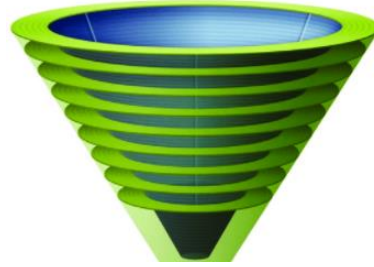
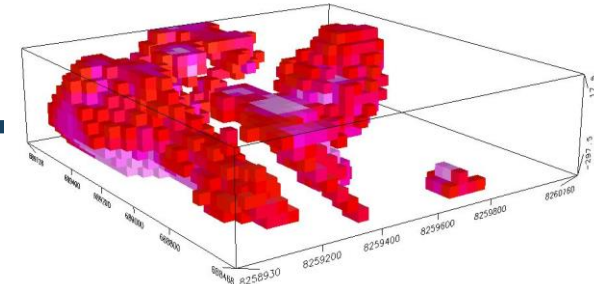
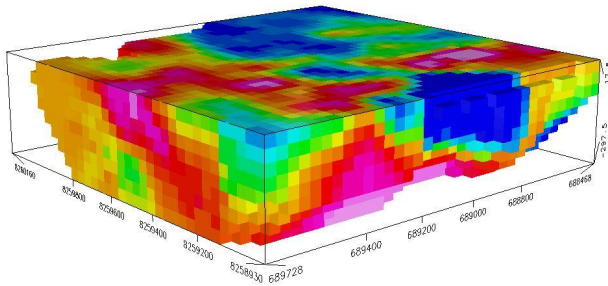


COMPANY PROFILE



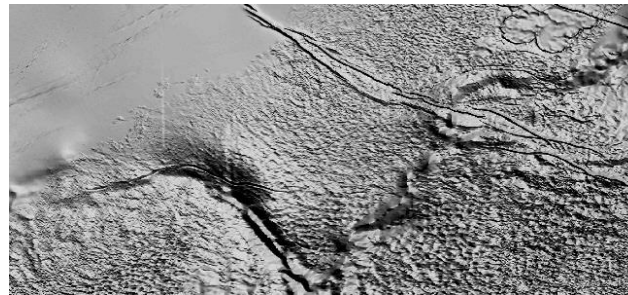
VORTEX GEOSCIENCE CONSULTANCY (PVT) LT



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*“Fostering Sustainable Solutions Through
Innovation and Technology”*

Company Overview

- ▶ Vortex Geoscience Consultancy (VGC) is a private professional services company based in Zimbabwe which laid its foundation in 2008 as Vision Geophysics based in Botswana and Universal Geoscience Solutions in Zambia. VGC aims at providing integrated geophysical and geological consultancy and training services in the areas of minerals, geotechnical, environmental and groundwater, covering aspects from mineral exploration, geophysics, geology, geotechnical engineering, hydrogeology, environment and geo-information.
- ▶ Vortex Geoscience Consultancy is consisted of a group of experienced geoscientists (geologists and geophysicists) based in Zambia, Botswana and Zimbabwe. Its clients benefit from leading and proven technologies that address today's many earths science challenges. The company intends to provide high quality geophysical and geological outputs through improvement in geophysical survey techniques and use of latest equipment.
- ▶ The company with two, very active geophysicists and a senior geologist as its founders is arguably the most reliable Minerals, Geotechnical and Groundwater exploration geophysics and geology consultancy company in Africa. Principally, it provides services both to junior companies without a staff geophysicist/geologist and to major companies which require additional geophysical and geological expertise capabilities. The company's resident personnel have substantial geophysics and geology experience in the areas of mineral exploration and groundwater exploration in various countries in Africa including Zimbabwe, South Africa, Madagascar, Zambia, DRC, Namibia, Sierra Leone, Botswana, Malawi, Mozambique, Tanzania, Ghana, Senegal, Kenya and outside of Africa, Australia (Western Australia, South Australia, Queensland).

Vision

- ▶ Be Africa's leading company in provision of high quality geophysical products through the use of innovation of survey techniques and use of latest technologies.
- ▶ To be a world-class geophysics and geology service provider, which provides excellent geological & geophysical services for the benefit of Africa's public and private geosciences sector.

Mission Statement

- ▶ We provide African customers who are in the mining industry with the high quality geophysical and geological services. We provide these high level products through research, innovation and use of modern geophysical technologies.

