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GPR 2013_001_ReadMe.PDF

SOUTHERN DISHNA RIVER, FOX HILLS, AND BEAVER CREEK SURVEY AREAS: Airborne Magnetic, Electromagnetic, and Radiometric Data in Line (Point), Grid, Vector, and Map formats, Holy Cross, Ophir, Iditarod, and Sleetmute quadrangles, southwestern Alaska

by
L.E.Burns, Fugro Airborne Surveys Corp., and Fugro Geosciences

PROJECT AND TECHNICAL INFORMATION

Project Name:.....Southern Dishna River, Fox Hills, and Beaver Creek Surveys,
.....informally referred to as the Five Spot Survey
Contracting Agency: .....State of Alaska, Department of Natural Resources,
.....Division of Geological & Geophysical Surveys (DGGS)
DGGS Section:.....Minerals Section
Program:.....Alaska Airborne Geophysical/Geological Mineral Inventory
.....(AGGMI) Program
Funding Source: .....Alaska State Legislature
Contractor: .....Fugro GeoServices, Inc.
Survey Flown By: .....Fugro Airborne Surveys Corp. (now CGG Airborne)
Fugro Project Number:.....12084A
DGGS Contract Manager:.....Laurel E. Burns
Area Size:.....1029 sq miles (2665 sq km)
Data Acquisition:
Start Date (YYYY-MM-DD):.....2012-09-15
End Date (YYYY-MM-DD):.....2012-11-02
Data Acquisition: .....Digitally acquired
Platform: .....Helicopter
Platform: Model:.....AS-350-B2 Squirrel and AS-350-B3 Squirrel
Survey Altitude Model:.....Mean terrain clearance (height above ground)
Nominal Helicopter Height:.....200 feet
Nominal Bird Height: .....100 feet
Traverse: Line Azimuth: .....N20°W (heading of 160 degrees)
Traverse: Line Spacing: .....1/4 mile (402.3 m)
Tie: Line Azimuth:.....N70°E (heading of 70 degrees)
Tie: Line Spacing:.....approximately 3 miles (approximately 4828 m)
Border lines:.....present around all edges that were not parallel to the
.....traverse or tie lines
Magnetics: Magnetometer: .....Scintrex CS3 cesium censors, mounted in birds
Electromagnetics: Sensor Model: .....Dighem(V)
Navigation System: Sensor:.....Global Positioning System
Navigation System: Sensor:.....Novatel OEM4-GL2
Navigation System: Method: .....Post-flight differential positioning
Additional equipment: .....Radar and laser altimeters, video camera, and
50/60 Hz monitors

CONTENTS of the DVD:

This publication, GPR2013-1, consists of 1 DVD with files in the root directory and in 7 main folders: : metadata, linedata, grids, geotiffs, kmzs, maps, and vectors.

ROOT DIRECTORY FILES:

gpr2013_001_readme	This file; PDF and TXT format.
gpr2013_001_figure1.jpg	Alaska figure showing location of Southern Dishna River, Fox Hills, and Beaver Creek survey.
gpr2013_001_figure2.jpg	Detailed figure showing location of Southern Dishna River, Fox Hills, and Beaver Creek survey, and other published surveys.
gpr2013_001_figure3.jpg	Detailed figure showing location of the two map sheets for Southern Dishna River.
gpr2013_001_browsegraphic	Figures 1, 2, and 3 in pdf format.

METADATA (Folder)

Metadata is provided in three formats.

GPR2013-1.faq.html .....Hypertext Markup Language format (Question and Answer)
GPR2013-1.txt .....ASCII text
GPR2013-1.xml .....Extensible Markup Language format

LINEDATA (Folder)

GPR2013-1_linedata.txt	Channel list
GPR2013-1_XYZtoGDB.i0	Oasis Montaj import template for XYZ files for all of the areas
SDishnaRiver.GDB	Oasis Montaj in binary GDB format
SDishnaRiver.XYZ	Oasis Montaj ASCII XYZ format
FoxHills.GDB	Oasis Montaj binary GDB database format
FoxHills.XYZ	Oasis Montaj ASCII XYZ format
BeaverCrk.GDB	Oasis Montaj binary GDB database format
BeaverCrk.XYZ	Oasis Montaj ASCII XYZ format

OVERVIEW: GRIDS, GEOTIFFS, and GOOGLE EARTH KMZs (3 Separate Folders)

The same data are provided as grids, GeoTiffs, and Google Earth KMZs files. The list of the files and the definition is provided below the short sections for the three folders. Gridded files can be manipulated to produce different images. Each GeoTiff and KMZ file is just basically 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.

