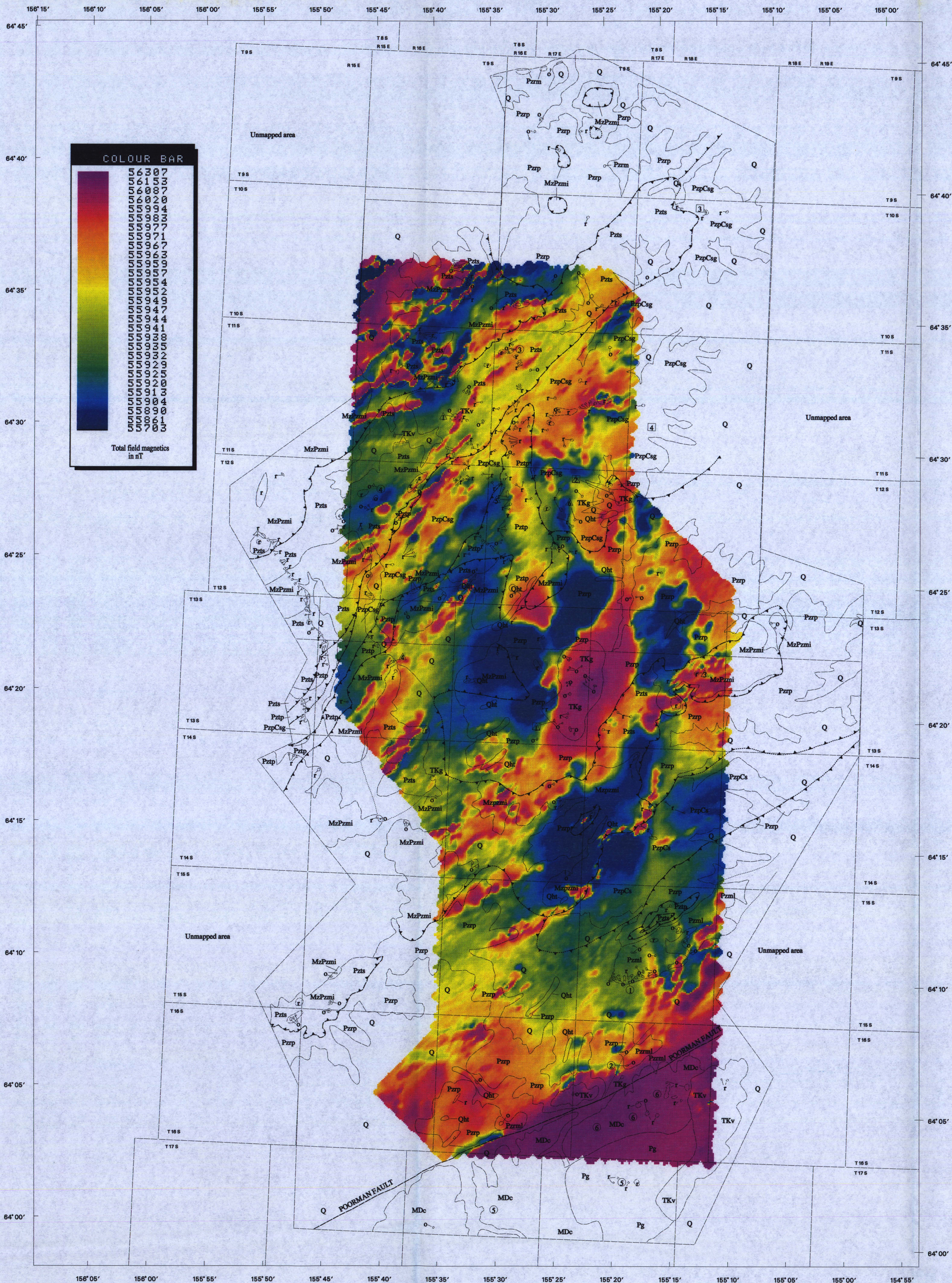
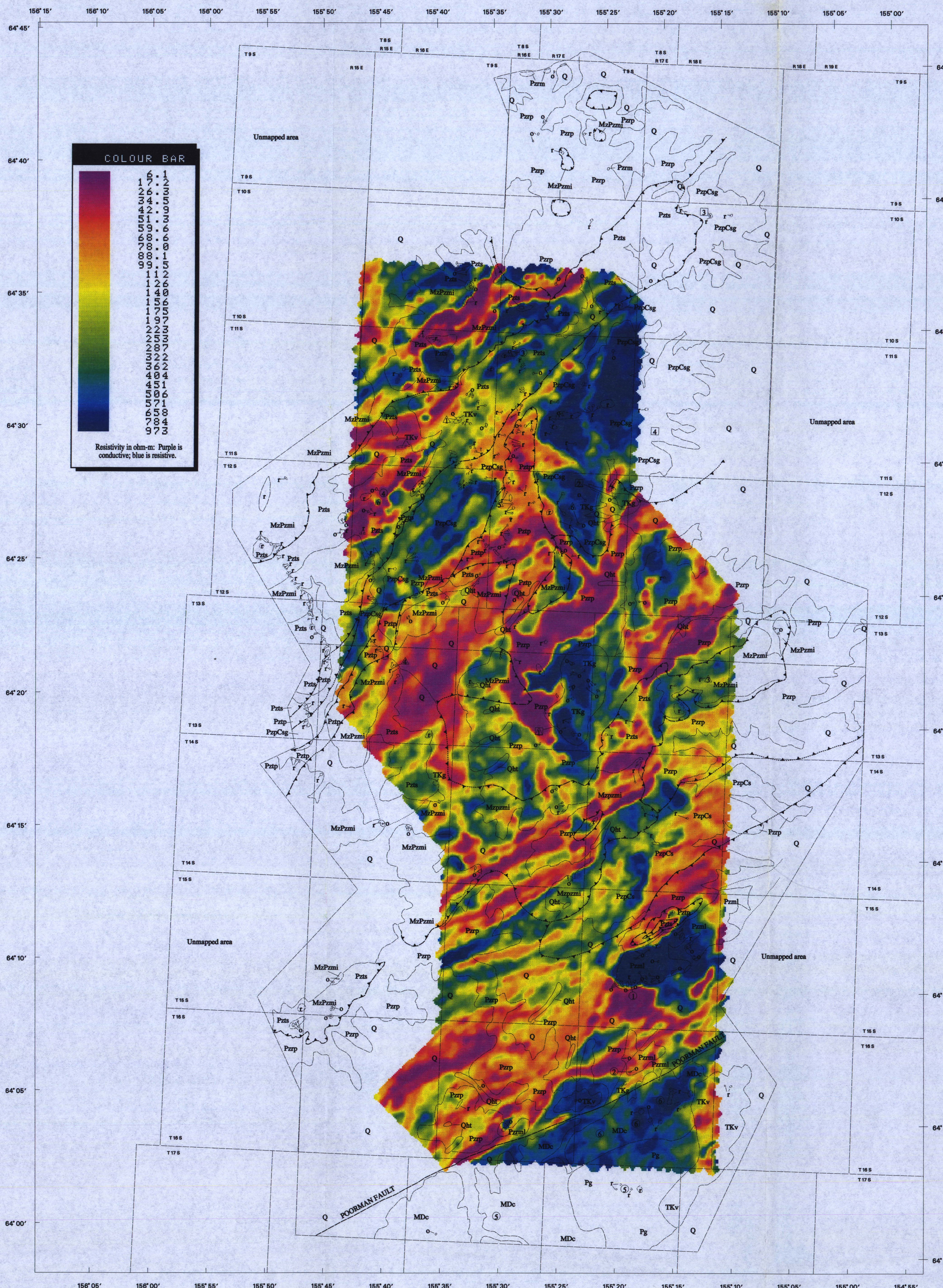
ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

