900, 7200, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to bedrock conductors, conductive overburden, and cultural sources. The power line monitor and the flight track video were examined to locate cultural sources. The EM anomalies that are indicated are classified by conductance.

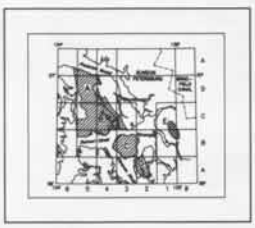
ELECTROMAGNETIC ANOMALIES

Anomaly	Conductance
●	>50 siemens
○	<50 siemens
✱	Questionable anomaly
△	Weak conductivity associated with an EM magnetite response

MAGNETIC CONTOUR INTERVAL

250 nT
50 nT
10 nT
5 nT
magnetic low
magnetic high

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 MDM, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of Interior Bureau of Land Management (BLM) and the City of Wrangell.

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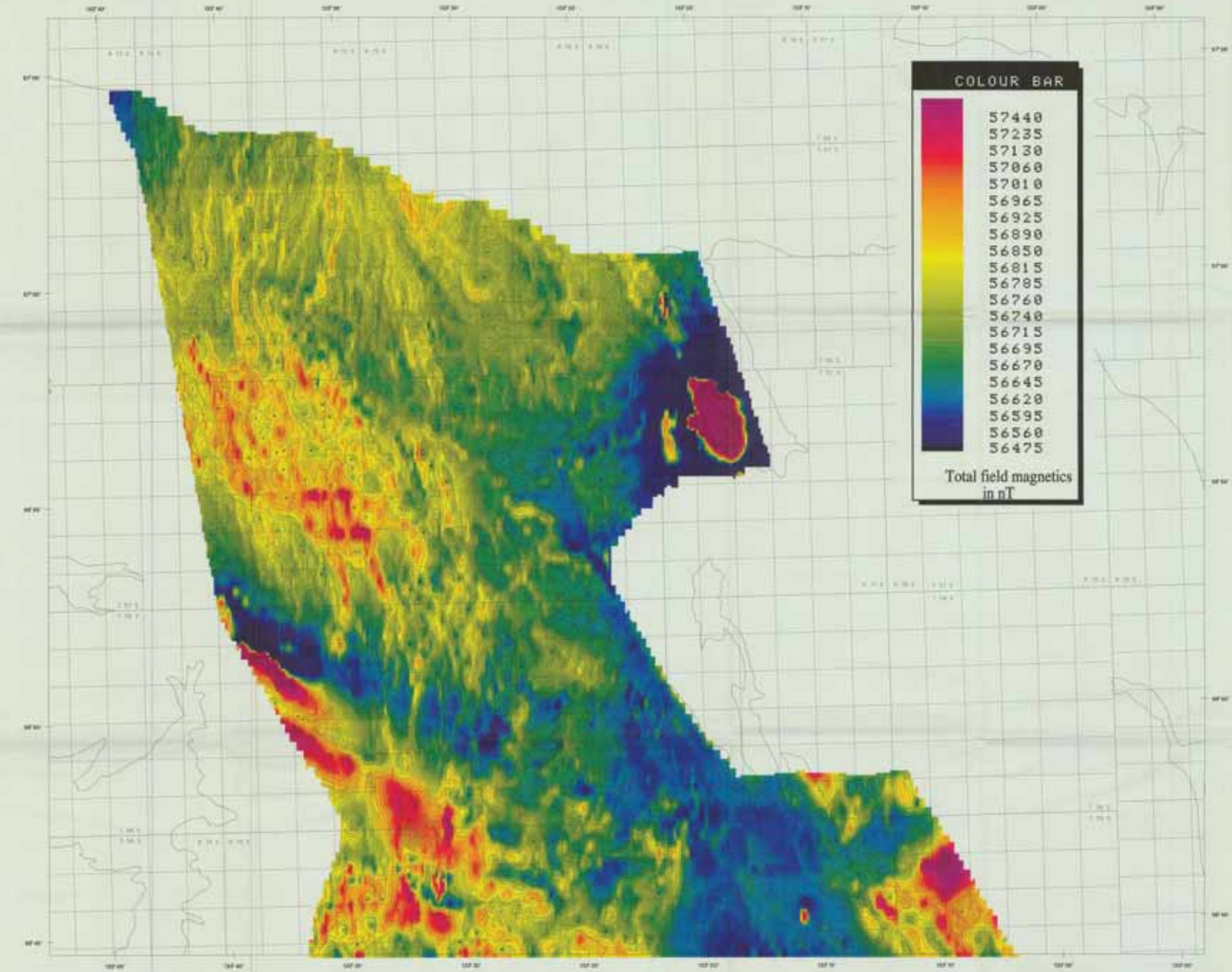
TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a sampling interval of 0.1 seconds, and were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional variation (or IGRF gradient, 1985, updated to October 1996) was removed from the leveled magnetic data.

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.

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-17A



TOTAL FIELD MAGNETICS OF THE STIKINE AREA, SOUTHEASTERN ALASKA
MAP A – NORTH DUNCAN CANAL

1997

Department of Natural Resources
Division of Geological and Geophysical Surveys
Geologic Data Modeling System

Department of the Interior
Bureau of Land Management

City of Wrangell

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NOTES

THE COLOR SCHEME USED IS IDENTICAL FOR MAPS IN 97-17A-D IN ORDER THAT THE MAPS CAN BE COMPARED EASILY WITH ONE ANOTHER. SOME DETAILS ON MAPS C AND D MAY BE LOST BECAUSE OF THIS. CUSTOM PLOTS SHOWING DIFFERENT COLOR SCHEMES FOR MAPS C AND D ARE AVAILABLE ON REQUEST.

THE COLOR SCHEME USED FOR MAP IN 97-17F IS DIFFERENT THAN THAT USED FOR MAPS IN 97-17A-D.

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 Nobis Mining and Geological Consultants, Inc. Airborne geophysical data for this area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of the Interior Bureau of Land Management (BLM) and the City of Wrangell.

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DESCRIPTIVE NOTES

Geophysical data were acquired with a DIGHEM V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Pico 12 system installed in an AS350B-3 Eurocopter helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 35mm flo monitors, and video camera. Flights were performed in a mean terrain clearance of 200 feet along survey lines with a spacing of 1/4 quarter of a mile. Tie lines were flown perpendicular to the flight lines at intervals of approximately three miles.

A Secret Real-Time Differential Global Positioning System (RTDGPS) was used for both navigation and flight path recovery. The horizontal datum was derived every 0.5 seconds using both real-time and post-processing differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clarke 1866 (CT66 spheroid, 1927 North American datum using a Central Meridian (CM) of 132 degrees, a north correction of 0 and an east constant of 500,000. Positional accuracy of the processed data is better than 10 m with respect to the CT66 grid.

TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a sampling interval of 0.1 seconds. The magnetic data were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional variation (in IGRF 1965, updated to October 1998) was removed from the leveled magnetic data.

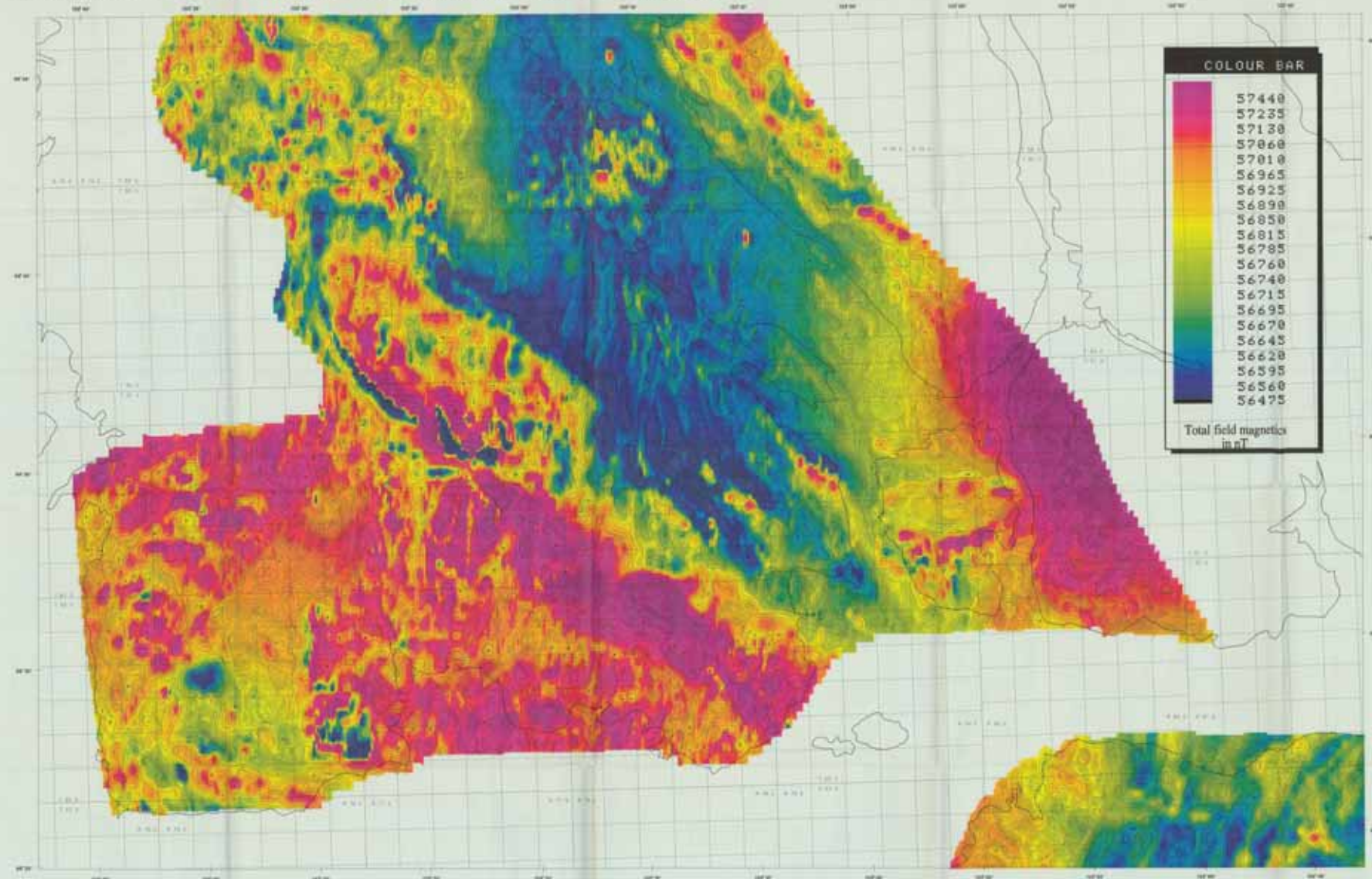
Akima, H., 1970, A new method of interpolation and smooth curve fitting based on local procedures: Journal of the Association of Computing Machinery v.17 no. 4, p. 589-602.

