

Section outlines from U.S. Geological Survey Ketchikan A-6, 1956; A-6, 1948; B-6, 1956; B-6, 1994; Quadrangles, Alaska



DESCRIPTIVE NOTES

The geophysical data were acquired with a DIGHEM^Y Electromagnetic (EM) system and a Scintrex cesium magnetometer. Both were flown at a height of 100 feet. In addition the survey recorded data from a radar altimeter, GPS navigation system, 50/60 Hz monitors and video camera. Flights were performed with an AS350B-2 Squirrel helicopter at a mean terrain clearance of 200 feet along east-west flight lines one-quarter mile apart. Tie lines were flown perpendicular to the flight lines at intervals of approximately 3 miles.

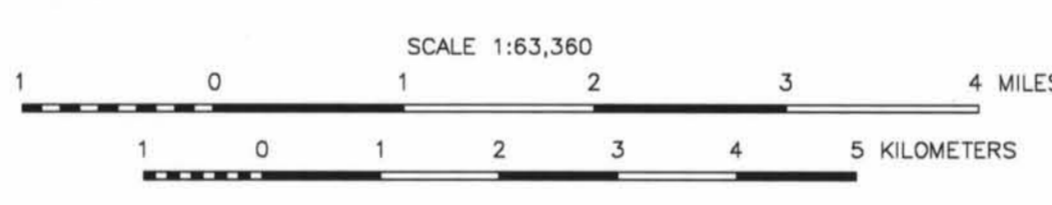
An Ashtech/Racal Real-Time Differential Global Positioning System (RT-DGPS) was used for both navigation and flight path recovery. The helicopter position was derived every 0.5 seconds using real-time differential positioning to a relative accuracy of better than 10 m. Flight path positions were projected onto the Clarke 1866 (UTM zone 9) 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^Y EM system measured inphase and quadrature components at five frequencies. Two vertical coaxial-coil pairs operated at 900 and 5500 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 |

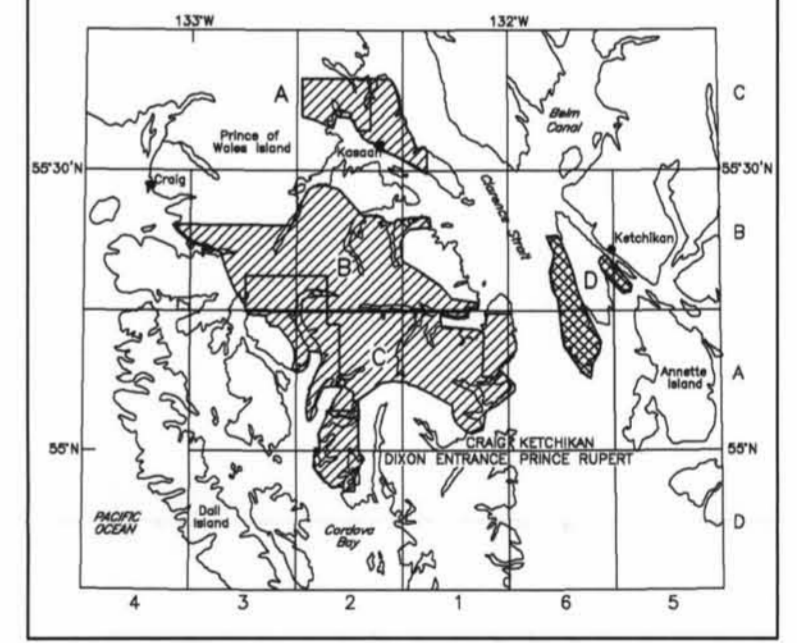


TOTAL FIELD MAGNETICS AND ELECTROMAGNETIC ANOMALIES OF SELECTED AREAS NEAR KETCHIKAN, SOUTHEAST ALASKA
MAP D - WESTERN and EASTERN PARTS, GRAVINA ISLAND
1999



- 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 (DNR), Division of Geological & Geophysical Surveys (DGGG), and WGM, Mining & Geological Consultants, Inc. Airborne geophysical data for the area were acquired in 1999 by Geotrex-DigheM, a division of CGG Canada Ltd. Funding for the project was provided by the U.S. Department of the Interior, Bureau of Land Management (BLM), Ketchikan Gateway Borough, Sealaska Corporation, Alaska State Mental Health Trust Land Office, and the cities of Thorne Bay and Coffman Cove.

This map and other products from this survey are available by mail order, or in person, from DGGG, 794 University Ave., Suite 200, Fairbanks, Alaska, 99709. Some products are also available, in person only, at the BLM's Juneau Minerals Information Center, Mayflower Island, Douglas, 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 (or IGRF gradient, 1995, updated to March 1999) 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.