Fugro Airborne Surveys Project #: 12084
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This archive consists of 1 DVD-ROM

GPR 2013_002_readme.PDF

'MIDDLE STYX SURVEY AREA: Airborne Magnetic, Electromagnetic, and Radiometric Data in Line (Point),Grid, Vector, and Map formats, Tyonek and Lime Hills quadrangles, southcentral Alaska'

by

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

PROJECT AND TECHNICAL INFORMATION

Project Name: ..... Middle Styx Survey
Contracting Agency: ..... State of Alaska, Department of Natural Resources,
..... Division of Geological & Geophysical Surveys (DGGS)
DGGS Section: ..... Minerals Section
Program: ..... Strategic and Critical Minerals CIP, a part of the
..... 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: 12084
DGGS Contract Manager: ..... Laurel E. Burns
Line Km ..... 1154.86 km
Data Acquisition:
    Start Date (YYYY-MM-DD): 2012-09-24
    End Date (YYYY-MM-DD): 2012-10-09
Data Acquisition: ..... Digitally acquired
Platform: ..... Helicopter
Platform: Model: ..... 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: ..... N70°E (heading of 70 degrees)
Traverse: Line Spacing: ..... 1/4 mile (402.3 m)
Tie: Line Azimuth: ..... N160°E (heading of 160 degrees)
Tie: Line Spacing: ..... approximately 3 miles (approximately 4828 m)
Border lines: ..... present around all non-parallel and
..... non-perpendicular edges
Magnetics: Magnetometer: ..... Scintrex CS3 cesium censor, mounted in bird
Electromagnetics: Sensor Model: ..... Dighem(V)
Spectrometer: Model: ..... Radiations Solution RS-500 256-channel gamma-ray
..... spectrometer
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, GPR 2013-2, 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_002_readme	This file; PDF and TXT format.
gpr2013_002_figure1.jpg	Alaska figure showing location of Middle Styx survey
gpr2013_002_figure2.jpg	Detailed figure showing location of Middle Styx survey, other published surveys, and ongoing surveys.
gpr2013_002_figure3.jpg	Detailed figure showing location of Middle Styx survey, rivers, and 1:63,360-scale quadrangles.
gpr2013_002_browsegraphic	Figures 1, 2, and 3 in pdf format.

METADATA (Folder)

Metadata is provided in three formats.

GPR2013-2.faq.html.....Hypertext Markup Language format (Question and Answer)
GPR2013-2.txt.....ASCII text
GPR2013-2.xml.....Extensible Markup Language format

LINEDATA (Folder)

MiddleStyx_Linedata.txt	Channel list
MiddleStyx_EM.gdb	Oasis Montaj binary GDB database format for mag & EM
MiddleStyx_RAD.gdb	Oasis Montaj binary GDB database format for RAD
MiddleStyx_EM.XYZ	Oasis Montaj ASCII XYZ format for mag and EM
MiddleStyx_RAD.XYZ	Oasis Montaj ASCII XYZ format for RAD
MiddleStyx_EM_XYZtoGDB.i0	Oasis Montaj import template for XYZ file for mag & EM
MiddleStyx_RAD_XYZtoGDB.i0	Oasis Montaj import template for XYZ file for RAD

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 5N 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:

MSt_MagRMI	Residual magnetic intensity (RMI) (nT) – final with IGRF removed
MSt_MagIGRF	Total magnetic field (nT) - final, with IGRF removed
MSt_1VD	First vertical derivative 'dz' (nT/m) of the RMI
MSt_ASig	Analytic signal (nT/m) calculated from the RMI
MSt_TiltDer	Tilt derivative (degrees) of the RMI
MSt_Res56k	Apparent coplanar resistivity (ohm-m) for 56,000 (56k) Hz.
MSt_Res7200	Apparent coplanar resistivity (ohm-m) for 7200 Hz.
MSt_Res900	Apparent coplanar resistivity (ohm-m) for 900 Hz.
MSt_TC_cc	Corrected total counts (cps)
MSt_K_cc	Corrected potassium counts (cps)
MSt_Th_cc	Corrected thorium counts (cps)
MSt_U_cc	Corrected uranium counts (cps)
MSt_eTh	Equivalent thorium (ppm)
MSt_eU	Equivalent uranium (ppm)
MSt_percentK	Percent potassium (%)
MSt_nadr	Natural air absorbed dose rate [nGy/h (nanogray per hour)]
MSt_ratio_eTh_percentK	Equivalent thorium / percent potassium ratio (ppm/%)
MSt_ratio_eU_percentK	Equivalent uranium / percent potassium ratio (ppm/%)
MSt_ratio_eU_eTh	Equivalent uranium / equivalent thorium ratio (unitless)
MSt_DTM	Digital terrain or elevation model (m)
MSt_AltLasBird	EM bird height (m) above surface, measured by laser altimeter in EM bird

VECTORS (Folder)
All 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 format and Autocad DXF. The files can be opened in variety of geophysical and GIS/CAD software such as Oasis Montaj, MapInfo, ArcGIS, and AutoCAD.