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ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-17B



Department of Natural Resources
Division of Geological and Geophysical Surveys
Geologic Data Modeling System

Department of the Interior
Bureau of Land Management

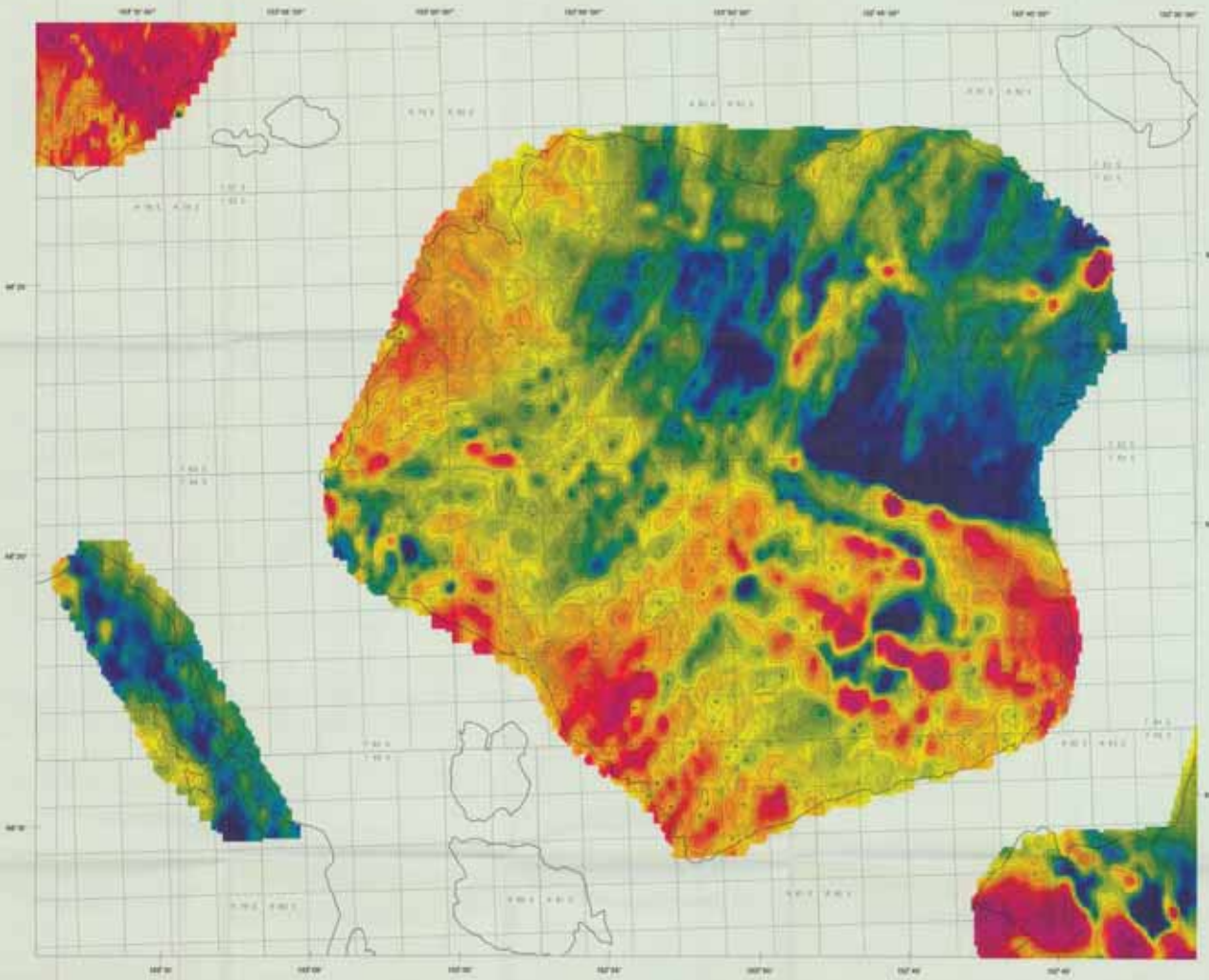
City of Wrangell

TOTAL FIELD MAGNETICS OF THE STIKINE AREA, SOUTHEASTERN ALASKA
MAP B – SOUTH DUNCAN CANAL

1997

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT
AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-17C



COLOUR BAR

57003
57003
57003
57060
57010
56965
56925
56890
56850
56815
56785
56760
56740
56715
56695
56670
56645
56620
56595
56560
56475

Total field magnetics in nT

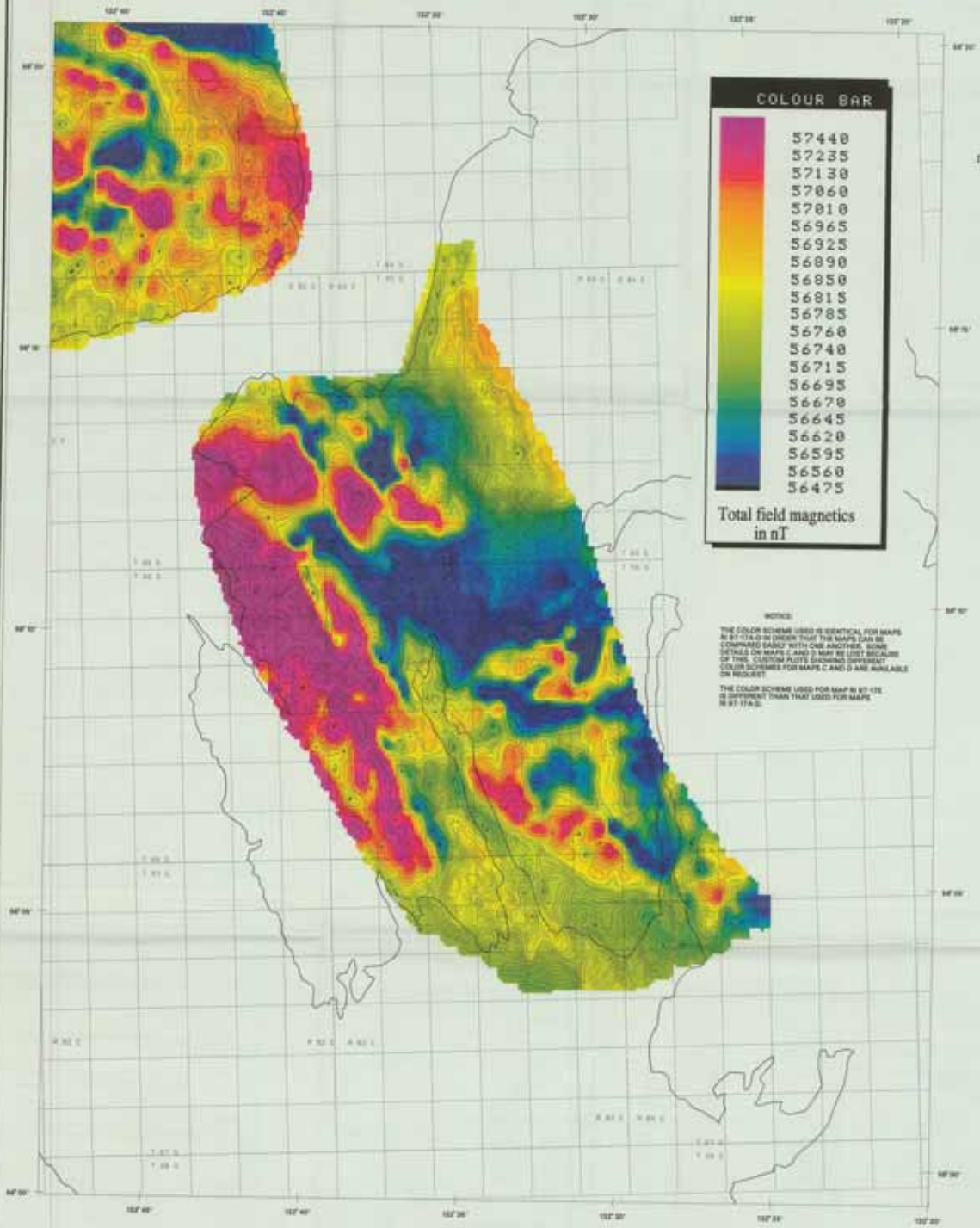
TOTAL FIELD MAGNETICS OF THE STIKINE AREA, SOUTHEASTERN ALASKA

MAP C – ZAREMBO ISLAND AND EASTERN PRINCE OF WALES ISLAND

1997

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-17D



Department of Natural Resources
Division of Geological and Geophysical Surveys
Geologic Data Modeling System

Department of the Interior
Bureau of Land Management

City of Wrangell

NOTICE

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SURVEY HISTORY

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DESCRIPTIVE NOTES

Geophysical data were acquired with a DIGHEM-V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Honeywell VG gyroscope installed in an AS350B 2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 60-Hz monitoring, and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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 three miles.