GRIDS (Folder)

All grids are provided in Geosoft binary float and ER Mapper formats. Two files are included for one Geosoft file: the grid file (.GRD) and the projection file (.GRD.GI). Three files are provided for ER Mapper data -- a header (.ERS), a data file (no extension), and the projection file (.ERS.GI).

GEOTIFFS (Folder)

All file names in the GEOTIFF folder have the extension '.TIF'. GeoTiff files automatically register correctly as NAD 27, UTM Zone 4N in GIS programs. GeoTiff files can be opened in any graphics program and as long as the file is not saved, the registration information will still be valid.

KMZS (Folder)
All files in the KMZs folder have the extension '.kmz' (Google Earth zip format). One may drag and drop the KMZ files into 'My Places'' in the free downloadable Google Earth program (http://earth.google.com/download-earth.html); data will be automatically registered with the locational information used by Google Earth, i.e. WGS84 datum and CGS projection.

FILES IN THE GRIDS, GEOTIFFS, and KMZS FOLDERS:

Bvr_MagRMI	Residual magnetic intensity (RMI) (nT) – final with IGRF removed
Bvr_MagIGRF	Total magnetic field (nT) - final, with IGRF removed
Dish_1VD	First vertical derivative 'dz' (nT/m) of the RMI
Dish_ASig	Analytic signal (nT/m) calculated from the RMI
Dish_TiltDer	Tilt derivative (degrees) of the RMI
Dish_Res56k	Apparent coplanar resistivity (ohm-m) for 56,000 (56k) Hz
Dish_Res7200	Apparent coplanar resistivity (ohm-m) for 7200 Hz
Dish_Res900	Apparent coplanar resistivity (ohm-m) for 900 Hz
Dish_DTM	Digital terrain or elevation model (m)
Dish_AltLasBird	EM bird height (m) above surface, measured by laser altimeter in EM bird
Fox_MagRMI	Residual magnetic intensity (RMI) (nT) – final with IGRF removed
Fox_MagIGRF	Total magnetic field (nT) - final, with IGRF removed
Fox_1VD	First vertical derivative 'dz' (nT/m) of the RMI
Fox_ASig	Analytic signal (nT/m) calculated from the RMI
Fox_TiltDer	Tilt derivative (degrees) of the RMI
Fox_Res56k	Apparent coplanar resistivity (ohm-m) for 56,000 (56k) Hz
Fox_Res7200	Apparent coplanar resistivity (ohm-m) for 7200 Hz
Fox_Res900	Apparent coplanar resistivity (ohm-m) for 900 Hz
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Bvr_DTM	Digital terrain or elevation model (m)
Bvr_AltLasBird	EM bird height (m) above surface, measured by laser altimeter in EM bird

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:
Dish_MagRMI ..... Residual magnetic intensity (RMI) (nT) - final
Dish_ASig..... Analytic signal (nT/m) calculated from the RMI
Dish_TiltDer ..... Tilt derivative (degrees) of the RMI
Dish_Res56k..... Apparent coplanar resistivity (ohm-m) for 56,000 (56k) Hz
Dish_Res7200..... Apparent coplanar resistivity (ohm-m) for 7200 Hz.
Dish_Res900..... Apparent coplanar resistivity (ohm-m) for 9000 Hz.

