Fugro Airborne Surveys Project #: 10044
Volume Label: CDVD00703
Archive Date: 2011-June 19
This archive consists of 1 DVD-ROM

GPR 2011-1Readme.PDF

for the publication

'LADUE SURVEY AREA: Magnetic and electromagnetic line, grid, and vector data, and maps, Fortymile mining district, Tanacross quadrangle, eastern Alaska'

by
L.E. Burns, Fugro Airborne Surveys Corp., and Fugro GeoServices, Inc.

CONTENTS:

This ReadMe file (pdf version) contains, in this order,

- basic equipment and flight information;
- list of files included (names and definitions);
- projection information;
- data availability and technical requirements; and
- 3 index maps.

Items not able to be included in the TXT version of the ReadMe file are included as individual jpegs in the main directory.

Some overlap of this file with the metadata file is necessary. The metadata file largely contains different information, particularly about data acquisition and processing, and detailed entity and attribute information. The metadata file lacks many of the simplified or visual objects in this ReadMe file.

INTRODUCTION:

This digital publication, GPR 2011-1, contains data produced from airborne geophysical surveys conducted in 2010 for the Ladue survey area in the Fortymile mining district, Tanacross quadrangle, eastern Alaska (Figures 1-3). Aeromagnetic and electromagnetic (EM) data were acquired by helicopter for about 742 sq miles. GPR 2011-1 includes (1) raw and processed linedata; (2) gridded, Google Earth, and Geotiff formats of the calculated linedata; (3) maps of the data; and (4) vector files of data contours and flight lines. All files are in NAD 27, UTM Zone 7N, except for Google Earth files. The linedata contains WGS 84 coordinates as well as NAD 27, UTM Zone 7. See 'PROJECTIONS' section in this document for more information.

The airborne data were acquired and processed under contract between the State of Alaska, Department of Natural Resources, Division of Geological & Geophysical Surveys (DGGS), and Stevens Exploration Management Corp. Fugro Airborne Surveys, the subcontractor, acquired and processed the data in 2010. A future publication will include the Contractor's project report, interpretation map, and EM anomalies, as well as other files.

The survey was part of the Alaska Airborne Geophysical/Geological Mineral Inventory (AGGMI) project funded by the Alaska State Legislature. The AGGMI project is managed by State of Alaska, Department of Natural Resources (DNR), Division of Geological & Geophysical Surveys (DGGS).

TECHNICAL INFORMATION:

Information on processing and more technical information is given in the metadata.

EQUIPMENT:

Helicopter:	AS350B-3 Squirrel
Magnetometer:	Fugro D1344 cesium magnetometer with Scintrex CS3 cesium censor mounted in bird
EM system:	DighemV
GPS:	Novatel OEM4-G2L Global Positioning System

Additional equipment: Radar and laser altimeters, 50/60 Hz monitors, and video camera

FLIGHT CHARACTERISTICS:

Nominal helicopter height:	200 feet	
Nominal bird height:	100 feet	
Traverse lines spaced:	one-quarter mile	Orientation: N10°W (350 degrees)
Tie lines spaced:	approximately 3 miles	Orientation: N80°E (80 degrees)
Border lines:	present around all edges	

DATES FLOWN:

August 5 to August 22, 2010

CONTENTS of the DVD:

This publication, GPR2011-1, consists of 1 DVD with 7 main folders: METADATA, LINEDATA, GRIDS, GEOTIFFS, KMZS, VECTORS, AND MAPS.

Files included in the main directory include:

GPR2011-1ReadMe	This file in PDF and TXT format. Figures are not included in the TXT document.
Figures_1-and-2.jpg	Figure 1: Location of Ladue survey area in Alaska. Figure 2: Location of Ladue survey area in area in the Tanacross Quadrangle.
Figure_3.jpg	Figure 3: Fig. 3-Location of other DGGS geophysical surveys near the Ladue area.

****

METADATA (Folder)

Metadata is provided in four formats.

