

# THE MINING SECTOR SUPPORT PROGRAMME

## AIRBORNE GEOPHYSICS OVER VOLTAIAN, KETA BASIN AND OTHER SELECTED AREAS

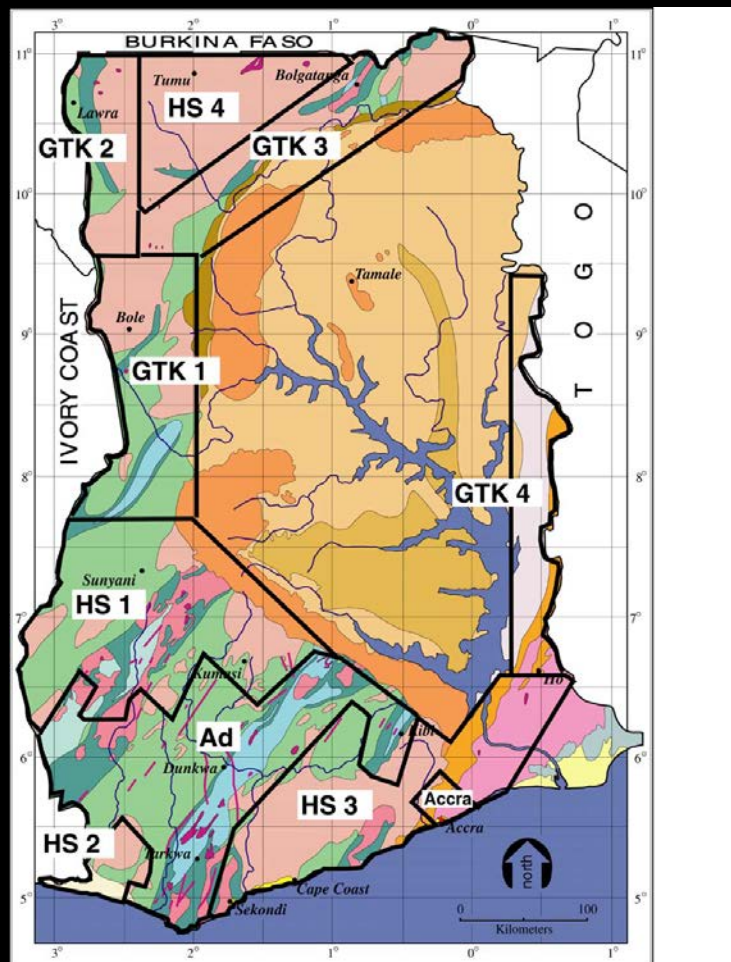


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# PRE-MSSP GEOPHYSICAL DATA

- Between 1996 and 1998, the World Bank/ Nordic Development Fund sponsored the Mining Sector Development and Environment Project.
- Under the project, Airborne Geophysical Data (magnetic, radiometric and Electromagnetic ) were collected over large parts of Ghana except the Volta and Keta Basin





# PRE-MSSP GEOPHYSICAL DATA

Contractor	Data collected	Date	Survey Parameters
Aerodat Inc. Canada	Magnetics/ Radiometrics	1994-1996	Line separation-200m Terrain clearance-100m Line direction-NW-SE
Geological Survey of Finland	Magnetics/ Radiometrics/ Electromagnetics	Dec. 1996- Dec. 1997	Line separation-400m Terrain clearance-70m Line direction-(Areas 1 and 3) NW-SE , (Areas 2 and 4)E-W
High Sense Geophysics Ltd. Canada	Magnetics/ Radiometrics	Nov.1999- Sept.2000	Line separation-400m Terrain clearance-80 Line direction-315°