DATA CONTOURS:

MSt_MagRMI.....	Residual magnetic intensity (RMI) (nT) - final
MSt_ASig	Analytic signal (nT/m) calculated from the RMI
MSt_TiltDer.....	Tilt derivative (degrees) of the RMI
MSt_Res56k	Apparent coplanar resistivity (ohm*m) for 56,000 (56k) Hz
MSt_Res7200	Apparent coplanar resistivity (ohm*m) for 7200 Hz.
MSt_Res900	Apparent coplanar resistivity (ohm*m) for 900 Hz.
MSt_eTh	Equivalent thorium (ppm)
MSt_eU	Equivalent uranium (ppm)
MSt_percentK	Percent potassium (%)
MSt_nadr	Natural air absorbed dose rate [nGy/h (nanogray per hour)]
MSt_ratio_eTh_percentK	Equivalent thorium / percent potassium ratio (ppm/%)
MSt_ratio_eU_percentK	Equivalent uranium / percent potassium ratio (ppm/%)
MSt_ratio_eU_eTh	Equivalent uranium / equivalent thorium ratio (unitless)

OTHER VECTORS:
MSt_FP ..... Flight path
MSt_SecGrid ..... Alaska PLSS Section Grid for the map sheets; includes township and range labels.
MSt_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.

One sheet is needed to cover the survey area at 1:63,360-scale.
Zip files include:

GPR2013-2_MAPSasHPGL2_1-28.zip
GPR2013-2_MAPSasPDF_1-14.zip
GPR2013-2_MAPSasPDF_15-28.zip

Maps are listed on next sheet.

Map No.	Grid shown	With
GPR2013-2-1	Residual magnetic intensity, IGRF removed	topography
GPR2013-2-2	Residual magnetic intensity, IGRF removed	magnetic contours
GPR2013-2-3	First vertical derivative of the RMI	topography
GPR2013-2-4	Analytic Signal of the RMI	topography
GPR2013-2-5	Analytic Signal of the RMI	Analytic signal contours
GPR2013-2-6	Tilt Derivative of the RMI	Topography and Tilt Derivative contours
GPR2013-2-7	Shadowed RMI	Topography and Tilt Derivative contours
GPR2013-2-8	56K Hz coplanar apparent resistivity	topography
GPR2013-2-9	56K Hz coplanar apparent resistivity	56K contours
GPR2013-2-10	7200 Hz coplanar apparent resistivity	topography
GPR2013-2-11	7200 Hz coplanar apparent resistivity	7200 contours
GPR2013-2-12	900 Hz coplanar apparent resistivity	topography
GPR2013-2-13	900 Hz coplanar apparent resistivity	900 contours
GPR2013-2-14	Thorium/Potassium (eTh/%K)	topography
GPR2013-2-15	Thorium/Potassium (eTh/%K)	eTh/%K contours
GPR2013-2-16	Uranium/Potassium (eU/%K)	topography
GPR2013-2-17	Uranium/Potassium (eU/%K)	eU/%K contours
GPR2013-2-18	Uranium/Thorium (eU/eTh)	topography
GPR2013-2-19	Uranium/Thorium (eU/eTh)	eU/eTh contours
GPR2013-2-20	Potassium (K%)	topography
GPR2013-2-21	Potassium (K%)	percent K contours
GPR2013-2-22	Thorium (eTh)	topography
GPR2013-2-23	Thorium (eTh)	eTh contours
GPR2013-2-24	Uranium (eU)	topography
GPR2013-2-25	Uranium (eU)	eU contours
GPR2013-2-26	Natural air absorbed dose rate (nGy/h)	topography
GPR2013-2-27	Natural air absorbed dose rate (nGy/h)	NADR contours
GPR2013-2-28	Radioelement-Ternary image	Topography

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 5N		LAT/LON WGS 84	Simple Cylindrical / LAT/LON WGS 84
CENTRAL MERIDIAN	-153		-153	
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		+0	
DELTA Y SHIFT	-135		+0	
DELTA Z SHIFT	-172		+0	

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/22842 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/22842 or through the Middle Styx Project page (http://dggs.alaska.gov/pubs/gpdata/215) 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.