Our Values

- We Act with Honesty and Fairness in Everything We Do
- We Work Safely, value trust, integrity, transparency, commitment, communication, quality and excellence
- We are Focused on Results and Continual Improvement
- We share knowledge, skills, ideas and effort to better serve our Team and our Customers.

Services

Geophysical Consultancy and Contracting - (Gold, Diamond, Lithium, Copper, Borehole Siting and others)



Vortex Geoscience Consultancy provides high-quality data acquisition for ground surveys, geophysical data processing, geophysical data interpretation and other geophysical services to the mining, environmental; groundwater industries. We work with all types of ground geophysical surveys (including Downhole EM & Wireline logging) and Airborne geophysical data processing & interpretation.

Our geophysical services include:

- Geophysical Project Design; Geophysical Project Management; Geophysical Data Collection; Geophysical Data Processing & Imaging; Geophysical Interpretation; GIS - Scanning, digitising, Compilation and map production

Core Competencies and Technical facilities

- Our strength lies in our core of competent geoscientists and technical staff, encompassing virtually all the techniques of geophysics. The senior resident personnel have experience embracing the disciplines of Mineral Exploration, Water Exploration, Environmental Management, Projects Management and Data processing and Remote Sensing & GIS.

Services

Geophysical Consultancy and Contracting

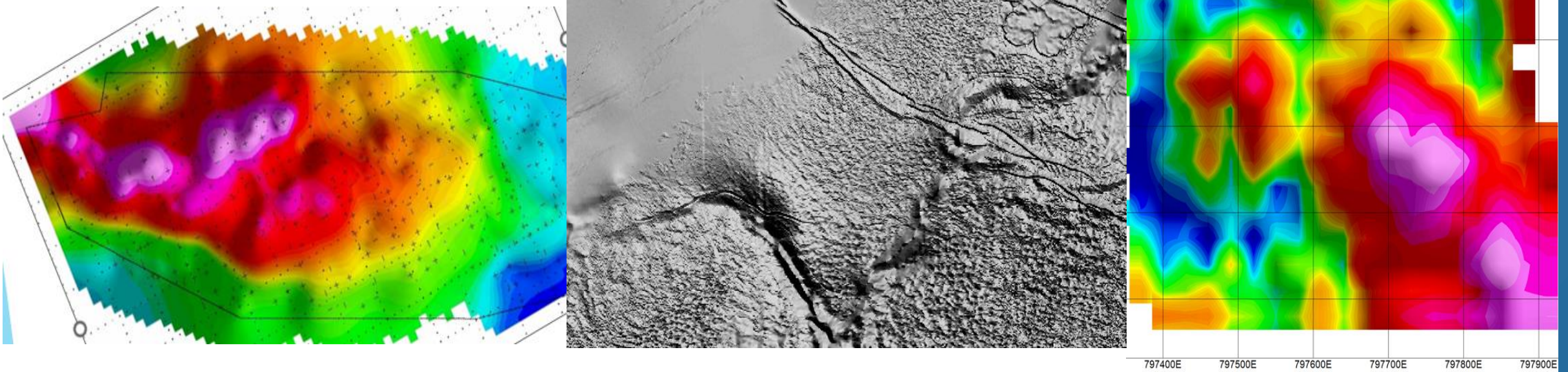
▶ Specific Services

- Time Domain Induced Polarisation (Gradient; Pole-Dipole; Dipole-Dipole; 3D-IP)
- Ground Magnetic Surveys
- Time Domain Electromagnetic Methods (TDEM: Fixed Loop; Moving InLoop; Slingram)
- Downhole Time Domain Electromagnetic Methods (DHEM)
- Frequency Domain Electromagnetic Methods (FDEM: MaxMin)
- GPS surveying: a) Real time differential surveys b) Post-processed DGPS surveys
- Local Gravity & Regional Gravity Surveys
- Borehole Wire-line Logging - (density; magnetic susceptibility; Resistivity; Natural gamma; etc)

We acquire quality data using a wide range of instruments selected for superior performance in particular geological conditions. The company provides all data acquisition, processing, interpretation and final reporting.