A Global Real-Time Differential Global Positioning System (RTDGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using both real-time and post-processing differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clarke 1866 (UTM) spheroid, 1927 North American datum using a Central Meridian (CM) of 135 degrees, a north correction 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.

LOCATION INDEX





Section outlines from U.S. Geological Survey: Petersburg A-2, 1953; A-3, 1948; B-2, 1963; B-3, 1948; Scattergoods, Alaska

TOTAL FIELD MAGNETICS

The total field magnetic data were acquired with a sampling interval of 0.1 seconds. The magnetic data were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional variation for IGRF 1995, updated to October 1996, was removed from the leveled magnetic data.

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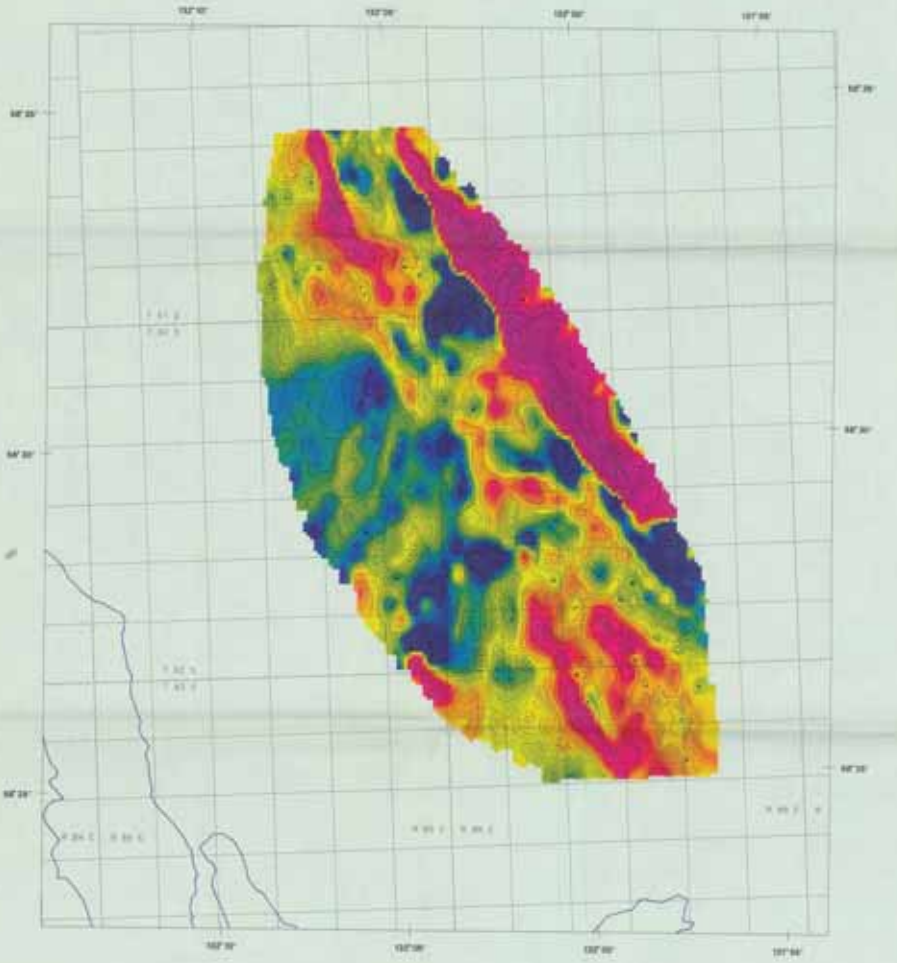
TOTAL FIELD MAGNETICS OF THE STIKINE AREA, SOUTHEASTERN ALASKA

MAP D – WESTERN ETOLIN ISLAND

1997

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-17E





Department of Natural Resources
Division of Geological and Geophysical Surveys
Geologic Data Modeling System



Department of the Interior
Bureau of Land Management



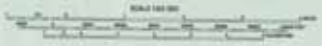
City of Wrangell



Section outlines from U.S. Geological Survey Bradfield Canal (I-4, C-5, 1965; Petersburg (I-1, 1955; C-1, 1953; Ouadrangles, Alaska

LOCATION INDEX





DESCRIPTIVE NOTES

Geophysical data were acquired with a DIGHEM V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, EID/BO Hx monitors, and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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 three miles.

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SURVEY HISTORY

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THE COLOR SCHEME USED FOR MAP IN 97-17E IS DIFFERENT THAN THAT USED FOR MAPS IN 97-17A-D.

TOTAL FIELD MAGNETICS OF THE STIKINE AREA, SOUTHEASTERN ALASKA
MAP E – GROUNDHOG BASIN

1997





TOTAL FIELD MAGNETICS

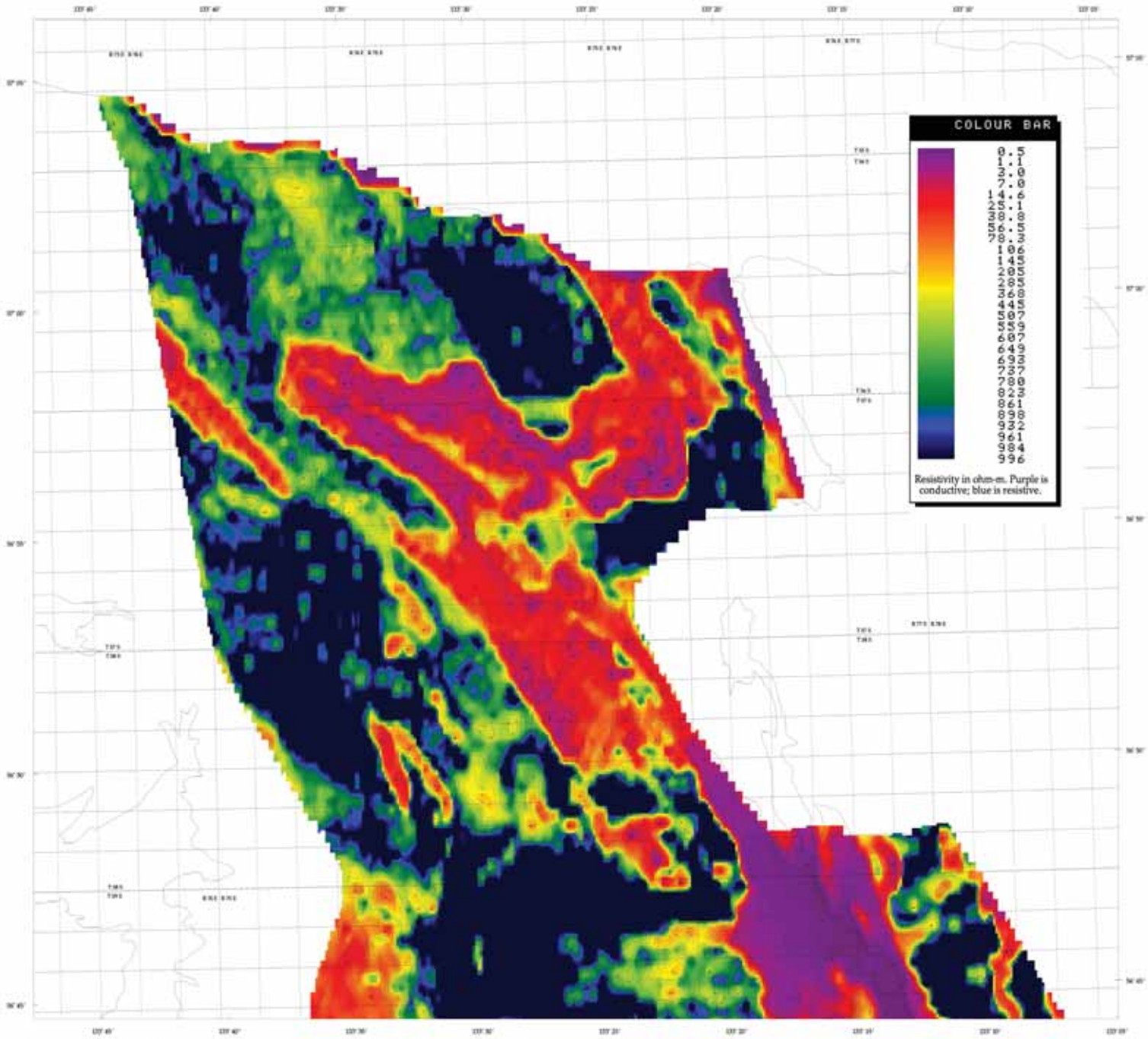
The total field magnetic data were acquired with a sampling interval of 0.1 seconds. The magnetic data were (1) corrected for diurnal variations by subtraction of the digitally recorded base station magnetic data, (2) leveled to the tie line data, and (3) interpolated onto a regular 100 m grid using a modified Akima (1970) technique. The regional variation for IGRF, 1965 updated to October 1995 was removed from the leveled magnetic data.

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.

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ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT
AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-18A



Department of Natural Resources
Division of Geological & Geophysical Surveys
Geologic Data Modeling System

Department of the Interior
Bureau of Land Management

City of Wrangell

RESISTIVITY

The DIGHEM-V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial coil-pairs operated at 900 and 5000 Hz while three horizontal coplanar coil-pairs operated at 900, 7200, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to bedrock conductivity, conductive overburden, and cultural sources. Apparent resistivity is generated from the inphase and quadrature components of the coplanar 900 Hz using the pseudo-layer half-space model. This data were interpolated onto a regular 100 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.