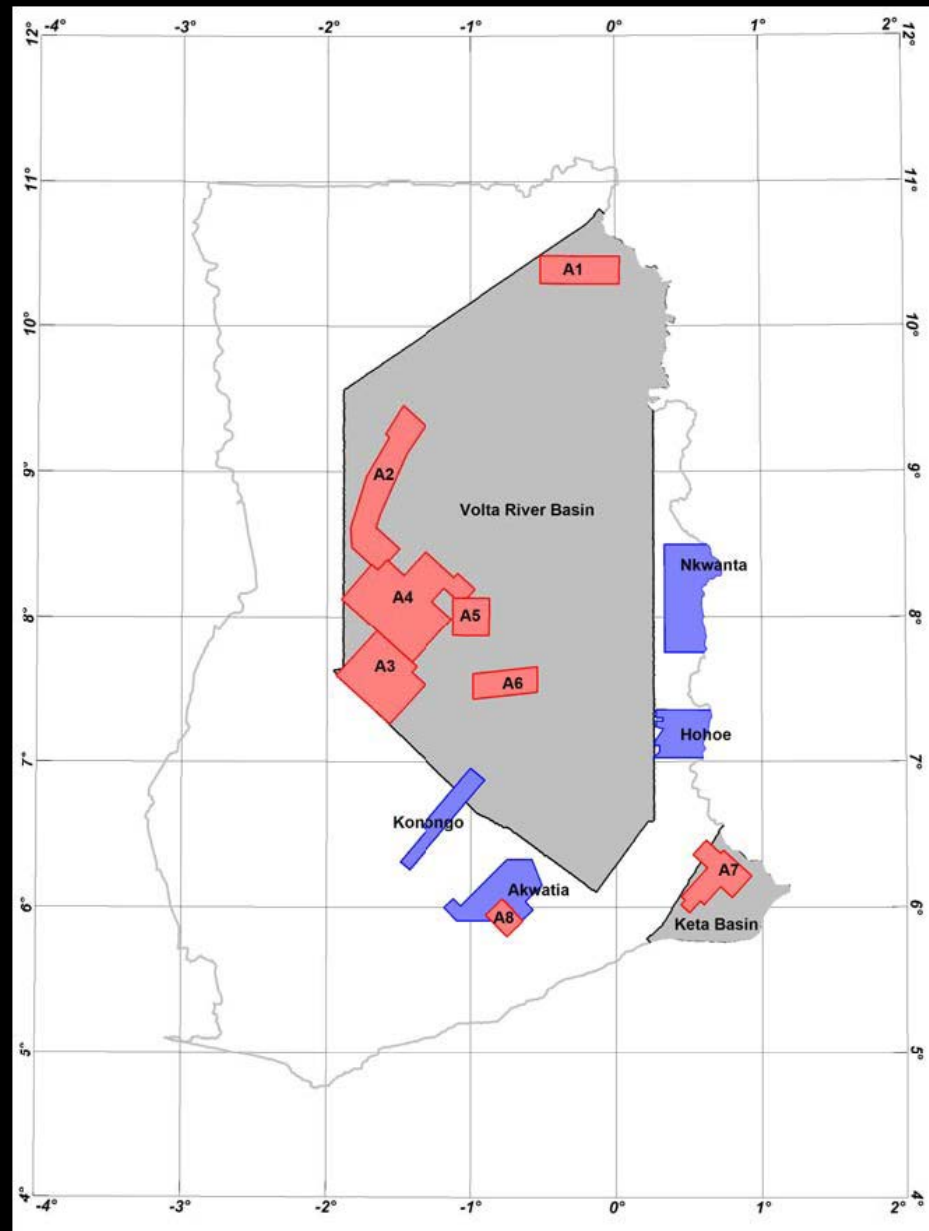
# MINING SECTOR SUPPORT PROGRAMME

## (AREAS SURVEYED)

*The GEOTEM regional survey included the area between the Volta River and Keta Basins.*

*In addition to these regional surveys, Fugro Airborne Surveys conducted combined GEOTEM and magnetic surveys in eight detailed areas, of which six (A1-A6) are within the Voltaian Basin, one (A7) partly in the Keta Basin and one (A8) over the Winneba Belt (light red area and red polygon).*

*Geotech Airborne Ltd. covered four areas with combined VTEM and magnetic measurements (light blue area and blue polygon).*





# MINING SECTOR SUPPORT PROGRAMME(MSSP)

## {DATA ACQUIRED IN THE VOLTALAN AND KETA BASIN BY FUGRO }

Survey operation	Start of acquisition	End of acquisition	Survey Parameters
Magnetic/Radiometric	15 December 2005	19 June 2006	Line separation: 500m Line direction: NW-SE (135°) Terrain clearance: 75m Total line km: 215,000
Gravimetric	12 February 2008	27 April 2008	Line separation: 5km Line direction :NW-SE Terrain clearance: 860m Total line km: 21,819
GEOTEM	12 December 2006	12 April 2008	Line separation: 20km Line direction: (042° and 132°) Terrain clearance: 75m Total line km: 10,648





