

EXPLORATION AND MINING DIVISION IRELAND

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THE ARCON EXPLORATION PLC. MAGNETIC SURVEY (1996) OVER THE GALMOY AREA

December 2002



Department of Communications, Marine
and Natural Resources

**Department of Communications, Marine and Natural
Resources**

**THE ARCON MAGNETIC SURVEY (1996) OVER THE
GALMOY AREA**

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Orla Dardis

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INTRODUCTION

Between March and May 1996 Arcon Exploration Plc. flew a 2775 line km magnetic survey over an area centred on the Galmoy deposit near Johnstown, Co. Kilkenny, encompassing approximately 242 sq km (Figure 1).

Block	Line km	Approx. Area (sq km)	Prospecting Licences covered / partially covered by the Survey Area
Galmoy	2775	242	754, 1652, 1653, 1654, 2258, 2448, 3246, 3262, 3312, 3313, 3402, 3667, 3688, 3737, 3245R, 586R

This survey was acquired over six years ago and is available to the general public in fulfilment of the 'Open Skies' policy of the Exploration and Mining Division (EMD). The Division acknowledges the cooperation of Arcon Exploration Plc.

At this time EMD is primarily concerned with prompt data release and no attempt was made to reprocess or correct survey data. Data is released as submitted and no liability is accepted on the part of the EMD for data quality or accuracy. However, to facilitate ease of use, grids are provided with an Ordnance Survey base map for ease of geographical reference.

World Geoscience (UK) Ltd. conducted the survey using a towed bird magnetometer. Magnetic, radar altimeter and navigation data was acquired during the survey. All processing was carried out by World Geoscience, which is now part of Fugro Airborne Surveys.

The survey specifications, data acquisition and processing procedures used, are outlined in the World Geoscience survey report. Interpretation reports were provided by both Arcon and World Geoscience.

A listing of all digital and hardcopy data (databases, grids, maps and company reports) lodged with the Exploration and Mining Division is included in this publication and outlined below in the data listings section.

SURVEY EQUIPMENT AND SPECIFICATIONS

Flight Line Spacing	100m
Flight Line Direction	162°
Tie Line Spacing	1000m
Mean Terrain Clearance	80 m
Nominal Survey Speed	120 knots (62 m/s)
Total Survey Area	242 km ²
Total Line Km	2775 line km
Magnetometer	CS-2 Cesium Vapour
Sensitivity	0.001 nT
Sample Rate	10 samples /sec
Mounting	Stinger
Sensor Height above ground	80 m

PROCESSING OVERVIEW AND MAP GENERATION

The information provided in this section was taken from the lodged reports and readme file for the survey (included on CD) and from examination of the data.

Magnetics Processing Sequence

A system lag (parallax) correction of 0.4 seconds was applied followed by noise editing (de-spiking) and filtering. The diurnal field and IGRF were removed from the data and the data was tie-line leveled and microleveled. The data was reduced to the pole and cultural responses were removed. The regional field was also removed. The World Geoscience interpretation report contains further details of the procedures used.

Grid and Map Generation

Arcon supplied grids in grid exchange format (gxf), which were created using a with a 30 m cell spacing. The final magnetics channel (MAG_FINAL) was re-gridded by EMD using a minimum curvature interpolation (25m grid cell spacing) and is identified by an 'emd' label in the filename. This EMD grid was used to generate the final magnetics map on an Ordnance Survey base.

All digital and hardcopy products are in the Irish National Grid (ING) coordinate system:

Datum:	TM65 / Airy Modified 1849
Ellipsoid:	Airy Modified 1849
	Major axis: 6377340.189
	Eccentricity: 0.081673374
	1/f: 299.3249646
Projection	Transverse Mercator
Central Meridian	-8.00.00.000
Latitude of origin	53.30.00.000
False Northing:	250,000 m
False Easting:	200,000 m
Scale factor:	1.000035

DATA LISTING

Geosoft polygon files of survey boundaries

A geosoft polygon file (*.ply) for the survey area is included on the CD. The file is in ASCII format and can be opened in any text editor to view survey boundary coordinates (in ING).

Databases

The raw and processed data was supplied in ASCII format and imported into Geosoft Database format (GDB) by EMD. A readme file with channel listings is included on the CD and summarised on page 6. The magnetics data is released on CD in Geosoft format.