GPR2011-1.faq.html	Hypertext Markup Language format (Question and Answer)
GPR2011-1.html	Hypertext Markup Language format (Outline)
GPR2011-1.txt	ASCII text
GPR2011-1.xml	Extensible Markup Language format

****

LINEDATA (Folder)

Linedata is provided in two formats.

Ladue.gdb	Contains positional, magnetic, and electromagnetic data in Oasis Montaj binary GDB database format.
Ladue.XYZ	Contains positional, magnetic and electromagnetic data in Oasis ASCII XYZ format.
Linedata	Provided in PDF and TXT format. Each includes the following: • information on interpolated channels; and • a description of the completeness of the linedata containing number of dummy variables per channel. • a list of the linedata channels (includes definitions and suggested decimal places)

****

GRIDS, GEOTIFFS, and GOOGLE EARTH KMZs (3 Folders)

The same data types are provided as grids, Geotiffs, and Google Earth KMZs files. Gridded files can be manipulated to extract different images. Each Geotiff and KMZ file is just one image. For the grids that were made into maps, the corresponding images in the Geotiff and KMZ files are the same image used for the grid in the map.

DATA TYPES for GRIDS, GEOTIFFS, and KMZS:

Lad_MagDiu	Partially processed total magnetic field (nT); processing included removal of magnetic spikes, correction for lag, and removal of diurnal variations. Not shown as a map.
Lad_MagRMI	Residual magnetic field (nT) - final; IGRF model 2010, updated for date of flight and elevation variations, was subtracted from Mag_Diu, then the data were leveled. Shown in map numbers GPR2011-1-1A, 1B, 2A, 2B, 7A, and 7B.
Lad_MagIGRF	Total magnetic field (nT) - final, with IGRF removed; residual magnetic field (Mag_RMI) with constant added back in. Not produced as a map. However Lad_RMI (which is produced as maps) is directly the same as Lad_MagIGRF except off by a constant.
Lad_1VD	First vertical derivative 'dz' (nT/m) of the total magnetic field with IGRF removed; also referred to as 'calculated vertical gradient' (cvg). Shown in map numbers GPR2011-1-3A and 3B.
Lad_ASig	Analytic signal (nT/m) calculated from the total magnetic field with IGRF removed. Shown in map numbers GPR2011-1-4A, 4B, 5A, and 5B.
Lad_TiltDer	Tilt derivative (degrees) of the total magnetic field with IGRF removed. Shown in map numbers GPR2011-1-6A and 6B. Contours from the tilt derivative are shown upon a color shadows residual magnetic field (Lad_MagRMI) in maps GPR2011-1-7A and 7B.
Lad_Res56k	Apparent coplanar resistivity (ohm·m) for 56,000 (56k) Hz.; calculated using a pseudo-layer half-space model. Shown in map numbers GPR2011-1-8A, 8B, 9A, and 9B.
Lad_Res7200	Apparent coplanar resistivity (ohm·m) for 7200 Hz.; calculated using a pseudo-layer half-space model. Shown in map numbers GPR2011-1-10A, 10B, 11A, and 11B.
Lad_Res900	Apparent coplanar resistivity (ohm·m) for 900 Hz.; calculated using a pseudo-layer half-space model. Shown in map numbers GPR2011-1-12A, 12B, 13A, and 13B.
Lad_DTM	Digital terrain or elevation model (m). Not shown as a map.
Lad_AltLasBird	EM bird height (m) above surface, measured by Laser altimeter in EM bird. Not shown as a map.

FORMATS, PROJECTIONS, AND NOTES for GRIDS, GEOTIFFS, and KMZS:

Grids and Geotiff files are in NAD 27, UTM Zone 7N. KMZ files are in WGS84 datum, and CGS system.