# MINING SECTOR SUPPORT PROGRAMME

## {Versatile Time- Domain Electromagnetic (VTEM) Survey}

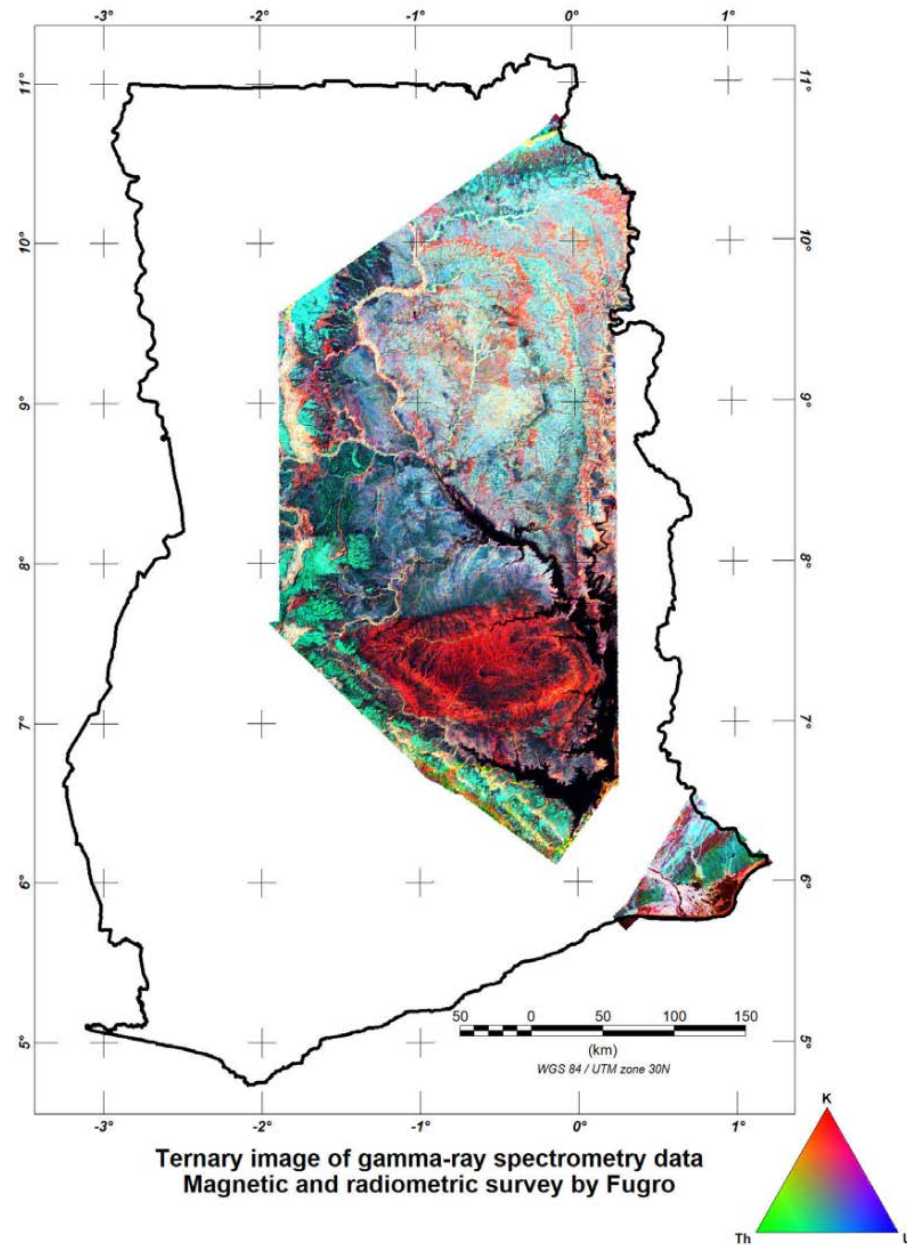
AREA	DATA COLLECTED	SURVEY- DATE	PARAMETERS
HOHOE	Electromagnetics & Magnetics	Sept-Nov 2008	Line separation: 400m Line direction: E-W(090 <sup>o</sup> -270 <sup>o</sup> ) Terrain clearance: 46m Total line km: 3818
NKWANTA	Electromagnetics & Magnetics	Nov-Dec 2008	Line separation: 400m Line direction: E-W(090 <sup>o</sup> -270 <sup>o</sup> ) Terrain clearance: 46m Total line km:7615
AKWATIA	Electromagnetics & Magnetics	Feb-March 2009	Line separation:400m Line direction:(134 <sup>o</sup> -314 <sup>o</sup> ) Terrain clearance:46m Total line km:5074
KONONGO	Electromagnetics & Magnetics	May-July 2009	Line separation: 400m Line direction:(130 <sup>o</sup> -310 <sup>o</sup> ) Terrain clearance:46m Total line km: 3009