Raw and Processed Magnetic Data (Geosoft GDB)

Database	Number of Channels	Approx. Size (Mb)	File Name (.gdb)
Magnetics	17	17.95	gal_mag

Grids

The following grids in gxf format were submitted by Arcon. The final grid was reproduced by EMD to provide a grid produced using a minimum curvature interpolation in Geosoft grid format (grd).

Block	Grid	Grid Name	Grid cell spacing (m)	Format
Galmoy	Final magnetics	gal_tmi_emd	25	grd
	Final magnetics	TMI	30	gxf
	Final magnetics (reduced to pole)	TMI_RTP	30	gxf
	Depth Slice 1 (average 100m)	DS1	30	gxf
	Depth Slice 2 (average 200m)	DS2	30	gxf
	Depth Slice 3 (average 400-800m)	DS3	30	gxf
	Depth Slice 4 (average 1.4km)	DS4	30	gxf
	Unknown - low frequency magnetics	BASE	30	gxf
	Unknown - high frequency magnetics	BASE_RES	30	gxf

Maps

All colour hardcopy maps submitted by Arcon for this release were scanned and stored in a compressed TIFF format, using LZW compression to keep file sizes manageable, and can be opened in most standard packages. Compression was carried out using Imaging for Windows, which is available under the Accessories menu in Windows. *LZW compressed TIFF images can only be viewed in Geosoft when they are imported as a GeoTIFF file.* Black and white images were compressed using CCIT Group4 compression, which can be opened in all standard packages. Maps produced in EMD, on an Ordnance Survey 1:50,000 base, are available on the release CD as uncompressed images in JPEG format, or in hardcopy format on request.

Supplied by Arcon Exploration Plc.

Block	Map Title	Filename	Scale	Format
Galmoy	Aeromagnetic lineaments map	arc14.1.01	1:25000	CCIT Group 4 tiff
	Geology Map based on aeromagnetic data	arc14.1.02	1:25000	LWZ tiff
	Geology and Target Areas	arc14.1.03	1:25000	LWZ tiff
	Flight Path	arc14.1.04	1:25000	CCIT Group 4 tiff
	Total Magnetic Intensity Reduced to Pole - Deepest Psuedo Path Slice	arc14.1.05	1:25000	LWZ tiff
	Total Magnetic Intensity Reduced to Pole - Psuedo Path Slice 4	arc14.1.06	1:25000	LWZ tiff
	Total Magnetic Intensity Reduced to Pole - Psuedo Path Slice 3	arc14.1.07	1:25000	LWZ tiff
	Total Magnetic Intensity Reduced to Pole - Psuedo Path Slice 2	arc14.1.08	1:25000	LWZ tiff
	Total Magnetic Intensity Reduced to Pole - Psuedo Path Slice 1	arc14.1.09	1:25000	LWZ tiff
	Total Magnetic Intensity Reduced to Pole -1st Vertical Derivative	arc14.1.10	1:25000	LWZ tiff

	Total Magnetic Intensity Reduced to Pole	arc14.1.11	1:25000	LWZ tiff
	Geology Map (part of arcr27_1)	arc27.1.01	1:25000	LWZ tiff
	Total Magnetic Intensity Reduced to Pole - Deepest Pseudo Depth Slice Residual (part of arcr27_2)	arc27.1.02	1:25000	LWZ tiff
	Galmoy Area (part of arcr27_2)	arc27.1.03	1:25000	LWZ tiff
	Galmoy Magnetic Data (part of arcr27_2)	arc27.1.04	1:25000	LWZ tiff

Supplied by EMD on Ordnance Survey base

Block	Map	Filename	Scale
Galmoy	Processed final magnetic intensity	gal_tmi_emd	1:25,000

This map is available, on an Ordnance Survey 1:50,000 base, as a scanned image (jpeg format) or in hardcopy format.

Company reports

Three reports were lodged for this survey and are included on the release CD.