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 WGM, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of the Interior Bureau of Land Management (50/50) and the City of Wrangell.

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DESCRIPTIVE NOTES

Geophysical data were acquired with a DIGHEM-V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a three VLF systems installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors, and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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 three miles.

A Stated Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.2 seconds using both real-time and post-processing differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clarke 1866 (UTM) spheroid, 1927 North American datum using a Central Meridian (CM) of 133 degrees, 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.

LOCATION MAPS





Section outlines from U.S. Geological Survey Protraction D-6, 1951; D-5, 1948; D-6, 1951; Seasdan A-6, 1951; A-5, A-6, 1948; Quadrangles, Alaska.

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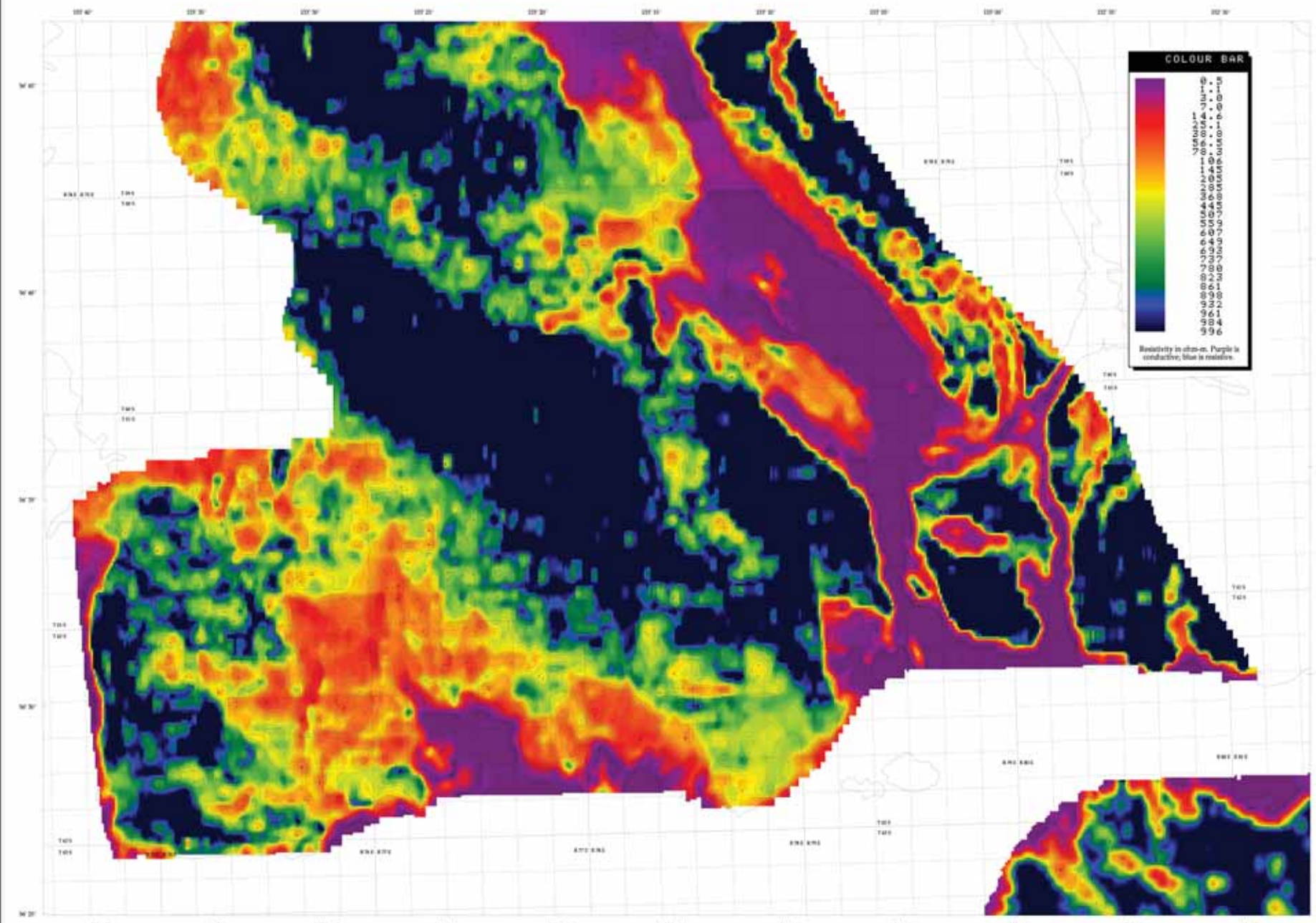
APPROXIMATE MEAN DECLINATION, 1997

900 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEASTERN ALASKA
MAP A -- NORTH DUNCAN CANAL

1997

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-18B



Department of Natural Resources
Division of Geological & Geophysical Surveys
Geologic Data Modeling System

Department of the Interior
Bureau of Land Management

City of Wrangell

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 Witbi Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of the Interior Bureau of Land Management (BLM) and the City of Wrangell.

This map and other products from this survey are available from DGGS, 794 University Ave., Suite 200, Fairbanks, Alaska, 99709. Phone: (907) 451-5020; FAX: (907) 451-5050. Some products are also available at the BLM's Juneau Mineral Information Center, Mayflower Island, Juneau, AK.

RESISTIVITY

The DIGHEM-V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial coil-pairs operated at 900 and 5000 Hz while three horizontal coplanar coil-pairs operated at 900, 7206, and 56,000 Hz. EM data were sampled at 0.1 second intervals. The EM system responds to bedrock conductance, conductive overburden, and cultural sources. Apparent resistivity is generated from the inphase and quadrature components of the coplanar 900 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 100 m grid using a modified Akima (1978) technique.

Akima, H., 1978, 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.

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DESCRIPTIVE NOTES

Geophysical data were acquired with a DIGHEM-V Electromagnetic (EM) system, a fluxgate vector magnetometer, and a Trimble VLP system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, NOR-Vu electronic, and video camera. Flights were performed at a mean terrain clearance of 100 feet along survey flight lines with a spacing of a quarter of a mile. The lines were flown perpendicular to the flight lines at intervals of approximately three miles.

A Novel Real-Time Differential Global Positioning System (NJ-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.1 seconds using both real-time and post-processing differential positioning, to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clarke 1866 (CF66) spheroid, 1927 North American datum using a Central Meridian (CM) of 131 degrees, a north constant of 0 and an unit constant of 396,000. Positional accuracy of the presented data is better than 10 m with respect to this CF66 grid.

location maps

Station outlines from U.S. Geological Survey, Petersburg (D-4, 1951; D-5, 1948; D-6, 1951; Sumdum A-8, 1951; A-5, A-6, 1948; Quadboughs, Alaska

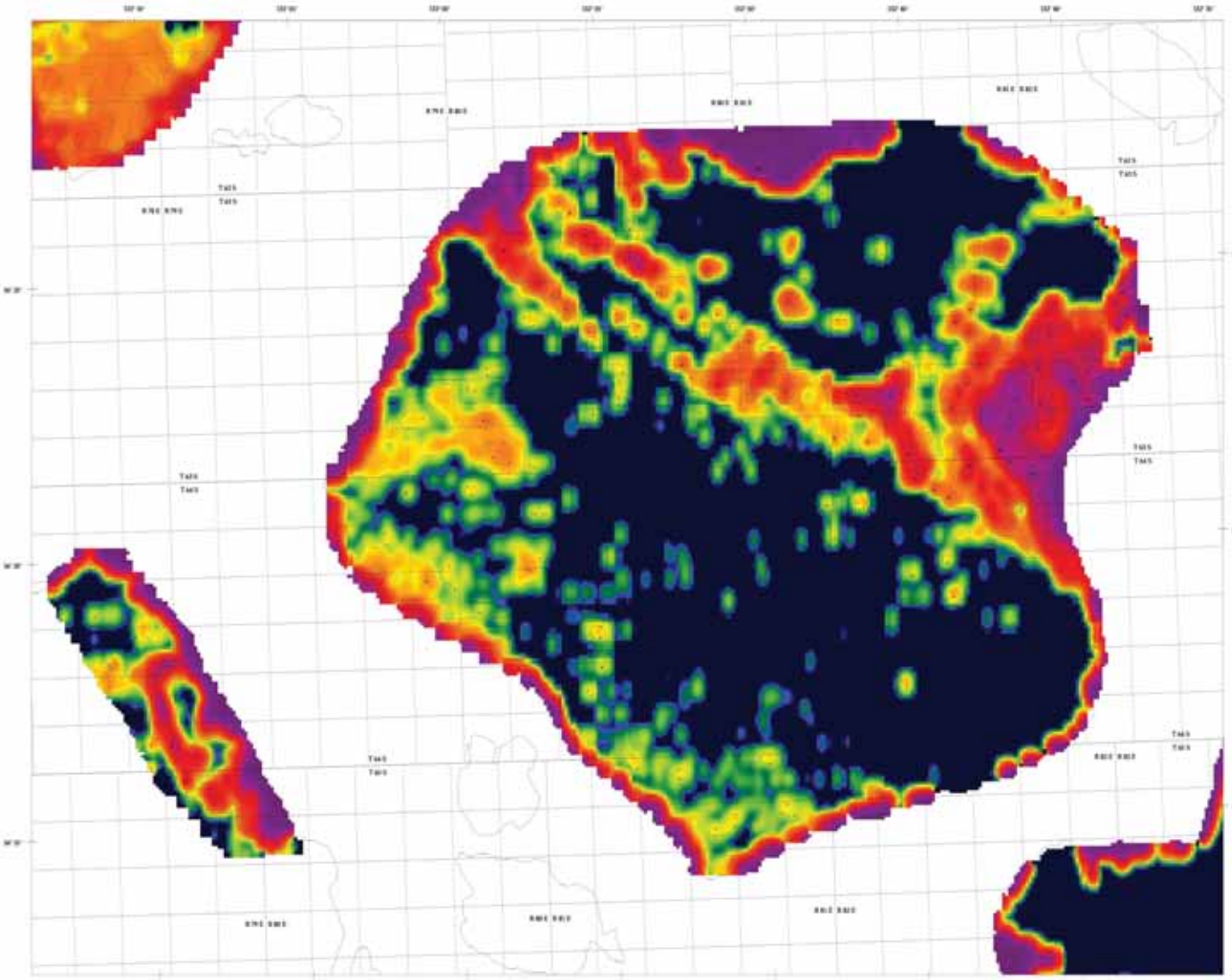
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900 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEASTERN ALASKA
MAP B -- SOUTH DUNCAN CANAL