## RADIOMETRICS

- 215 000 line km of 256-channel gamma-ray spectral data at a flight-line spacing of 500 m. Flight lines were orientated at  $135^\circ$  (northwest-southeast); tie lines at an orientation of  $225^\circ$  (northeast-southwest), with a nominal sensor terrain clearance of 75 m.





## MAGNETICS

- 215 000 line km of high-resolution magnetic gradiometry and data at a flight-line spacing of 500 m. Flight lines were orientated at  $135^\circ$  (northwest-southeast); tie lines at an orientation of  $225^\circ$  (northeast-southwest), with a nominal sensor terrain clearance of 75 m.

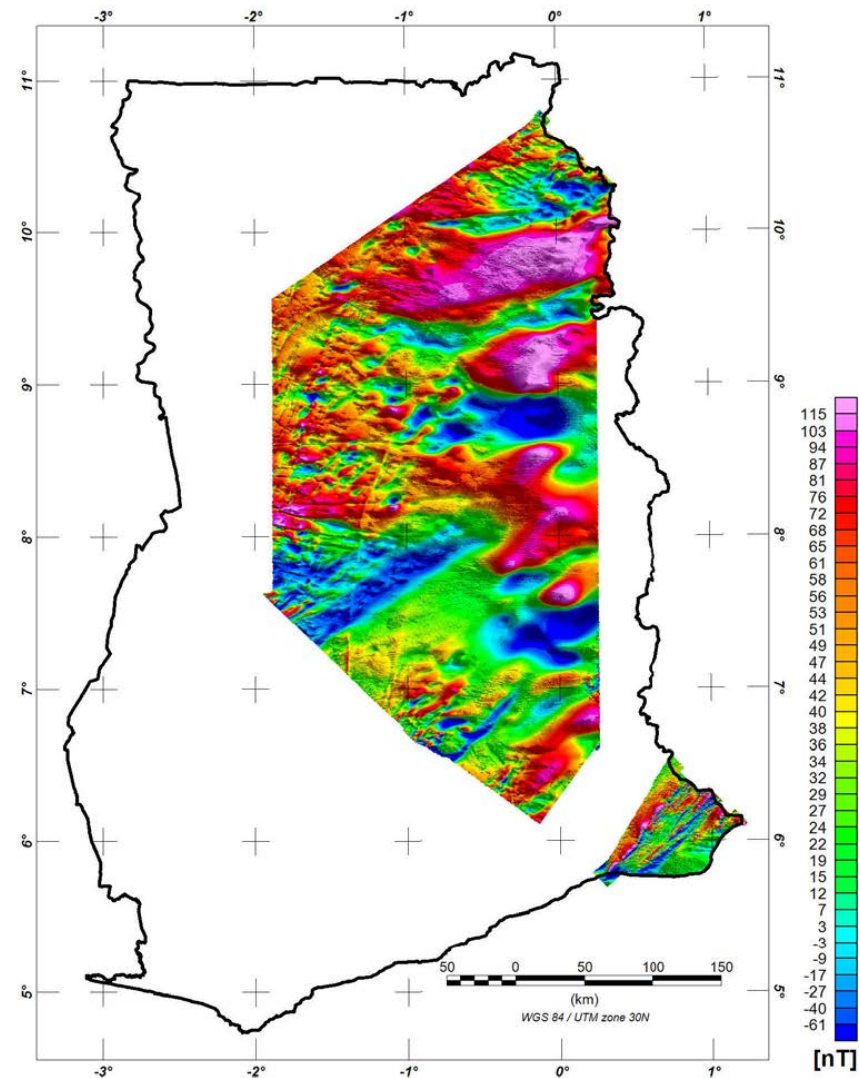


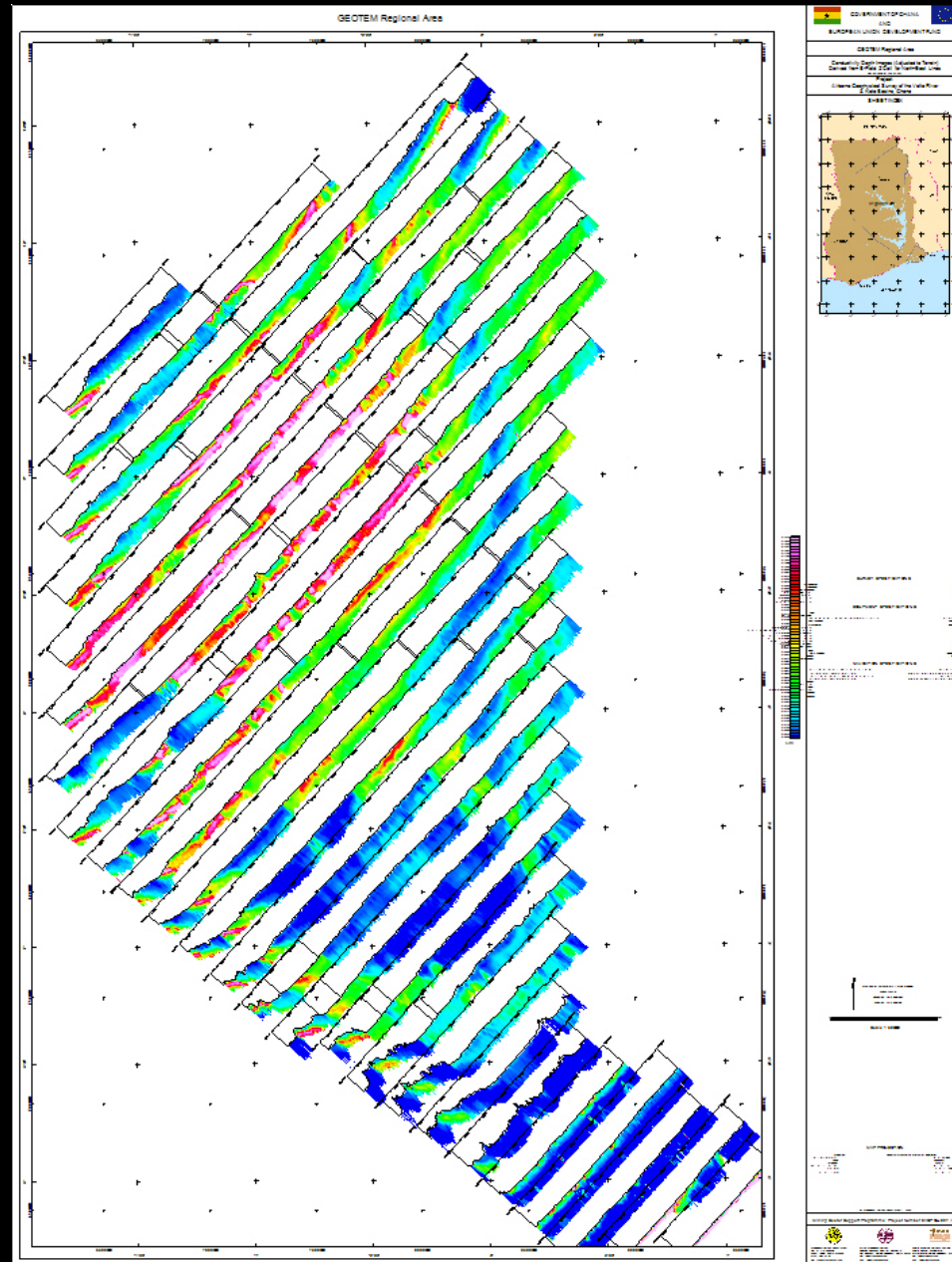
Image of magnetic field anomaly  
Magnetic and radiometric survey by Fugro