PUBLIC DATA FILE 98-42
SHEET 1 OF 2



TOTAL FIELD MAGNETIC DATA AND BEDROCK GEOLOGY



900 Hz COPLANAR RESISTIVITY DATA AND BEDROCK GEOLOGY

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

DESCRIPTION OF MAP UNITS

OVERLAP ASSEMBLAGES

UNCONSOLIDATED DEPOSITS

Qht PLACER TAILINGS.

Q SURFICIAL DEPOSITS—Alluvium, colluvium, and loess.

VOLCANIC AND SEDIMENTARY ROCKS

Tkv VOLCANIC ROCKS, SILTSTONE AND SANDSTONE—Porphyritic basalt, andesite, and rhyolite flows, tuffs, and breccias with minor intercalated siltstone and sandstone.

INTRUSIVE ROCKS

Tkg GRANITE—Medium- to coarse-grained, equigranular to porphyritic biotite granite composed of anhedral quartz, anhedral to euhedral (porphyritic variety) potassium feldspar, anhedral plagioclase, and subhedral biotite.

LITHOTECTONIC TERRANES

Tozitna terrane

MzPzmi INTERMEDIATE TO MAFIC INTRUSIVE ROCKS—Fine- to medium-grained gabbro with lesser quartz diorite, quartz monzonite, orthopyroxene gabbro, and pyroxenite. The intrusive bodies are commonly sill-form. Wall rocks of the intrusions are restricted to the other lithologies of the Tozitna terrane described below.