1997

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT
AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-18C





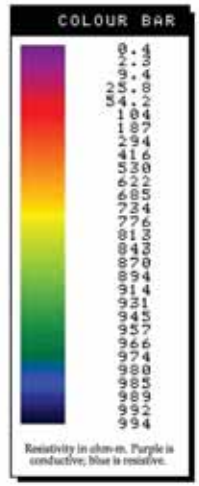
Department of Natural Resources
Division of Geological & Geophysical Surveys
Geologic Data Modeling System



Department of the Interior
Bureau of Land Management



City of Wrangell



LOCATION INDEX



Survey outlines from U.S. Geological Survey Petersburg A-2, 1953; A-3, A-4, 1949; B-2, 1951; B-3, 1948; B-4, 1948; Quadrangles, Alaska

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 WGM, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of the Interior Bureau of Land Management (BLM) and the City of Wrangell.

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900 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEASTERN ALASKA
MAP C -- ZAREMBO ISLAND AND EASTERN PRINCE OF WALES ISLAND

1997

RESISTIVITY

The DIGHEM-V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial coil-pairs operated at 900 and 5600 Hz, while three horizontal coplanar coil-pairs operated at 900, 7200, and 56,000 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 components of the coplanar 900 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 100 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.

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DESCRIPTIVE NOTES

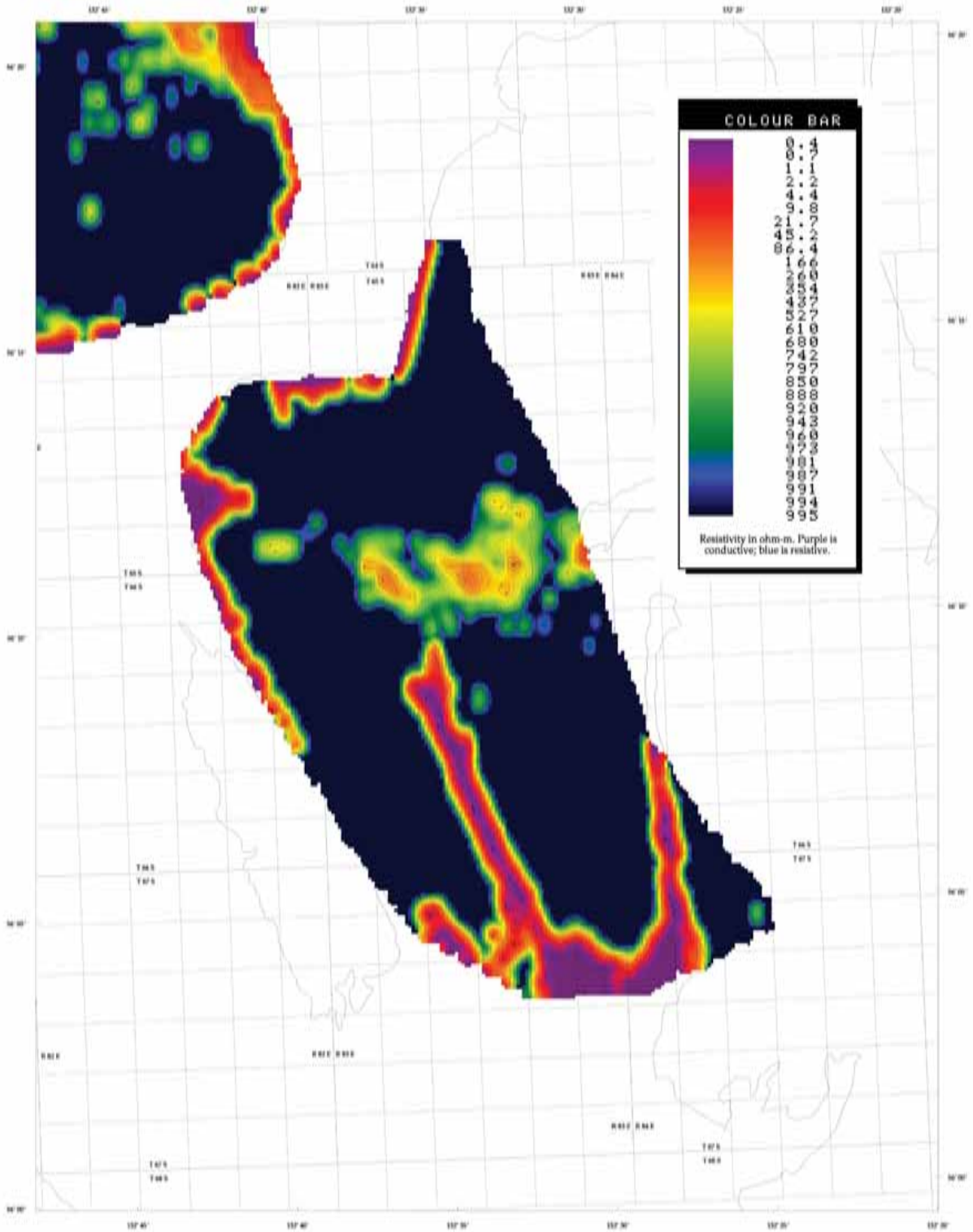
Geophysical data were acquired with a DIGHEM-V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors, and video camera. Flight were performed at a mean terrain clearance of 200 feet along survey flight lines with a spacing of ¼ quarter of a mile. Tie lines were flown perpendicular to the flight lines at intervals of approximately three miles.

A forced Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using both real-time and post-processing differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clarke 1866 (1750) spheroid, 1927 (North American datum using a Central Meridian (CM) of 135 degrees, 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.

October 20, 1999

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-18D



Department of Natural Resources
Division of Geological & Geophysical Surveys
Geologic Data Modeling System

Department of the Interior
Bureau of Land Management

CITY of WRANGELL
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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 WGM, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of the Interior Bureau of Land Management (BLM) and the City of Wrangell.

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DESCRIPTIVE NOTES

Geophysical data were acquired with a DIGHEM-V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a three VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors, and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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 three miles.

A Novel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using both real-time and post-processing differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clarke 1866 (UTM) spheroid, 1927 North American datum using a Central Meridian (CM) of 133 degrees, 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.

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Section outlines from U.S. Geological Survey Petersburg A-2, 1933; A-3, 1948; B-2, 1933; B-3, 1948; Quadrangles, Alaska

RESISTIVITY

The DIGHEM-V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial coil-pairs operated at 900 and 5000 Hz while three horizontal coplanar coil-pairs operated at 900, 7200, and 56,000 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 900 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 100 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.