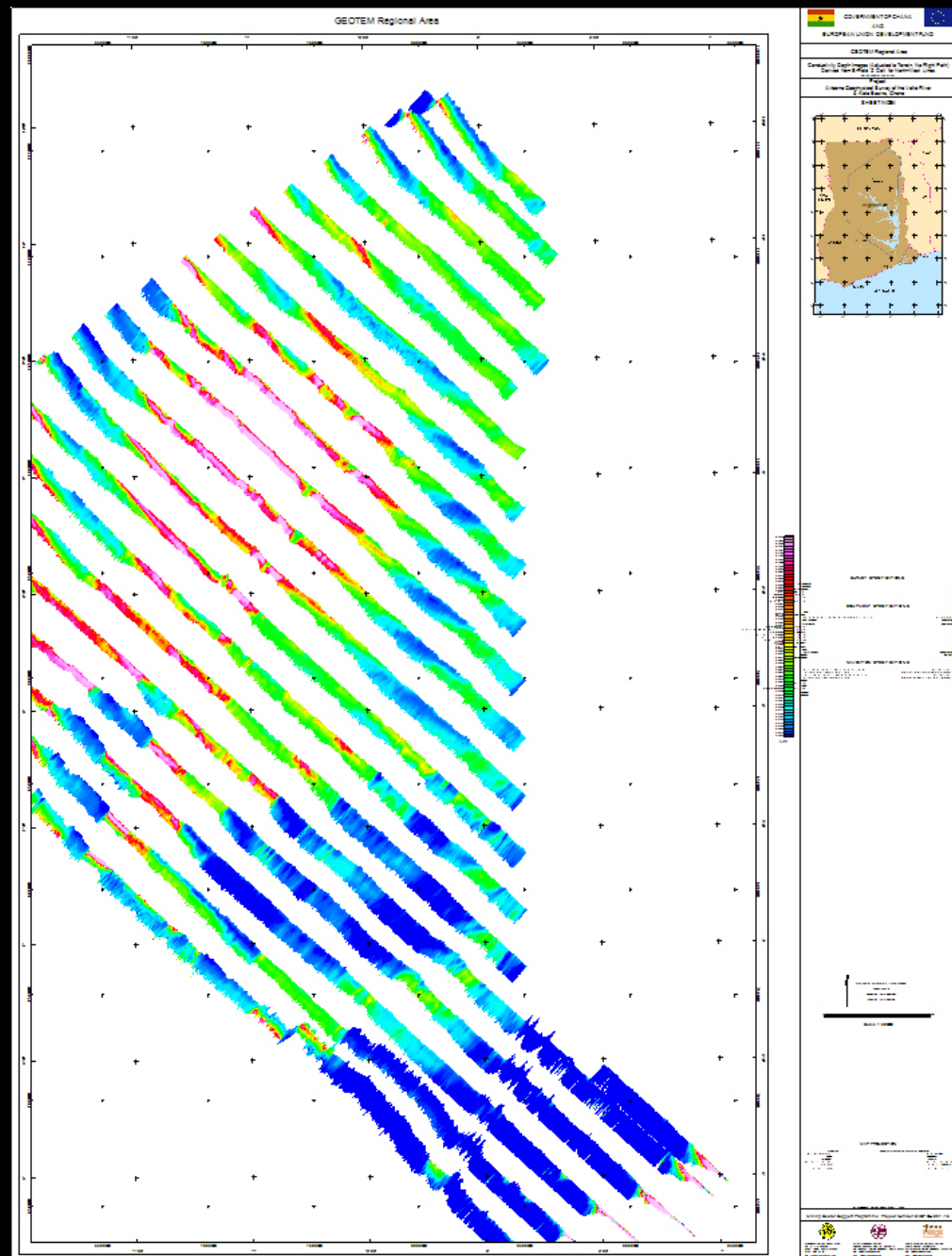
# ELECTROMAGNETICS

- 10 648 line Km of regional GEOTEM airborne electromagnetic survey. The regional lines were flown at both 042° and 132°, with 20km line spacing in both directions.