Services

➤ Regional Contracting and Consulting Projects

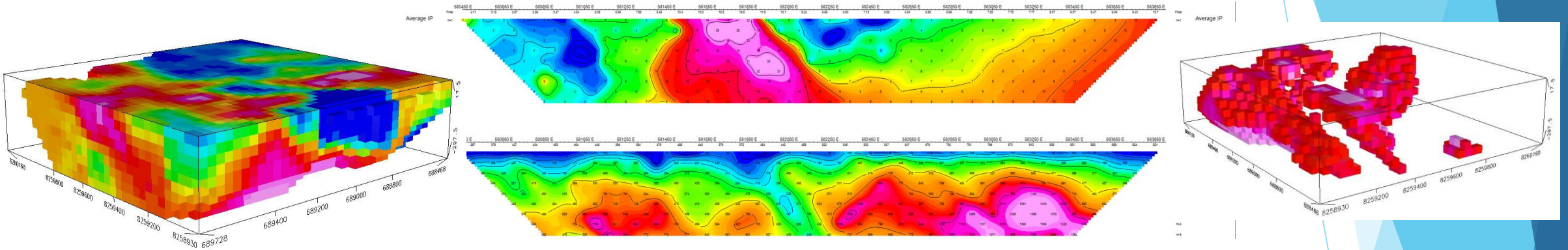


➤ Regional Contracting and Consulting Projects Undertaken:

- ❖ Vehicle Regional Gravity,
- ❖ Airborne magnetic and radiometric,
- ❖ Airborne electromagnetic

Services

Detailed Contracting and Consulting Projects



Detailed Contracting and Consulting Projects Undertaken:

- magnetic, gravity, electromagnetic, induced polarisation and other electrical surveys (surface and down hole) in the search for base and precious metals.
- Detailed magnetic surveys were done to delineate dykes, sills and other intrusive for Coal exploration.
- Iron ore exploration using magnetic, gravity and electromagnetic surveys,
- detailed wireline logging using Magnetic Susceptibility; Density; Natural Gamma; Resistivity to identify and delineate deposits.

Services

Mineral Exploration Services (Gold, Diamond, Lithium, Copper, and others)

This service area aims to support the process of identification and development of mineral resources and includes:

- Geological mapping to define potential mineral resource units
- Prospecting and exploration for Base and precious metals, Industrial minerals, gemstones, Energy minerals: coal. Lithium and uranium
- Design and conducting Sampling programs
- Targets generation, Drill-hole planning, drilling supervision and logging
- Geochemical sampling, sample preparation and interpretation

Hydrogeological Services (Groundwater Services)

Hydrogeological services provided include:

- ✓ Borehole Siting using structural geological mapping and geophysical surveys (Magnetics, Resistivity)
- ✓ Assessment of regional and local groundwater resources for rural, urban and commercial water supply
- ✓ Borehole Cleaning Services; Aquifer testing to determine hydraulic parameters and long-term abstraction
- ✓ Aquifer classification; vulnerability assessments and quality of water
- ✓ Groundwater quality assessment and monitoring

Our Team

Enkelbert Chinwada

Managing Director/Principal Geophysicist Consultant

- ▶ Mr. Enkelbert Chinwada is the co-founder of Vortex Geoscience Consultancy Private Ltd (VGC) and the Managing Director/Principal Consultant for Zimbabwe and Zambia. He has over 23 years' experience in executing, managing and directing Mineral, Groundwater and Environmental projects. He has supervised and managed over forty (40) development projects, having completed long term projects in Botswana, Australia, South Africa, Tanzania, Madagascar, DR Congo, Ghana, Namibia, Zimbabwe and Zambia
- ▶ Mr. Chinwada holds Executive Masters in Business Administration (EMBA) from Midlands State University; MSc Degrees in Exploration Geophysics, MSc Eng. Water Resources Engineering and Management; BSc Honours degree in Physics and a BSc General Degree in Physics and Mathematics all from the University of Zimbabwe.
- ▶ Over the past twenty-three (23) years, Mr. Chinwada has been involved in initiating and directing projects, introducing leading edge technologies through associations with institutions, developing human resources, identifying business opportunities locally and in the SADC region. Mr. Chinwada's significant experience in the past eighteen (18) years includes serving as Projects Manager and Chief Geophysicist on several mineral and groundwater resource assessment projects in Australia, South Africa, Tanzania, Madagascar, DR Congo, Ghana, Namibia, Botswana, Zimbabwe and Zambia. His responsibilities in these projects included projects proposals, project design and management, project evaluations, resource allocations, coordination with clients and communities, compilation and analysis of existing data, database development, aeromagnetic data processing and interpretation, remote sensing data processing and interpretation.