LOCATION INDEX

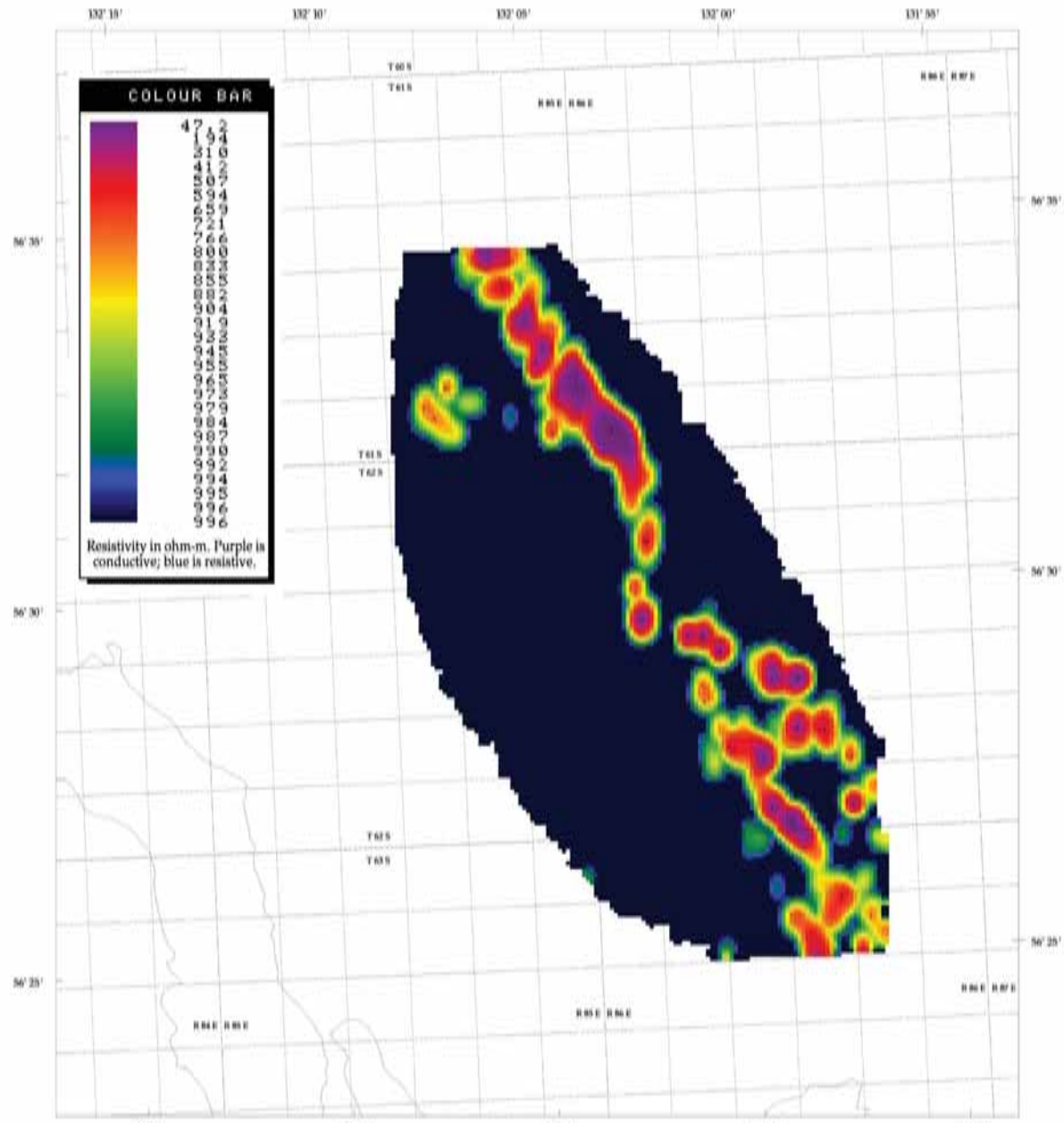


900 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEASTERN ALASKA
MAP D -- WESTERN ETOLIN ISLAND

1997

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-18E



Section outlines from U.S. Geological Survey Bradfield Canal B-6, C-6, 1955; Petersburg B-1, 1955; C-1, 1953; Quadrangles, Alaska







900 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEASTERN ALASKA
MAP E -- GROUNDHOG BASIN

1997



Department of Natural Resources
Division of Geological & Geophysical Surveys
Geologic Data Modeling System

Department of the Interior
Bureau of Land Management

CITY of WRANGELL
ALASKA

City of Wrangell

RESISTIVITY

The DIGHEM-V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial coil-pairs operated at 900 and 3000 Hz while three horizontal coplanar coil-pairs operated at 900, 7200, and 56,000 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 900 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 100 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.

SURVEY HISTORY

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DESCRIPTIVE NOTES

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A Satcet Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using both real-time and post-processing differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clarke 1866 (UTM) spheroid, 1927 North American datum using a Central Meridian (CM) of 135 degrees, 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.

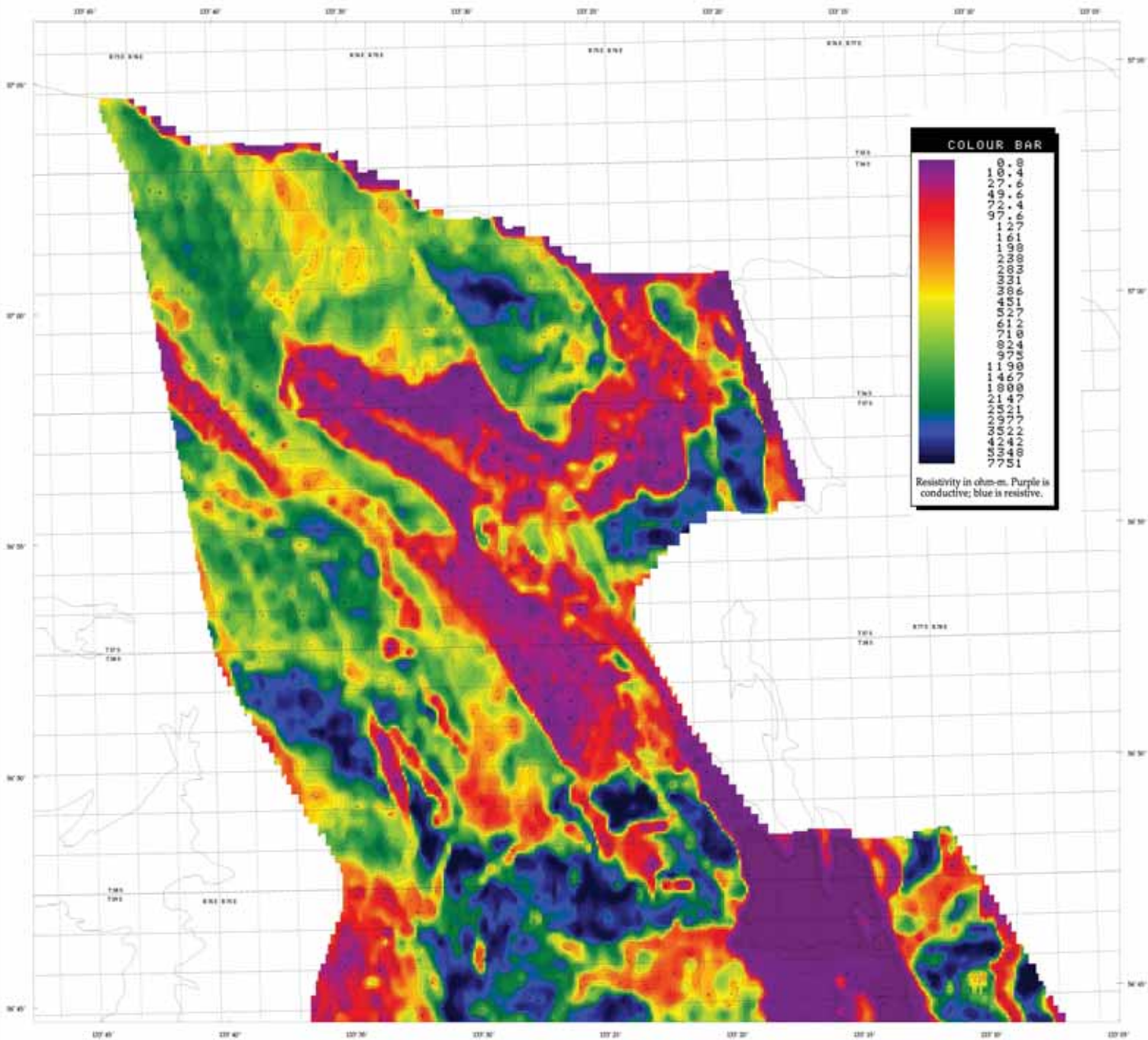
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ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT
AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-19A



Department of Natural Resources
Division of Geological & Geophysical Surveys
Geologic Data Modeling System

Department of the Interior
Bureau of Land Management

CITY of WRANGELL
ALASKA
City of Wrangell

RESISTIVITY

The DIGHEM-V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial coil-pairs operated at 900 and 5000 Hz, while three horizontal coplanar coil-pairs operated at 900, 7200, and 56,000 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 components of the coplanar 7200 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 100-m grid using a modified Akima (1978) technique.

Akima, H., 1978, 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.

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LOCATION MAPS





Section outlines from U.S. Geological Survey Petersburg D-4, 1951; D-5, 1948; D-6, 1951; Sumdum A-4, 1951, A-5, A-6, 1948; Quadrangles, Alaska.

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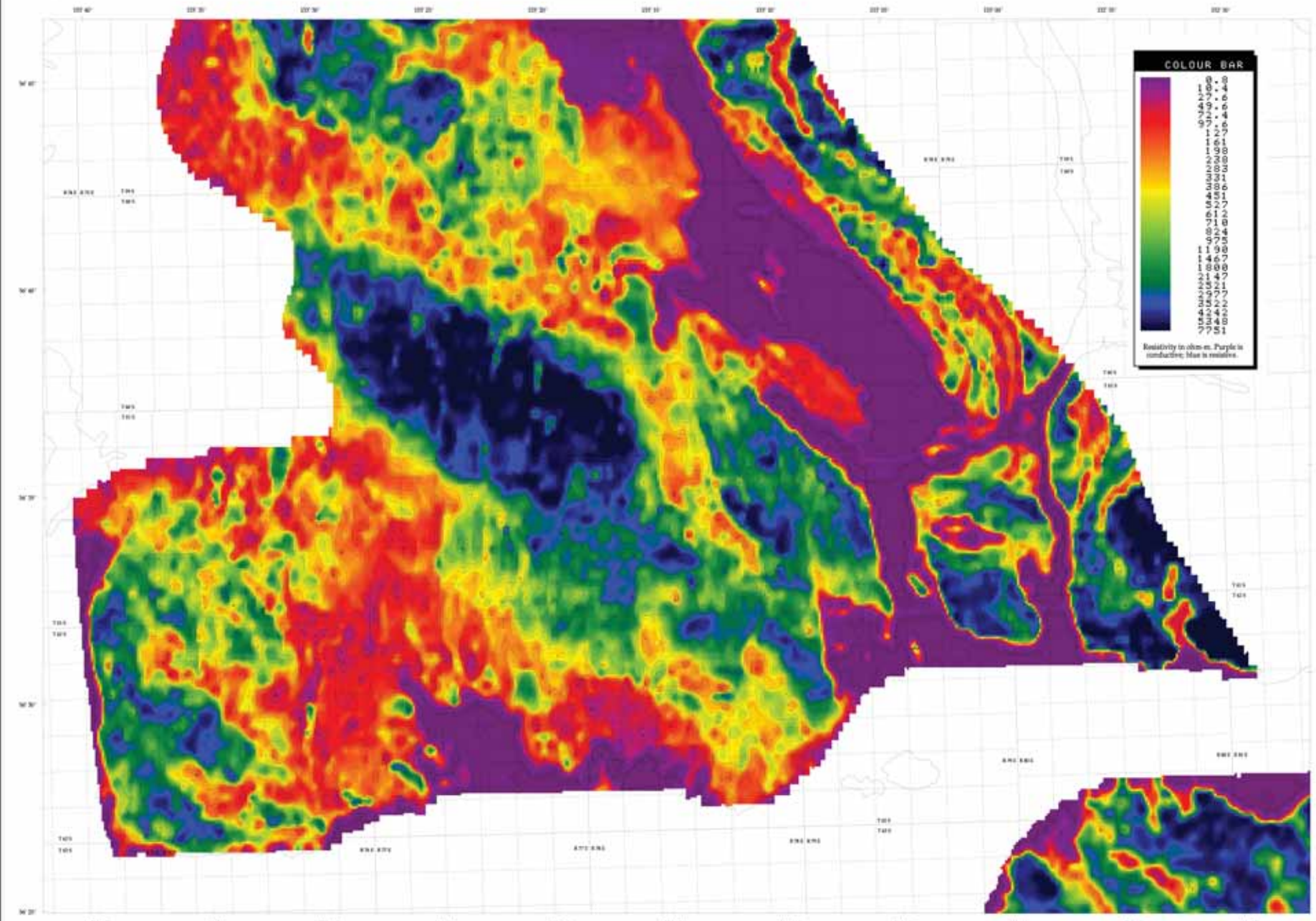
APPROXIMATE MEAN DECLINATION, 1997