- GRIDS: All grids are provided in Geosoft binary float and ER Mapper formats. Three files are included for one Geosoft file: the grid file (.GRD), the projection file (.GI), and a metadata file produced by Geosoft Oasis Montaj (.XML). Two files are needed to see ER Mapper data—a header (**.**ERS) and a data file (no extension). The projection information is already included in the ER Mapper data files.
- GEOTIFFS: Automatically registers correctly in GIS programs; can be opened in any graphics program and as long as the file is not saved, the registration information will still be valid.
- GOOGLE EARTH KMZS: Google Earth zip format: can drag and drop into 'My Places" in the free downloadable Google Earth program (http://earth.google.com/download-earth.html); data should be automatically registered.

****

VECTORS (Folder)

Data contours provided were made for the maps with this publication. The flight line path, not included on any maps, is also included. The vectors are provided in ESRI shape file (SHP) format. The files can be opened in variety of geophysical and GIS/CAD software such as Oasis Montaj, MapInfo, ArcGIS, and AutoCAD.

DATA CONTOURS:

Lad_MagRMI	Residual magnetic field (nT) - final; IGRF model 2010, updated for date of flight and elevation variations, was subtracted from Mag_Diu, then the data were leveled. Shown in map numbers GPR 2011-1-1A, 1B, 2A, 2B, 7A, and 7B.
Lad_ASig	Analytic signal (nT/m) calculated from the total magnetic field with IGRF removed. Shown in map numbers GPR 2011-1-4A, 4B, 5A, and 5B.
Lad_TiltDer	Tilt derivative (degrees) of the total magnetic field with IGRF removed. Shown in map numbers GPR2011-1-6A and 6B. Contours from the tilt derivative are shown upon a color shadows residual magnetic field (Lad_MagRMI) in maps GPR 2011-1-7A and 7B.
Lad_Res56k	Apparent coplanar resistivity (ohm·m) for 56,000 (56k) Hz.; calculated using a pseudo-layer half-space model. Shown in map numbers GPR 2011-1-8A, 8B, 9A, and 9B.
Lad_Res7200	Apparent coplanar resistivity (ohm·m) for 7200 Hz.; calculated using a pseudo-layer half-space model. Shown in map numbers GPR 2011-1-10A, 10B, 11A, and 11B.
Lad_Res900	Apparent coplanar resistivity (ohm·m) for 900 Hz.; calculated using a pseudo-layer half-space model. Shown in map numbers GPR 2011-1-12A, 12B, 13A, and 13B.

ACCESSORY VECTORS:

Lad_SecGrid	Alaska PLSS Section Grid for the map sheets; includes township and range labels.
Lad_UTMGrid	Alaska UTM Grid for the map sheets; includes UTM labels on edges
Lad_FP	Flight path

****

MAPS (Folder)

Maps are provided as HPGL/2 (PRN) and PDF files. The HPGL/2 files were created with HP Design jet 5000 printer driver v5.32 and will not work with all plotters, but do plot on the DGGS HP Design Jet 5000. **The HPGL/2 files have brighter colors and sharper topography than the Adobe Acrobat files, and should be used or requested if at all possible.** Freeware software 'printfile' , available currently at (http://www.lerup.com/printfile/) prints HPGL/2 files easily on compatible printers. The Adobe Acrobat format files were created with Adobe Acrobat Distiller v7.0 (PDF 1.5) from postscript files created from the HPGL/2 files.

The bibliographic reference below provides the example for the full map titles.

Burns, L.E., Fugro Airborne Surveys Corp., and Fugro GeoServices, Inc., 2011, Residual magnetic field of the Ladue Survey Area, Fortymile mining district, eastern Alaska, part of Tanacross quadrangle: Alaska Division of Geological & Geophysical Surveys Geophysical Report 2011-1-1A, 1 sheet, scale 1:63,360.

LIST OF MAPS

Two sheets (A−northern and B−southern) are needed to cover the survey area at 1:63,360-scale (Figure 3).

