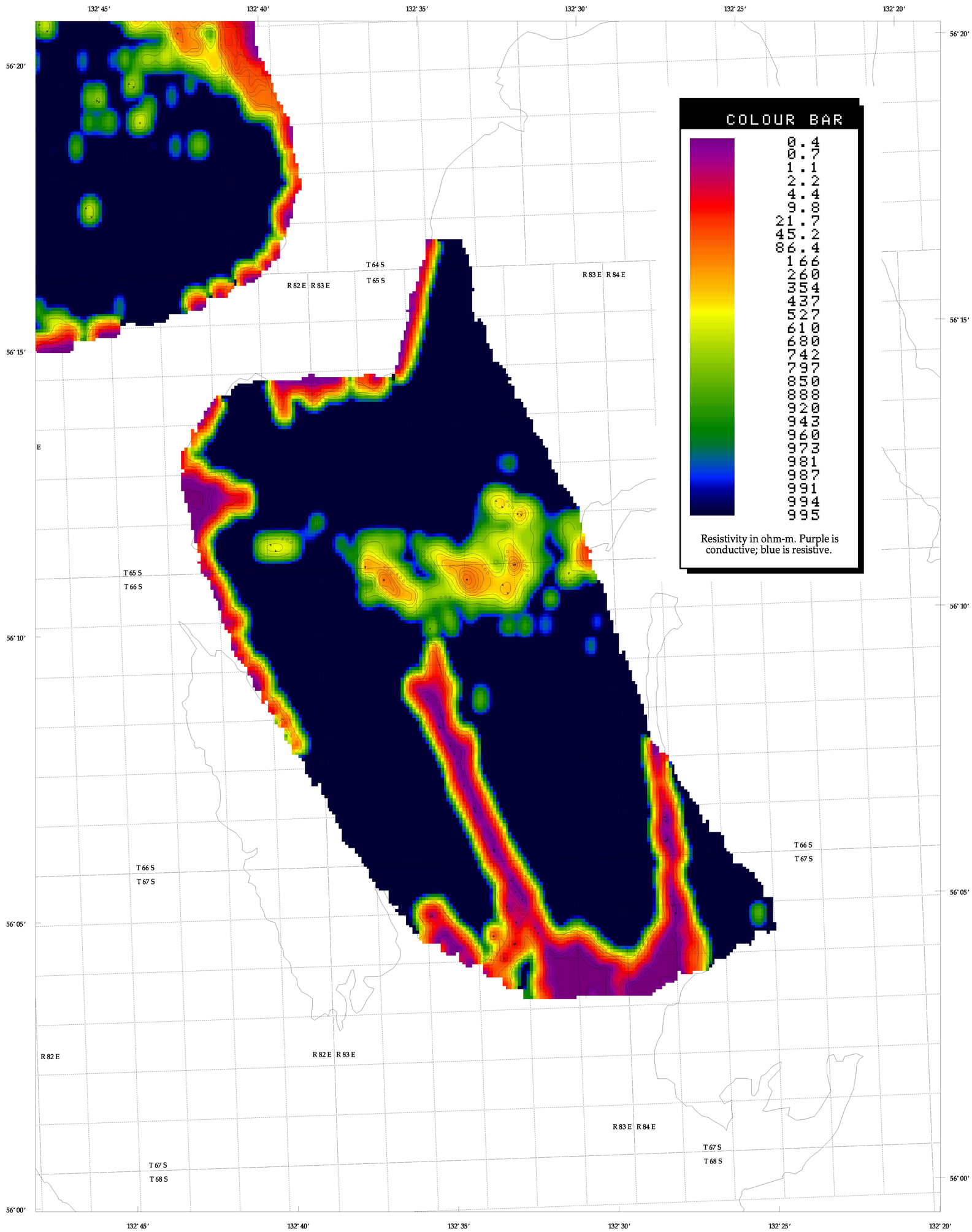
ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS IN COOPERATION WITH U.S. BUREAU OF LAND MANAGEMENT AND CITY OF WRANGELL

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.

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.

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 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 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 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.

NOTICE:

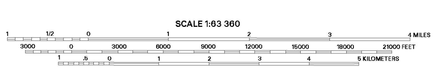
THE COLOR SCHEMES USED ARE UNIQUE TO EACH MAP IN THE RI 97-18 A-E & RI 97-19 A-E SERIES. THIS EMPHASIZES THE ANOMALIES THAT ARE IN EACH AREA. IN ORDER TO COMPARE ONE MAP WITH ANOTHER YOU WILL NEED TO PAY CLOSE ATTENTION TO THE RANGES SPECIFIED ON THE COLOR BARS FOR EACH MAP. CUSTOM PLOTS OF ANY OF THE MAPS USING THE SAME COLOR SCHEME ARE AVAILABLE ON REQUEST.

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

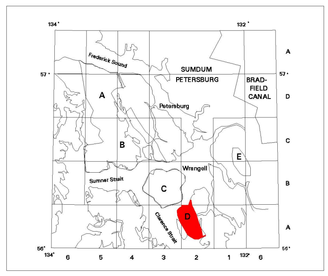
RESISTIVITY

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