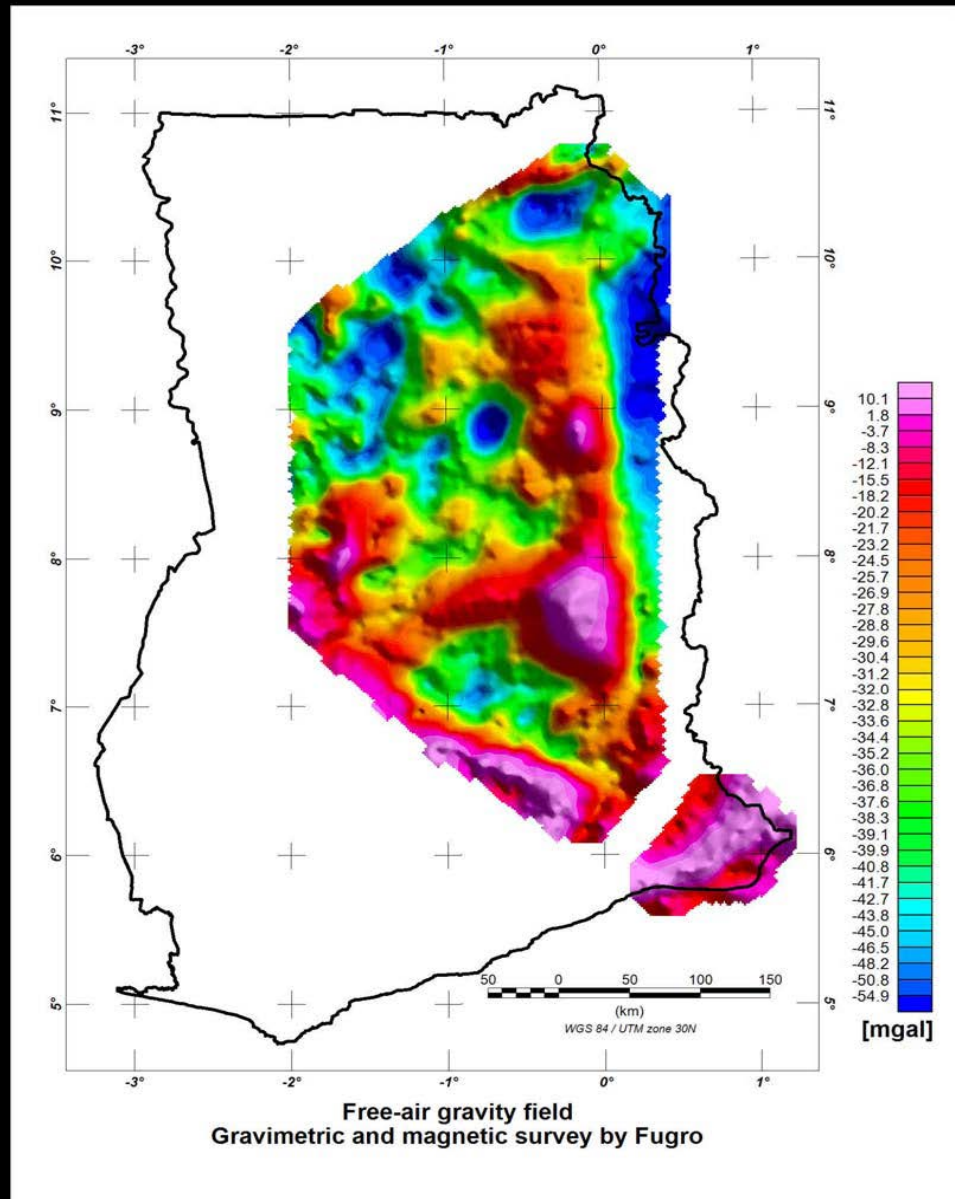
- The regional lines flown at 042<sup>0</sup>





## GRAVIMETRICS

- A separate fixed-wing airborne survey was flown in order to collect gravity data. The airborne gravity survey covered the entire Volta River and Keta Basins. A total of 21,819 line km were flown with a line spacing of 5,000 m, and a nominal sensor terrain clearance of 859 m.