Publication No.	Type of 1:63,360-scale maps	With
GPR2011-1-1	Residual magnetic field	topography
GPR2011-1-2	Residual magnetic field	magnetic contours
GPR2011-1-3	First vertical derivative of the magnetic field	topography
GPR2011-1-4	Analytic Signal	topography
GPR2011-1-5	Analytic Signal	analytic signal contours
GPR2011-1-6	Magnetic tilt derivative and data contours	topography
GPR2011-1-7	Color shadow residual magnetic field with magnetic tilt derivative contours	topography
GPR2011-1-8	56K Hz coplanar apparent resistivity	topography
GPR2011-1-9	56K Hz coplanar apparent resistivity	56K contours
GPR2011-1-10	7200 Hz coplanar apparent resistivity	topography
GPR2011-1-11	7200 Hz coplanar apparent resistivity	7200 contours
GPR2011-1-12	900 Hz coplanar apparent resistivity	topography
GPR2011-1-13	900 Hz coplanar apparent resistivity	900 contours

PROJECTION INFORMATION:

TABLE 1: PROJECTION INFORMATION

DATUM & PROJECTION ITEMS	GRIDS, GEOTIFFS, & VECTORS	LINEDATA: HORIZONTAL LOCATION CHANNELS		KMZ FILES
		X_NAD27z7n Y_NAD27z7n	LAT_WGS84 LON_WGS84	
DATUM	NAD27 Spheroid; Clarke 1866		WGS84	WGS84
PROJECTION	UTM Zone 7N		LAT/LON WGS 84	ArcGIS = GCS_WGS_1984
SYSTEM				Geographic coordinate system
CENTRAL MERIDIAN	-141			
FALSE EASTING	500000			
FALSE NORTHING	0			
SCALE FACTOR	0.9996			
NORTHERN PARALLEL	N/A			
BASE PARALLEL	N/A			
WGS84 TO LOCAL	Molodensky conversion method			
DELTA X SHIFT	+5			
DELTA Y SHIFT	-135			
DELTA Z SHIFT	-172			

AVAILIBILITY and TECHNICAL REQUIREMENTS

- DVD-ROM: Purchased by mail, e-mail (mailto:dggspubs@alaska.gov), or in person from DGGS, 3354 College Road, Fairbanks, Alaska, 99709-3707 for $10 plus postage; 1 DVD-ROM.
- ON-LINE: All parts of this publication can be downloaded from the DGGS Web link http://www.dggs.alaska.gov/pubs/id/22562 in data groups, e.g. MapsAsPDFS. The downloadable groups are near the bottom of the web page. Note that the 'Read Me' file available for each link is not the same file as this document.
- MAPS: The PDF version of the maps may be viewed, downloaded, or printed individually from the same link as the downloads: http://www.dggs.alaska.gov/pubs/id/22562 or through the Ladue Project page (http://dggs.alaska.gov/pubs/gpdata/135) which will contain related geophysical or geological data that are produced in the future. Maps are also available on paper or Mylar through the DGGS office for $13/sheet plus mail costs. Please ask for the maps to be printed from HPGL/2 files to ensure the best quality image.

Technical requirements for the data on this publication includes software with ability to use, import, or convert Geosoft float GRD, Geosoft binary GDB or ASCII XYZ files, ESRI Shape files, Adobe Acrobat PDF, Google Earth files, and text files. Free downloadable interfaces to view or convert the gridded and shape files are available at the Geosoft Web site (http://www.geosoft.com; Oasis Montaj viewer). The KMZ files can be dragged and dropped into the 'My Places' folder of the free downloadable 'Google Earth' software. Freeware software 'printfile' (http://www.lerup.com/printfile/) prints HPGL/2 files easily on compatible printers. The HPGL/2 files have brighter colors and sharper topography than the PDF maps and should be used for printing when possible. The PDF format maps are the only maps digitally viewable in this publication.

If you have any problems with this archive please contact Laurel Burns or the current geophysicist at the DGGS office.