Pzts SLATE, SILTSTONE, CHERT, GRAYWACKE, AND LIMESTONE—Gray, green, black and tan slate and siltstone intercalated with gray to green graywacke and lesser white to green chert and rare limestone.

Pztp PHYLLITE, SCHIST, METAGRAYWACKE, METACHERT, GREENSTONE, AND MARBLE—Gray and green phyllite or fine-grained quartz-muscovite-chlorite schist intercalated with metagraywacke, recrystallized chert, greenstone, and rare marble. With the exception of greenstone, this is the same lithologic assemblage as the Pzts unit, but is distinguished by a distinctly higher metamorphic grade. Lithologies commonly exhibit three cleavages with co-linear intersections, which produce characteristic long slender "pencils" upon fracturing. Bodies of mafic intrusive rocks (MzPzmi) in the unit are small and commonly foliated.

Ruby terrane

Pzrp PHYLLITE AND QUARTZITE—Graphitic phyllite with minor intercalated graphitic quartzite and quartzite. Locally upgraded to fine-grained graphite schist and graphitic quartz-mica schist. Hornfelsic adjacent to TKg, commonly with well-developed andalusite porphyroblasts.

Pzrml MARBLE AND LIMESTONE—Marble and recrystallized limestone, dominantly fine- to coarse-grained calcitic marble with some sedimentary features preserved locally where metamorphic recrystallization is incomplete.

Pzrm MARBLE—Medium- to coarse-grained marble composed of calcite with minor muscovite and pyrite.

PzpCs PELITIC SCHIST—Fine- to medium-grained graphitic quartz-muscovite ± chlorite schist. Lensoid quartz segregations are common. Distinguished from PzpCsg by distinctly lower metamorphic grade and lack of lithologic variety.

PzpCsg SCHIST AND GNEISS—Medium- to coarse-grained quartz ± muscovite ± chlorite ± biotite ± graphite ± garnet ± staurolite schist, quartzofeldspathic gneiss, and foliated greenstone. The mineralogy is consistent with amphibolite facies metamorphism.

Innoko terrane

Pg GRAYWACKE, CONGLOMERATE AND MUDSTONE—Fine- to medium-grained graywacke; graywacke conglomerate with basalt, andesite, shale, chert, quartzite, and schist clasts; and gray to green mudstone.

MDc CHERT AND SLATE—Thin-banded gray, green, and red chert with thin interbeds of slate.

MAP SYMBOLS

Thrust fault - located approximately, dotted where inferred, teeth on upper plate arrow shows relative direction of movement

Contact - located approximately, dotted where inferred

High angle fault

Form lines

Limit of outcrop

Limit of rubblecrop

Strike and dip of foliation

Strike and dip of bedding

Strike and dip of joints

Lode prospect

Sample location, K-Ar age date (Table 1)

Sample location, major oxide analysis (Table 2)

Fossil locality (Table 3)

MAP HISTORY

The Ruby-Poorman mining district has been the focus of the Airborne Geophysical/Geological Mineral Inventory CIP Program managed by the Alaska Division of Geological & Geophysical Surveys (DGGS). This program is a special multi-year investment to expand the knowledge base of Alaska's mineral resources and catalyze private-sector mineral development. This particular publication was formed by combining the geologic map of Puchner and others (1998) with airborne geophysical data for the Ruby-Poorman mining district. The geology of the Ruby-Poorman mining district was mapped by geologists employed by Anaconda Mining Company in 1984. These geologists donated the map to DGGS to encourage exploration in the Ruby-Poorman mining district. The geologic map has been released with topography at a scale of 1:63,360. Parts of the publication of Puchner and others (1998) are reproduced here without any changes. More information about the geology is given in Puchner and others (1998).

Data for the geophysical maps were produced under contract between the State of Alaska, Department of Natural Resources, Division of Geological & Geophysical Surveys, 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. Three of the geophysical maps—the aeromagnetic, the 900 Hz coplanar resistivity, and the 7200 Hz coplanar resistivity—have been released with topography at a scale of 1:63,360. The 56,000 Hz coplanar resistivity data were released in digital form. These publications and other products from this geophysical survey are available from: DGGS, 794 University Avenue, Suite 200, Fairbanks, Alaska 99709. Phone: (907) 451-5020. FAX: (907) 451-5050.