Report Title	Filename (.pdf)	No. of pages
Report on the 1996 Galmoy Block Aeromagnetic Survey.	arcr27_1	11
Galmoy/Lisheen Survey Details, Technical Specifications & Survey Logistics.	arcr27_3	17
Galmoy/Lisheen Airborne Magnetic Survey, Arcon Mines Ltd., Interpretation Report.	arcr27_2	22

GEOSOFTE DATABASE CHANNEL LISTING 1

Galmoy Magnetics Database

CHANNEL NAME	DESCRIPTION	UNITS
X	Easting (ING)	metres
Y	Northing (ING)	metres
FLT	Flight number	
DATE		yymmdd
FID	Fiducial	seconds
TIME		
RAD_ALT	Radar altimeter	metres
BARO	Barometer	metres
GPS_ALT	GPS elevation	metres
COMP_MAG	Compensated and filtered raw magnetics	nT
RAW_MAG	Raw magnetics	nT
IGRF	International geomagnetic reference field	nT
DIURNAL	Diurnal magnetics	nT
MAG_FINAL	Total field magnetics (IGRF corrected & leveled)	nT
TOPO_FINAL	Final digital terrain model	metres
LONG	Longitude	-
LAT	Latitude	-

SURVEY LOCATION

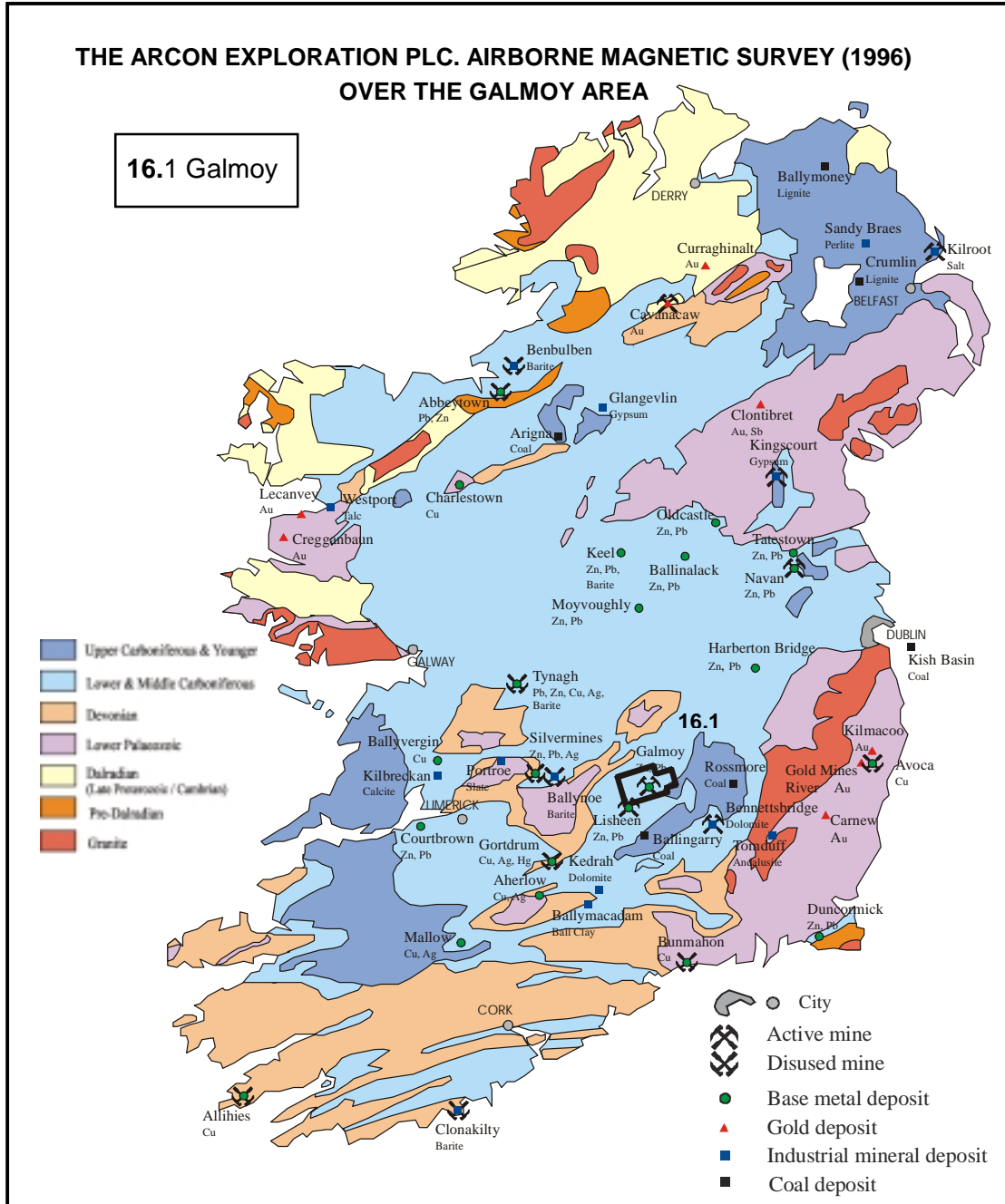


Figure 1. Location of the survey area on a simplified geology map of Ireland.