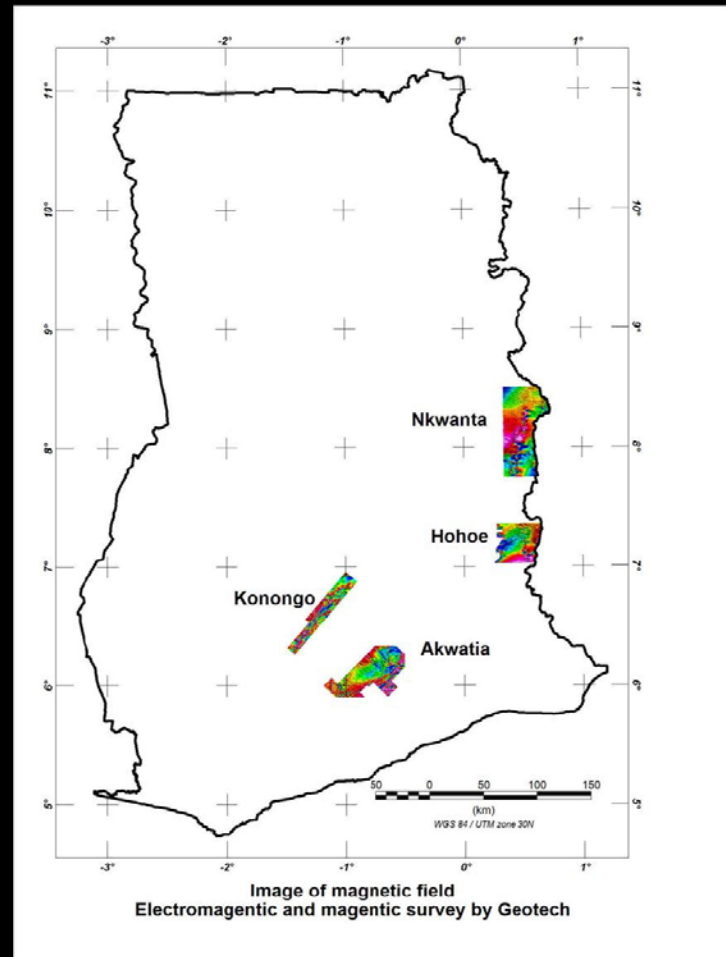




# VTEM SURVEY

- Furthermore, 19,400 line Km of Helicopter-borne VTEM EM data has been collected over the

- Hohoe,
- Nkwanta,
- Akwatia and
- Konongo blocks.





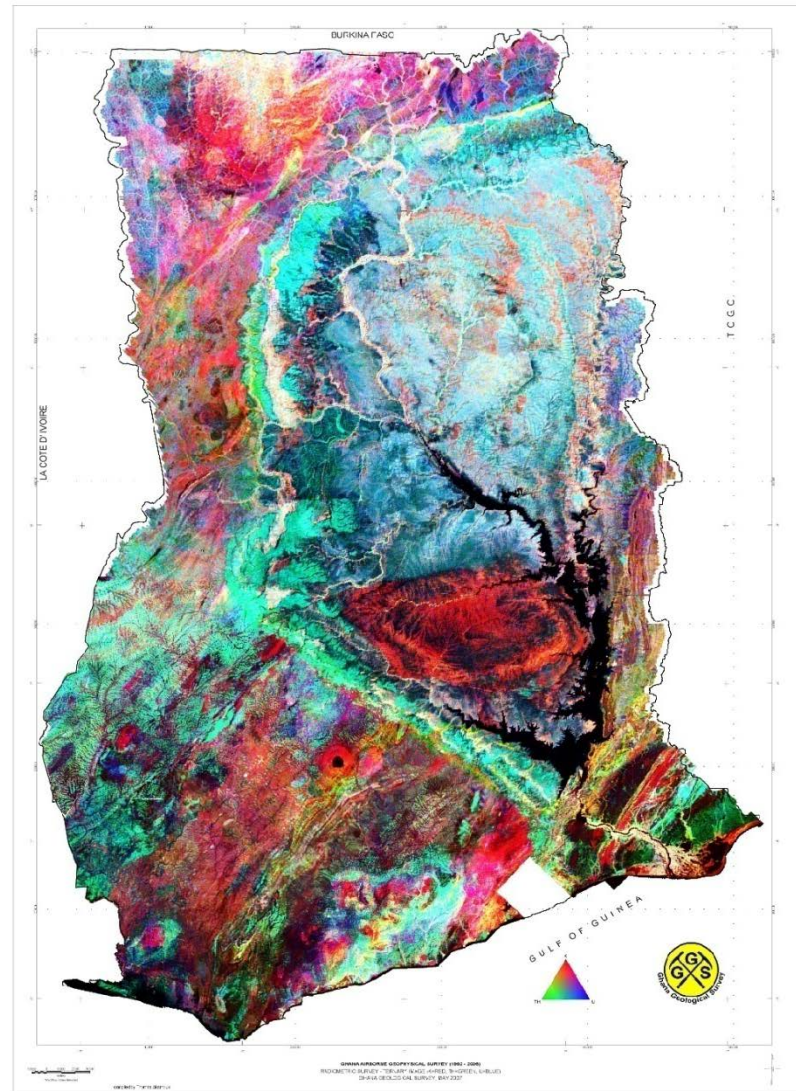
We now have nationwide coverage of magnetic data.





# RADIOMETRICS

We also have nation-wide coverage of radiometric data





# FUTURE

- All the data have been placed in a DAP server which will serve as a repository of information from which data can be shared/disseminated to all stakeholders
- The various geophysical data acquired will enhance
  - New mineral discovery
  - Advanced geological research





THANK YOU