Fox_MagRMI ..... Residual magnetic intensity (RMI) (nT) - final
Fox_ASig..... Analytic signal (nT/m) calculated from the RMI
Fox_TiltDer..... Tilt derivative (degrees) of the RMI
Fox_Res56k ..... Apparent coplanar resistivity (ohm-m) for 56,000 (56k) Hz
Fox_Res7200 ..... Apparent coplanar resistivity (ohm-m) for 7200 Hz.
Fox_Res900 ..... Apparent coplanar resistivity (ohm-m) for 9000 Hz.

Bvr_MagRMI..... Residual magnetic intensity (RMI) (nT) - final
Bvr_ASig ..... Analytic signal (nT/m) calculated from the RMI
Bvr_TiltDer..... Tilt derivative (degrees) of the RMI
Bvr_Res56k..... Apparent coplanar resistivity (ohm-m) for 56,000 (56k) Hz
Bvr_Res7200..... Apparent coplanar resistivity (ohm-m) for 7200 Hz.
Bvr_Res900..... Apparent coplanar resistivity (ohm-m) for 9000 Hz.

OTHER VECTORS:
Dish_FP..... Flight path
Dish_TiltDer ..... Tilt derivative of the total magnetic field with IGRF removed (degrees)
Dish_SecGrid..... Alaska PLSS Section Grid for the map sheets; includes
..... township and range labels.
Dish_UTMGrid..... Alaska UTM Grid for the map sheets; includes UTM labels on edges

Fox_FP..... Flight path
Fox_TiltDer ..... Tilt derivative of the total magnetic field with IGRF removed (degrees)
Fox_SecGrid ..... Alaska PLSS Section Grid for the map sheets; includes
..... township and range labels.
Fox_UTMGrid ..... Alaska UTM Grid for the map sheets; includes UTM labels on edges

Bvr_FP ..... Flight path
Bvr_TiltDer ..... Tilt derivative of the total magnetic field with IGRF removed (degrees)
Bvr_SecGrid ..... Alaska PLSS Section Grid for the map sheets; includes
..... township and range labels.
Bvr_UTMGrid ..... Alaska UTM Grid for the map sheets; includes UTM labels on edges

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.

For the Southern Dishna Survey area, two sheets are needed to cover the area at 1:63,360-scale (Map A covers the northern part, Map B covers the southern part). The Fox River and Beaver Creek surveys are covered by one sheet each.

Zip files include:

GPR2013-1_MAPS_01-39_ALL_asHPGL2.zip
GPR2013-1_MAPS_01-13_ALL-DISHNA_asPDFS.zip
GPR2013-1_MAPS_14-39_FoxBeaver_asPDFS.zip

Southern Dishna River survey maps:

Map No.	Grid Shown	With
GPR2013-1-1A	Residual Magnetic Field, north part	Topography
GPR2013-1-1B	Residual Magnetic Field, south part	Topography
GPR2013-1-2A	Residual Magnetic Field, north part	Data Contours
GPR2013-1-2B	Residual Magnetic Field, south part	Data Contours
GPR2013-1-3A	First Vertical Derivative of the Magnetic Field, north part	Topography
GPR2013-1-3B	First Vertical Derivative of the Magnetic Field, south part	Topography
GPR2013-1-4A	Analytic signal, north part	Topography
GPR2013-1-4B	Analytic signal, south part	Topography
GPR2013-1-5A	Analytic signal, north part	Data Contours
GPR2013-1-5B	Analytic signal, south part	Data Contours
GPR2013-1-6A	Magnetic tilt derivative, north part	Data Contours
GPR2013-1-6B	Magnetic tilt derivative, south part	Data Contours
GPR2013-1-7A	Color Shadow Residual Magnetic Field, north part	Data Contours
GPR2013-1-7B	Color Shadow Residual Magnetic Field, south part	Data Contours
GPR2013-1-8A	56,000 Hz Coplanar Apparent Resistivity, north part	Topography
GPR2013-1-8B	56,000 Hz Coplanar Apparent Resistivity, south part	Topography
GPR2013-1-9A	56,000 Hz Coplanar Apparent Resistivity, north part	Data Contours
GPR2013-1-9B	56,000 Hz Coplanar Apparent Resistivity, south part	Data Contours
GPR2013-1-10A	7200 Hz Coplanar Apparent Resistivity, north part	Topography
GPR2013-1-10B	7200 Hz Coplanar Apparent Resistivity, south part	Topography
GPR2013-1-11A	7200 Hz Coplanar Apparent Resistivity, north part	Data Contours
GPR2013-1-11B	7200 Hz Coplanar Apparent Resistivity, south part	Data Contours
GPR2013-1-12A	900 Hz Coplanar Apparent Resistivity, north part	Topography
GPR2013-1-12B	900 Hz Coplanar Apparent Resistivity, south part	Topography
GPR2013-1-13A	900 Hz Coplanar Apparent Resistivity, north part	Data Contours
GPR2013-1-13B	900 Hz Coplanar Apparent Resistivity, south part	Data Contours