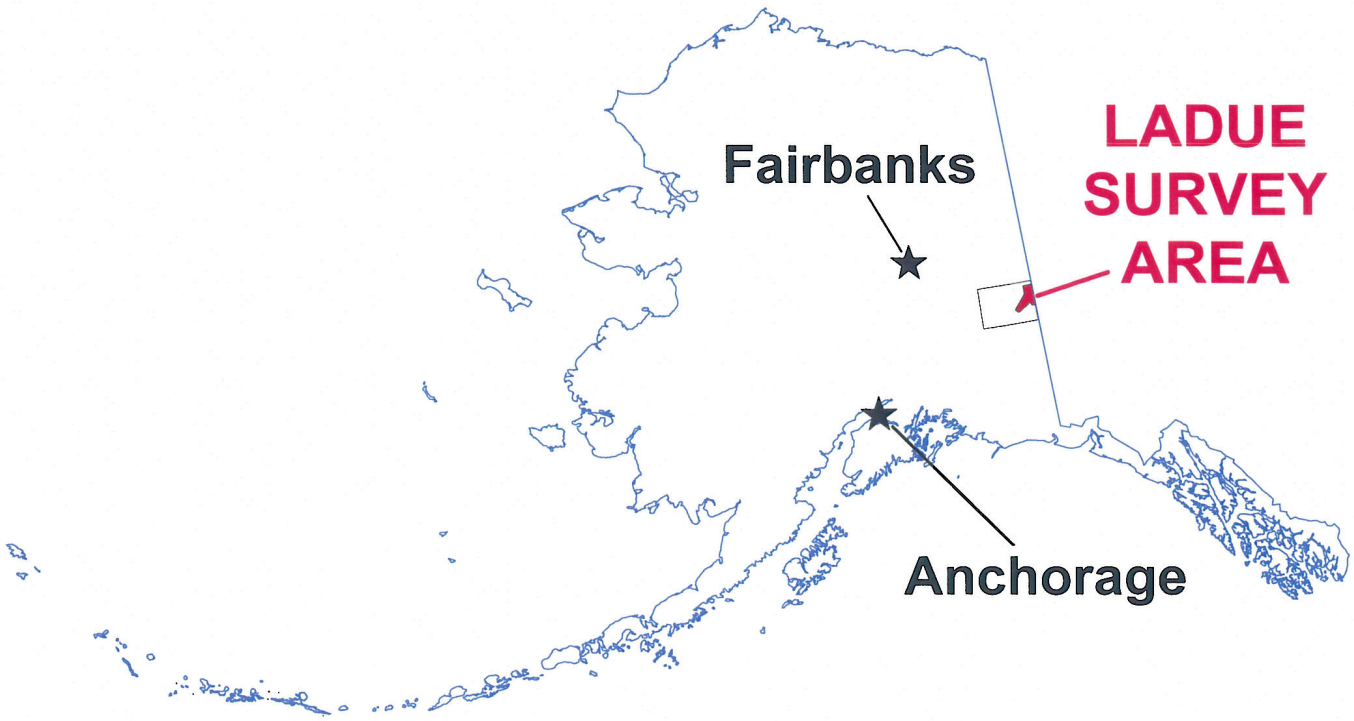

Figure 1: Location of the Ladue Survey Area in Alaska.
The Tanacross 1:250,000-scale Quadrangle is shown in gray.