REFERENCES USED FOR THIS PUBLICATION

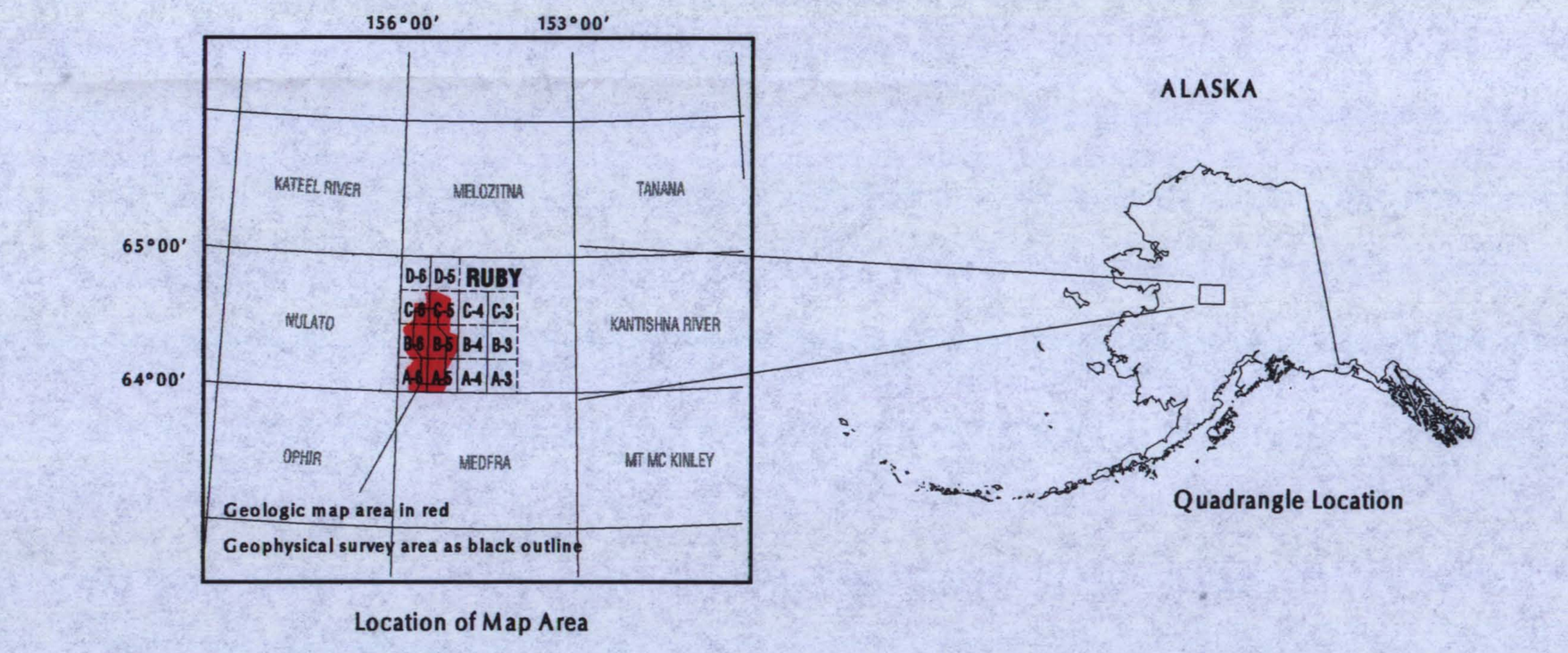
Puchner, C.C., Smith, G.M., Flanders, R.W., Crowe, D.E., and McIntyre, S.C., 1998, Geology of the Ruby-Poorman Mining District, Alaska: Alaska Division of Geological & Geophysical Surveys Report of Investigations 98-11, scale 1:63,360, 3 sheets, 12 p.

DGGS, Geoterrex-Dighem, and WGM staff, 1998a, Total Field Magnetics of the Ruby area, central Alaska: Alaska Division of Geological & Geophysical Surveys Report of Investigations 98-4, scale 1:63,360, 2 sheets.

____1998b, 900 Hz Coplanar Resistivity of the Ruby area, central Alaska: Alaska Division of Geological & Geophysical Surveys Report of Investigations 98-5, scale 1:63,360, 2 sheets.

____1998c, 7200 Hz Coplanar Resistivity of the Ruby area, central Alaska: Alaska Division of Geological & Geophysical Surveys Report of Investigations 98-6, scale 1:63,360, 2 sheets.

____1998d, CD-ROM containing profiles and gridded data and section lines of 1997 geophysical survey data for Ruby area, central Alaska: Alaska Division of Geological & Geophysical Surveys Public-Data File 98-31.



Location of Map Area

SCALE 1:125,000

COMBINED GEOLOGY AND AIRBORNE GEOPHYSICAL DATA OF THE RUBY-POORMAN MINING DISTRICT, ALASKA

Geology from C. C. Puchner and others (1998)

Geophysical data from DGGS and others (1998a, 1998b, 1998c, 1998d)

1998

November 12, 1998