Our Team

Prof RT Ranganai

Expert Geoscientist Consultant (Geology and Geophysics)

➤ Rubeni Tawanda Ranganai is the Chief Geophysicist with a lot of expertise in regional geophysics and geology interpretations. He has over 33 years of experience in Regional Aeromagnetic Data Compilation, Processing and Interpretation; Planning and Managing Geophysical Surveys for Minerals, Groundwater, Engineering/Environment; Monitoring of geophysical surveys, professional consultancy, Geophysical survey design/planning, coordination and supervision; quality control; Processing of a wide range of geophysical data; Interpretation of geophysical data, report writing and presentation of results; Responsible for relatively higher-level project supervision and field operational; Environmental consultancy and professional advice to mining/prospecting companies, groundwater/geotechnical companies and local government authorities.

➤ Rubeni Tawanda Ranganai graduated his **MSc** (Exploration Geophysics) at University of Zimbabwe, 1985; **BSc** (Physics, Maths & Geology) at the University of Botswana and Swaziland, Botswana, 1982; and obtained his **PhD** (Geophysics) at University of Leeds, U.K., 1995. Rubeni Tawanda Ranganai is a leading expert on the geophysics and geology of Southern Africa after having undertaken numerous research and consultancy work spanning the fields of basic geology, mineral deposit geology, exploration geology, geophysics and geochemistry

➤ Prof has participated in multi-disciplinary geoscience projects involving several regional/international universities (African Gravity Project, African Magnetic Mapping Project, Lithospheric Thickness and Diamonds, Kaapvaal Craton in Botswana), geological surveys and industry: geological interpretation; natural resources (mineral & groundwater) evaluation and environmental assessment and monitoring. geophysical project review and program design. Senior Projects Geophysicist- designing of geophysical projects, supervising geophysical surveys, data processing, data interpretation and analysis, report writing, offering professional geophysical advice to industry and public sector.

Our Team

Dr. Joseph Zulu

Chief Geology Consultant

- ▶ Joseph Zulu holds a PhD in Structural Geology from the University of New Brunswick in Canada, and an M.Sc. degree in hydrogeology and geotechnical Engineering from the Free University of Brussels in Belgium.
- ▶ Joseph Zulu has over 20 years' experience in the field of geology, hydrogeology, Geotechnical Engineering and Ore Deposit Structural Analysis. His experience includes, mineral deposits and structural analysis, hydrogeological and geostatistical investigations from field work to detailed groundwater flow and solute transport modelling, acquisition of hydraulic pumping test data, analysis and interpretation of results to characterize safe yields of boreholes, contaminant characterization and monitoring; seepage control in tailings dams and remediation, environmental Impact Assessment and Remediation, and project management, environmental planning processes, policies, groundwater regulatory frameworks and legislation and undertaking public participation processes for the development of technical content for groundwater and boreholes.
- ▶ Joseph Zulu has had a lot of experience in Copper exploration, Copper-Silver exploration, Manganese exploration, large scale exploration project in Precious metals exploration Gold-copper-silver-platinum exploration in Lower Zambezi; Soil geochemical survey for gold Gemstone exploration Agricultural lime assessment; Assessment of phosphate rocks.

Our Team

Clifford Mazibuko

Senior Geophysicist Consultant

- ▶ Clifford Mazibuko holds a Master's Degree in Geophysics and a BSc Honours degree in Applied Physics (specialisation in Instrumentation and Control Engineering) both obtained from National University of Science and Technology in Zimbabwe. He also holds a MSc in Geohydrology at the Institute of Groundwater Studies at the University of Free State in South Africa.
- ▶ Clifford Mazibuko accumulated over fifteen (15) years of experience primarily as a Geophysicist and Geohydrologist mainly involved in water supply engineering assignments, hydrogeological investigations and mineral exploration projects in Zimbabwe, Zambia, South Africa, Botswana, Democratic Republic of Congo and Lesotho. His area of primary specialization is geophysical data acquisition, processing & interpretation of airborne datasets (aeromagnetic and remote sensing data), borehole wireline, gravity, magnetic, electromagnetic, induced polarisation, self-potential, resistivity data. Besides his primary specialization in Geoscience, Clifford is a qualified Instrumentation and Control Engineering Expert with reliable PLC programming skills and knowledge on SCADA systems.