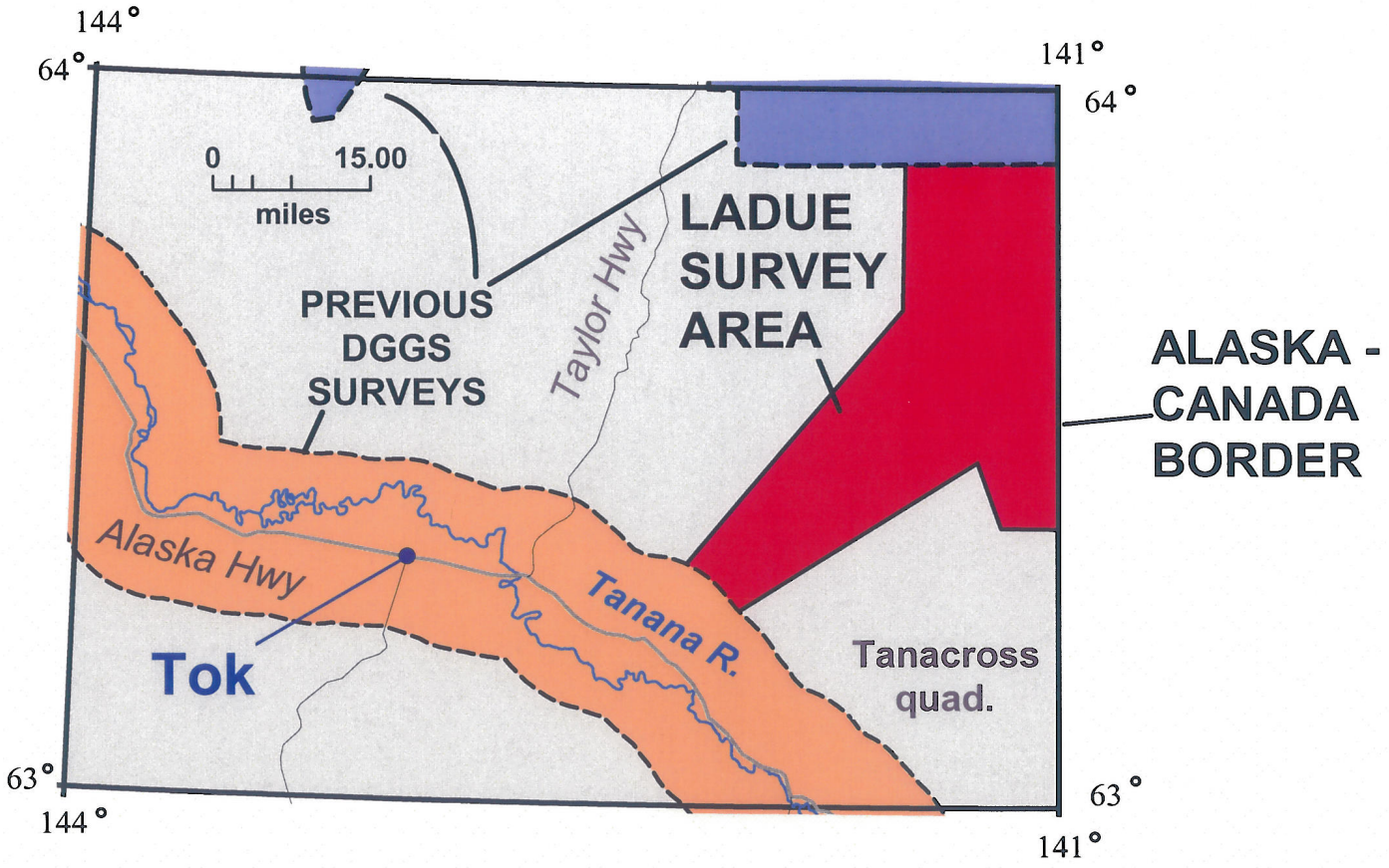

Figure 2: Location of the Ladue Survey Area in the Tanacross 1:250,000-scale Quadrangle. Previous surveys in the area are named in Figure 3.