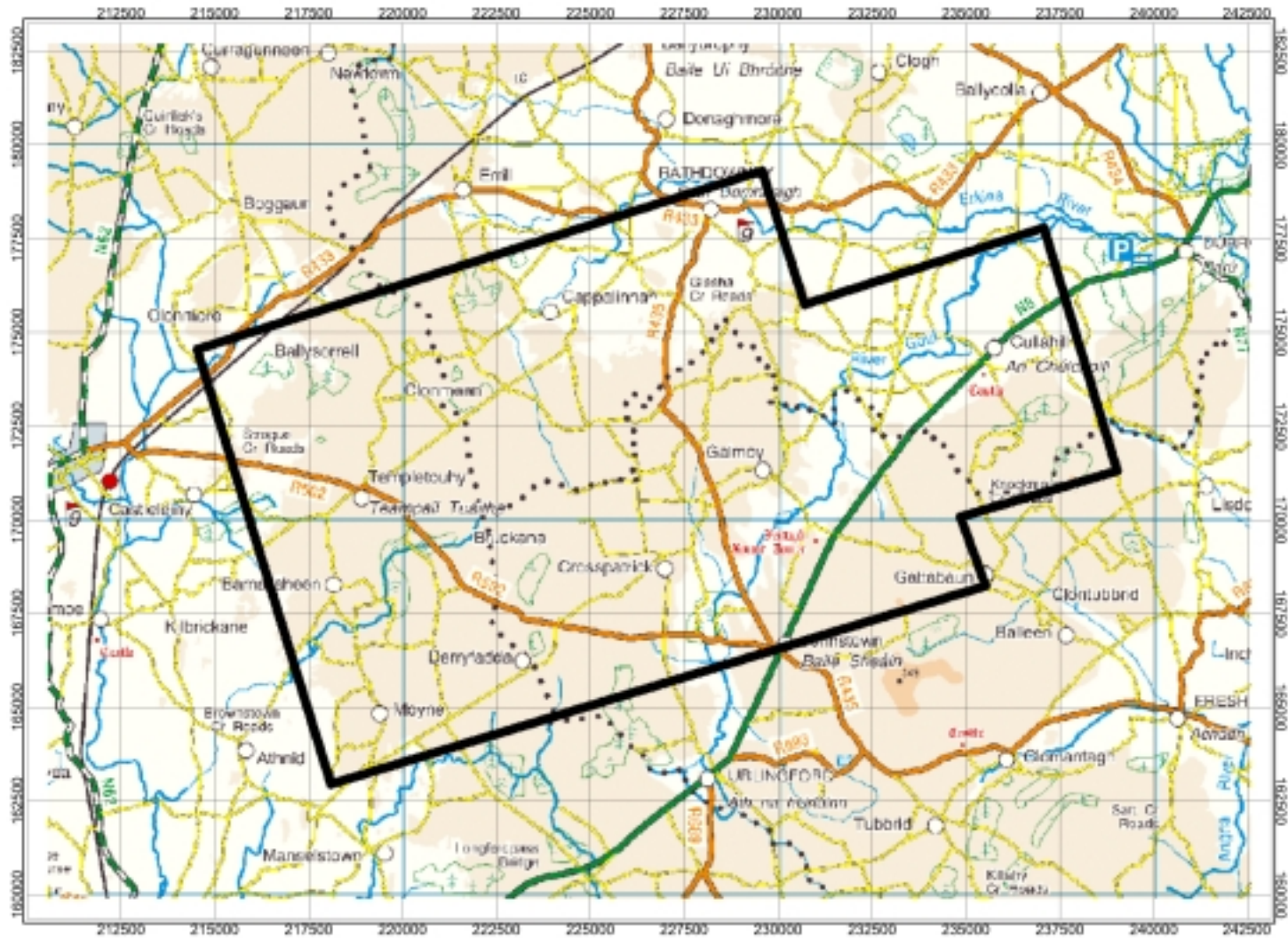


Figure 2. The Galmoy survey area on a 1:250,000 Ordnance Survey base.
 (Ordnance Survey Permit DNE 001001).