Fox Hills survey maps:

Map No.	Grid Shown	With
GPR2013-1-14	Residual Magnetic Field	Topography
GPR2013-1-15	Residual Magnetic Field	Data Contours
GPR2013-1-16	First Vertical Derivative of the Magnetic Field	Topography
GPR2013-1-17	Analytic Signal	Topography
GPR2013-1-18	Analytic Signal	Data Contours
GPR2013-1-19	Magnetic Tilt Derivative	Data Contours
GPR2013-1-20	Color Shadow Residual Magnetic Field	Data Contours
GPR2013-1-21	56,000 Hz Coplanar Apparent Resistivity	Topography
GPR2013-1-22	56,000 Hz Coplanar Apparent Resistivity	Data Contours
GPR2013-1-23	7200 Hz Coplanar Apparent Resistivity	Topography
GPR2013-1-24	7200 Hz Coplanar Apparent Resistivity	Data Contours
GPR2013-1-25	900 Hz Coplanar Apparent Resistivity	Topography
GPR2013-1-26	900 Hz Coplanar Apparent Resistivity	Data Contours

Beaver Creek survey maps:

Map No.	Grid Shown	With
GPR2013-1-27	Residual Magnetic Field	Topography
GPR2013-1-28	Residual Magnetic Field	Data Contours
GPR2013-1-29	First vertical derivative of the magnetic field	Topography
GPR2013-1-30	Analytic Signal	Topography
GPR2013-1-31	Analytic Signal	Data Contours
GPR2013-1-32	Magnetic Tilt Derivative	Data Contours
GPR2013-1-33	Color Shadow Residual Magnetic Field	Data Contours
GPR2013-1-34	56,000 Hz Coplanar Apparent Resistivity	Topography
GPR2013-1-35	56,000 Hz Coplanar Apparent Resistivity	Data Contours
GPR2013-1-36	7200 Hz Coplanar Apparent Resistivity	Topography
GPR2013-1-37	7200 Hz Coplanar Apparent Resistivity	Data Contours
GPR2013-1-38	900 Hz Coplanar Apparent Resistivity	Topography
GPR2013-1-39	900 Hz Coplanar Apparent Resistivity	Data Contours

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 4N		LAT/LON WGS 84	Simple Cylindrical / LAT/LON WGS 84
CENTRAL MERIDIAN	-159		-159	
FALSE EASTING	500000		500000	
FALSE NORTHING	0		0	
SCALE FACTOR	0.9996		0.9996	
NORTHERN PARALLEL	N/A		N/A	
BASE PARALLEL	N/A		N/A	
WGS84 TO LOCAL	Molodensky conversion method		Molodensky conversion method	
DELTA X SHIFT	+5		+5	
DELTA Y SHIFT	-135		-135	
DELTA Z SHIFT	-172		-172	

AVAILABILITY and TECHNICAL REQUIREMENTS:

- ON-LINE: All parts of this publication can be downloaded from the DGGS Web link http://www.dggs.alaska.gov/pubs/id/26701 in data groups, e.g. MapsAsPDFS. The downloadable groups are near the bottom of the web page.

- 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.

- 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/26701 or through the Middle Styx Project page (http://www.dggs.alaska.gov/pubs/project-orderform/1187) 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 USE OF THE DATA: Technical requirements for use of all of 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 or Autocad DXF, 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.