7200 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEASTERN ALASKA
MAP A -- NORTH DUNCAN CANAL

1997

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-19B



Department of Natural Resources
Division of Geological & Geophysical Surveys
Geologic Data Modeling System

Department of the Interior
Bureau of Land Management

City of Wrangell

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 Witbi, Mining and Geological Consultants, Inc. Airborne geophysical data for the area were acquired by Geoterrex-Dighem, a division of CGG Canada Ltd., in 1997. Funding for the project was provided by the U.S. Department of the Interior Bureau of Land Management (BLM) and the City of Wrangell.

This map and other products from this survey are available from DGGS, 794 University Ave., Suite 200, Fairbanks, Alaska, 99709. Phone: (907) 451-5020. FAX: (907) 451-5050. Some products are also available at the BLM's Juneau Mineral Information Center, Mayflower Island, Juneau, AK.

RESISTIVITY

The DIGHEM-V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial coil-pairs operated at 900 and 5000 Hz, while three horizontal coplanar coil-pairs operated at 900, 7200, and 56,000 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 components of the coplanar 7200 Hz using the pseudo-layer half-space model. The data were interpolated onto a regular 100 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.

NOTICE

THE COLOR SCHEMES USED ARE UNIQUE TO EACH MAP IN THIS SET AS AS AN AID TO EMPHASIZE THE ANOMALIES THAT ARE IN EACH AREA. IN ORDER TO COMPARE ONE MAP WITH ANOTHER YOU WILL NEED TO PAY CLOSE ATTENTION TO THE RANGES SPECIFIED ON THE COLOR BARS FOR EACH MAP. CUSTOM PLOTS OF ANY OF THE MAPS USING THE SAME COLOR SCHEMES ARE AVAILABLE ON REQUEST.

DESCRIPTIVE NOTES

Geophysical data were acquired with a DIGHEM-V Electromagnetic (EM) system, a fluxgate mission magnetometer, and a Trisy YLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, NOR-Vu electronic, and video camera. Flights were performed at a mean terrain clearance of 100 feet along survey flight lines with a spacing of a quarter of a mile. The lines were perpendicular to the flight lines at intervals of approximately three miles.

A Novel Real-Time Differential Global Positioning System (NI-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.1 seconds using both real-time and post-processing differential positioning, to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clarke 1866 (CF86) spheroid, 1927 North American datum using a Central Meridian (CM) of 132 degrees, a north constant of 0 and an unit constant of 1.0000. Positional accuracy of the presented data is better than 10 m with respect to this CF86 grid.

location index

Section outlines from U.S. Geological Survey, Petersburg (D-4, 1951; D-5, 1948; D-6, 1951; Sumdum A-8, 1951; A-5, A-6, 1948; Quadboughs, Alaska.

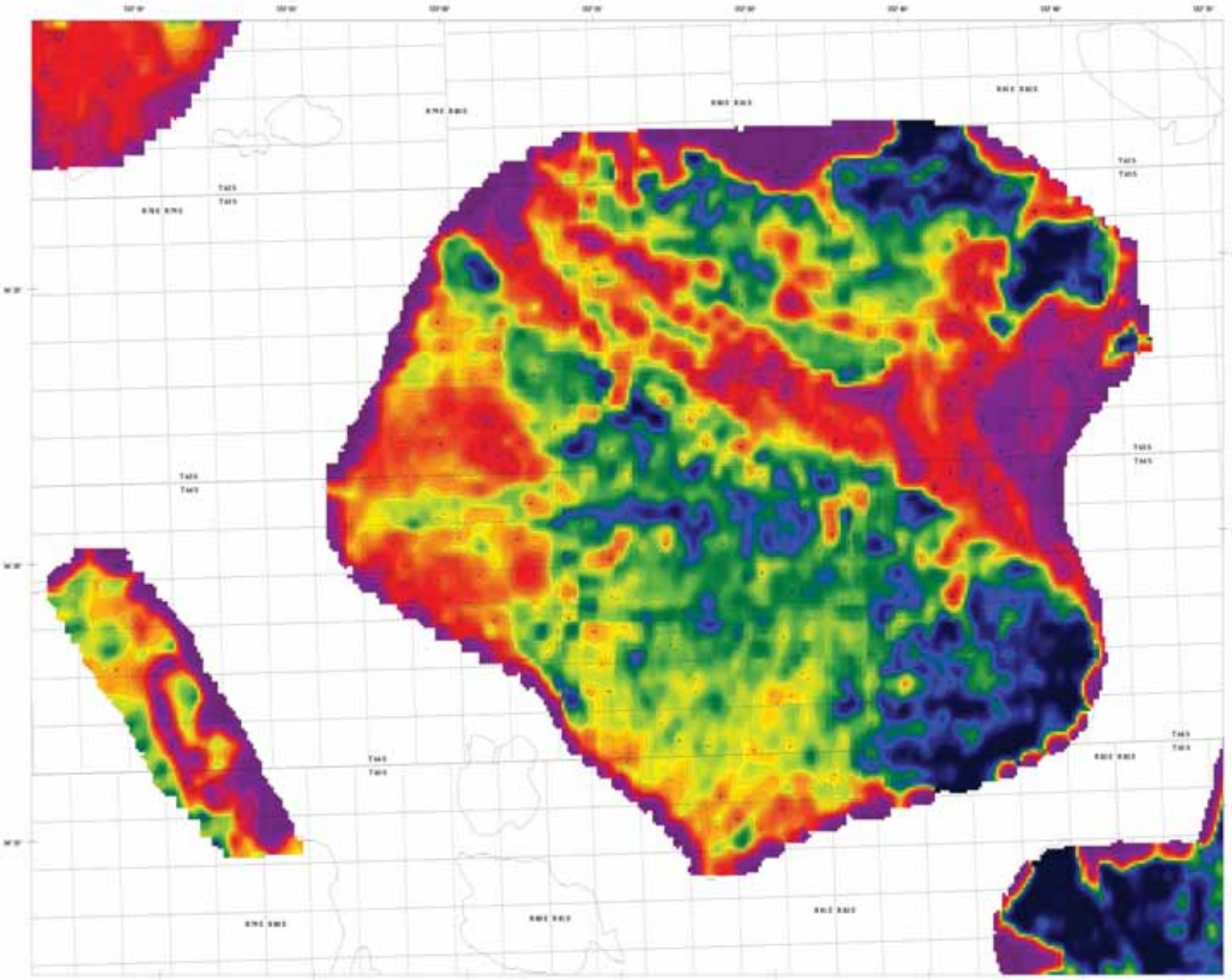
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7200 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEASTERN ALASKA
MAP B -- SOUTH DUNCAN CANAL

1997

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
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AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-19C



Department of Natural Resources
Division of Geological & Geophysical Surveys
Geologic Data Modeling System

Department of the Interior
Bureau of Land Management

City of Wrangell

COLOUR BAR

0.6
20.6
79.0
180
321
499
708
950
1289
1651
2026
2377
2696
2957
3190
3423
3685
3948
4215
4483
4728
4993
5279
5607
5988
6444
6993
7707
8261

Resistivity in ohm-m. Purple is conductive; Blue is resistive.

LOCATION INDEX

Survey outlines from U.S. Geological Survey Petersburg A-2, 1953; A-3, A-4, 1949; B-2, 1951; B-3, 1948; B-4, 1948; Ouzinkie, Alaska

SURVEY HISTORY

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7200 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEASTERN ALASKA
MAP C -- ZAREMBO ISLAND AND EASTERN PRINCE OF WALES ISLAND

1997

RESISTIVITY

The DIGHEM-V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial coil-pairs operated at 900 and 5909 Hz while three horizontal coplanar coil-pairs operated at 848, 7206, and 56,000 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 components of the coplanar 7200 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 100 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.