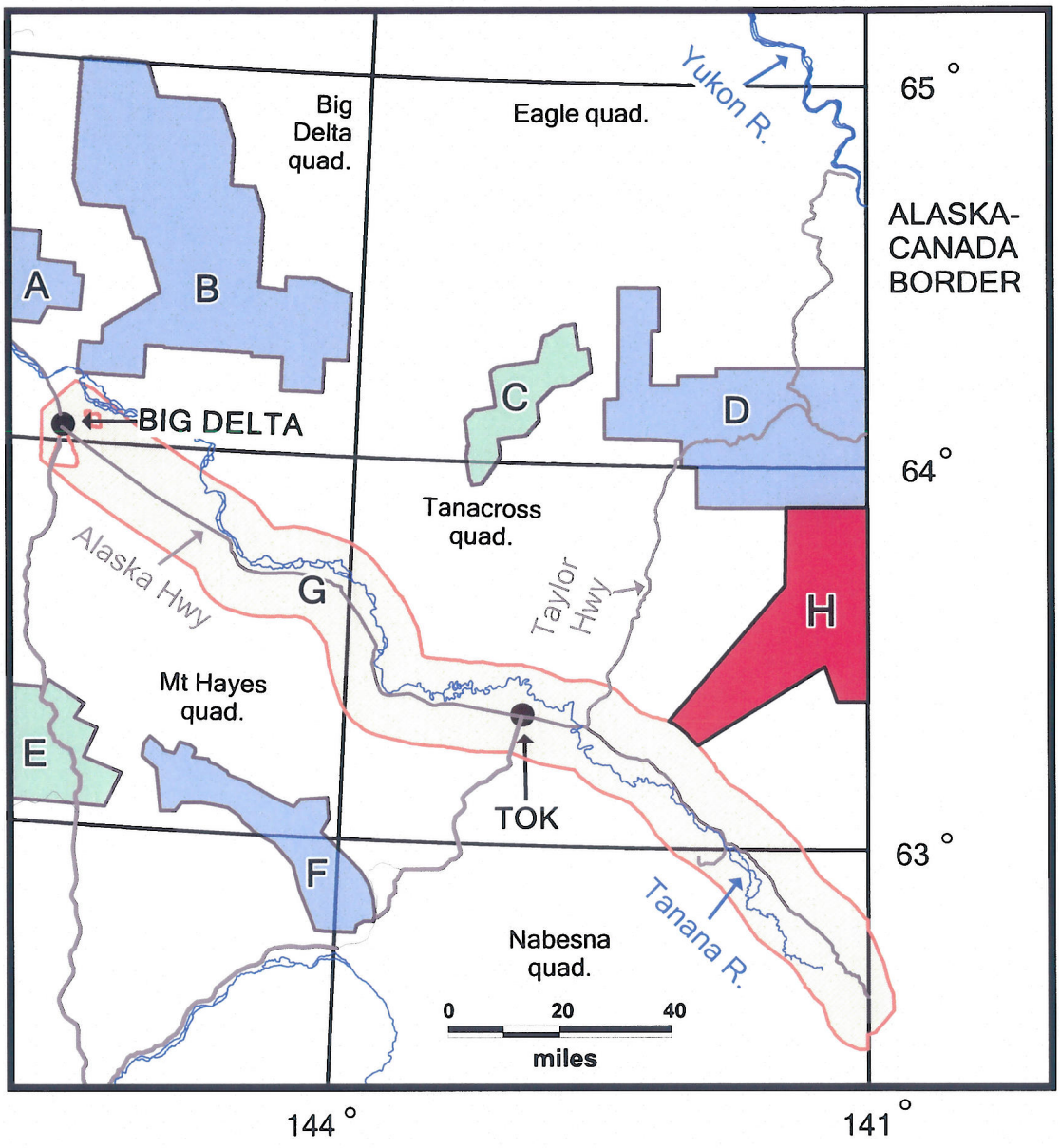

Figure 3: Location of DGGS-flown aeromagnetic and electromagnetic (HEM) surveys in the general area of the Ladue survey. Blue and green survey areas were flown under the Alaska Geophysical/Geological Mineral Inventory Program (AGGMI). Blue areas and the Ladue area were funded by the Alaska State Legislature; green areas were funded by the Solid Minerals Group of the U.S. Bureau of Land Management. The orange survey (G) was funded by the AK State legislature as part of an infrastructure project involving the potential gas pipeline project and potential railway corridor.

Survey Names: A = Richardson; B = combination of Salcha River-Pogo (SRP), SE extension of SRP, Goodpaster, Black River, and Liscum; C = Western Fortymile; D = Fortymile; E = Delta River; F = Slate Creek-Slana River; G = Alaska Highway Corridor, and H = Ladue.