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DESCRIPTIVE NOTES

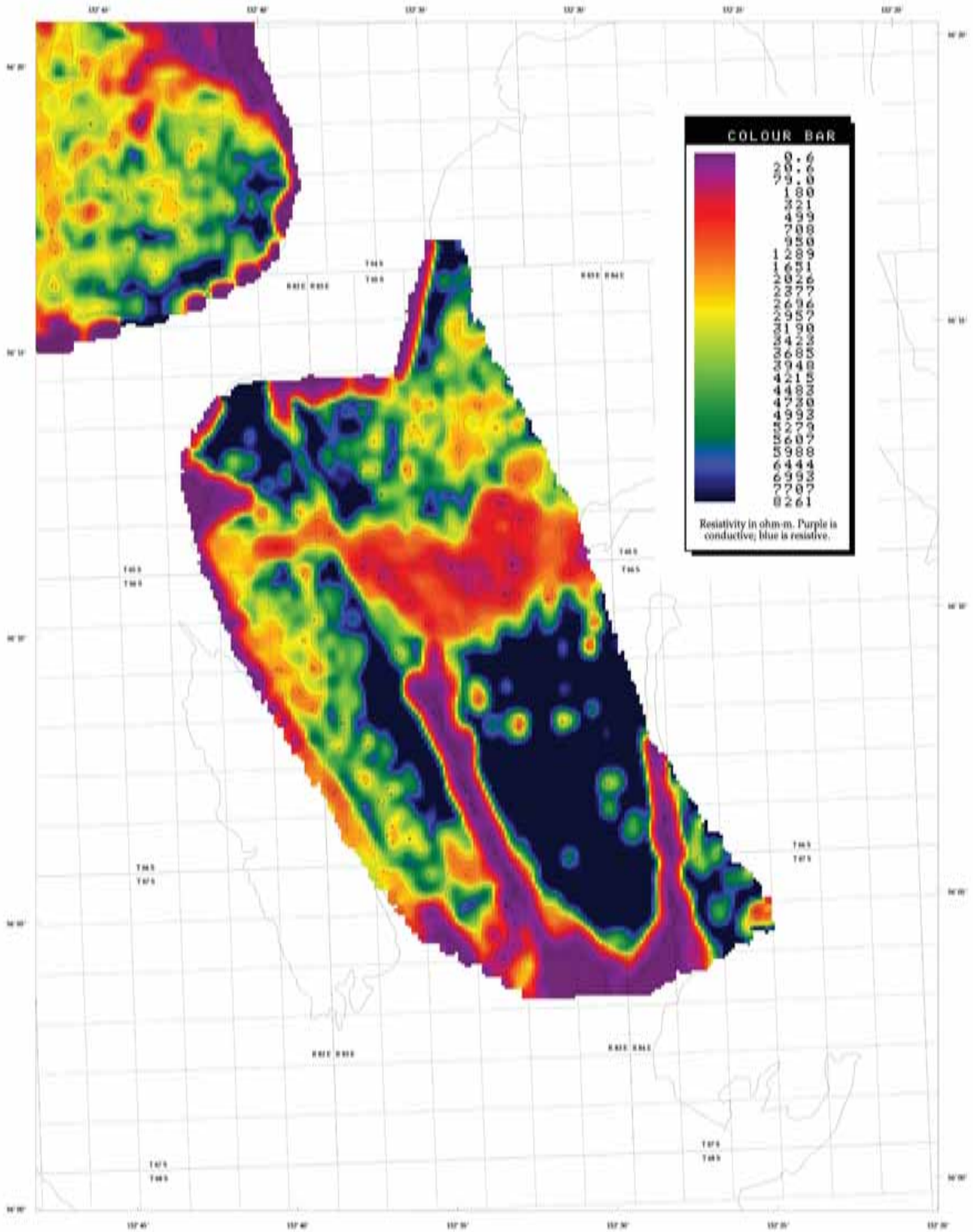
Geophysical data were acquired with a DIGHEM-V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors, and video camera. Flight were performed at a mean terrain clearance of 200 feet along 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 three miles.

A Novel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using both real-time and post-processing differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clarke 1866 (1750) spheroid, 1927 (North American datum using a Central Meridian (CM) of 135 degrees, 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.

September 01, 1998

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-19D



Section outlines from U.S. Geological Survey Petersburg A-2, 1933; A-3, 1948; B-2, 1933; B-3, 1948; Quadrangles, Alaska

RESISTIVITY

The DIGHEM-V EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial coil-pairs operated at 900 and 5000 Hz while three horizontal coplanar coil-pairs operated at 900, 7200, and 56,000 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 7200 Hz using the pseudo-layer half space model. The data were interpolated onto a regular 100 m grid using a modified Akima (1970) technique.

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Department of Natural Resources
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SURVEY HISTORY

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DESCRIPTIVE NOTES

Geophysical data were acquired with a DIGHEM-V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a three VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors, and video camera. Flights were performed at a mean terrain clearance of 200 feet along 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 three miles.

A Novel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using both real-time and post-processing differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clarke 1866 (UTM) spheroid, 1927 North American datum using a Central Meridian (CM) of 133 degrees, 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.

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LOCATION INDEX



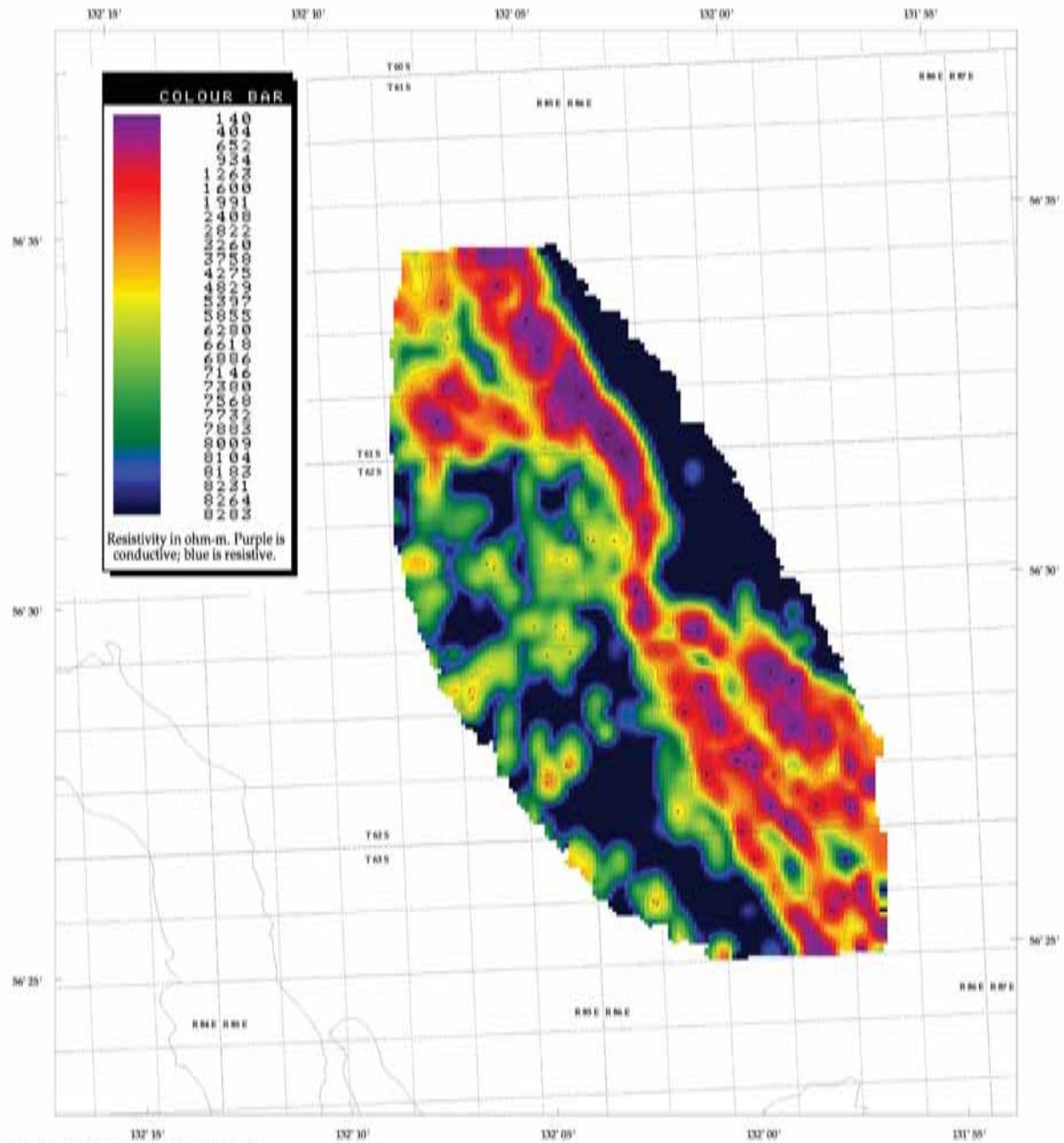
7200 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEASTERN ALASKA

MAP D -- WESTERN ETOLIN ISLAND

1997

ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

REPORT OF INVESTIGATIONS 97-19E



Section outlines from U.S. Geological Survey Bradfield Canal B-6, C-6, 1955; Petersburg B-1, 1955; C-1, 1953; Quadrangles, Alaska







7200 Hz COPLANAR RESISTIVITY OF THE STIKINE AREA, SOUTHEASTERN ALASKA
MAP E -- GROUNDHOG BASIN

1997



Department of Natural Resources
Division of Geological & Geophysical Surveys
Geologic Data Modeling System

Department of the Interior
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DESCRIPTIVE NOTES

Geophysical data were acquired with a DIGHEM-V Electromagnetic (EM) system, a Scintrex cesium magnetometer, and a Herz VLF system installed in an AS350B-2 Squirrel helicopter. In addition, the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors, and video camera. Flights were performed at a mean terrain clearance of 300 feet along 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 three miles.

A Satcel Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using both real-time and post-processing differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clarke 1866 (UTM) spheroid, 1927 North American datum using a Central Meridian (CM) of 135 degrees, 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.

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