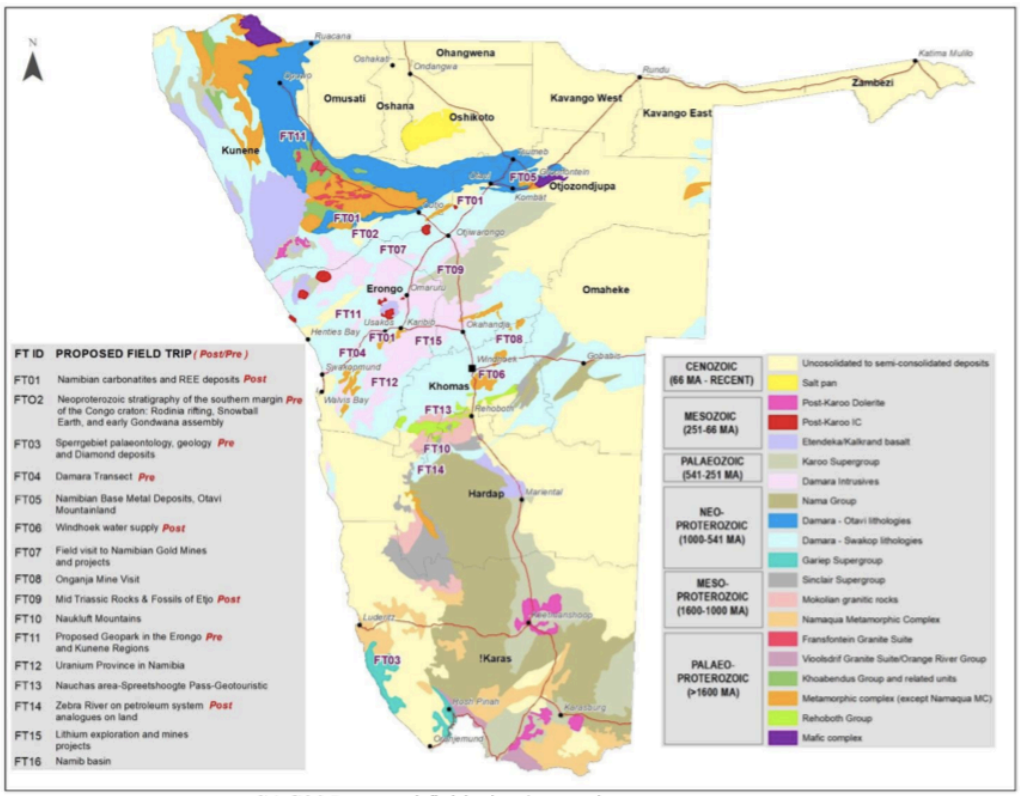
Geological Society of Zimbabwe

Newsletter

May 2023 No. 2 of 3 of 2023



CAG29 Proposed field trips / excursions map

29th Colloquium of African Geology "The earth sciences and Africa's development: current realities, future projections"

26 – 29 September 2023 | Windhoek, Namibia

www.geologicalsociety.org.zw

The Geological Society of Zimbabwe, P.O. Box CY 1719, Causeway, Harare

Contents

Editorial

Welcome to Tenyears Gumede and his new Committee. We wish them well as they 'slave' on our behalf over the coming year. As Tenyears indicates in his Chat, we as a Society continue to adapt to the new digital 'World Order', but at the same we must not forget to facilitate our one-on-one interaction whilst remembering that Geology is all about 'Boots on the Ground'. That means involving ourselves in meetings and field trips that are intended to widen our horizons and keep us in touch with one another. Geologists represent a unique community with common interest.

Sadly our field trip to the Manhizi iron ore establishment west of Chivhu had to be cancelled due to the sudden and untimely passing of our dedicated Treasurer and friend, Collins Mwatahwa on 11th May. This happening caused shock and sorrow across our fraternity, but allowed for a strong geological contingent to gather in support of Collins' family and colleagues. Through this medium, we extend our heartfelt condolences to his family. Unki Mine will miss the pioneering spirit that Collins represented, he having been a part of the development and fabric of that mine since before its inception. Arimon Ngilazi and Caston Musa have kindly prepared a short obituary for Collins, which we present in this Newsletter.

Congratulations are due to Dr Godfrey Chagondah who graduated on 3rd May with his PhD degree relating to the pegmatites and granites along the southern extent of the Zimbabwe Craton. We share his abstract on the potassic granites of southern Zimbabwe, published in the South African Journal of Geology. Abstracts and citations for the 2022 winners of the Geoffrey Bond Award, the inaugural J.F. Wilson Award, The Mike Vinyu Award and the Keith Viewing award are recorded.

The A.E. Phaup Award is given annually to the author or authors

- of a paper published in an internationally acclaimed scientific journal, or;
- who contributed to a book published by recognised publishers, or;
- who authored a bulletin or book edited by recognised scientists;

and are judged to have made the most significant contribution to the advancement of the understanding of the geology of Zimbabwe for the period under review.
Presenting the citation, Forbes Mugumbate announced the 2022 wining paper as:

Griffin C.T., Wynd B.M., Munyikwa D., Broderick T.J., Zondo M., Tolan S., Langer M.C., Nesbitt S.J. & Taruvinga H.R. 2022. Africa's oldest dinosaurs reveal early suppression of dinosaur distribution. ***Nature*** | www.nature.com | https://doi.org/10.1038/s41586-022-05133-x

This was in competition with six other publications relating to Zimbabwe geology. The abstract for this paper was presented in the Newsletter for October 2022.

Forbes summarised as follows:

- "The study included fieldwork, laboratory work, palaeontological analyses and descriptions, and correlations conducted by a multidisciplinary team.
- The study led to discovery of a dinosaur fossil site with that revealed two species of dinosaur, including a nearly complete skeleton of the now named sauropodomorph *Mbiresaurus raathi,* which recognises the Mbire District in which the fossil was found, and honours Professor Mike Raath, one of the pioneering palaeontologists in this country.
- This study helped to put this part of the world into its correct palaeolatitudinal position in the Pangea supercontinent during late Triassic; (Sauropodomorph fossils are known to occur in South America and India, and southern Africa represents the missing link).
- Apart from furthering knowledge on Late Triassic palaeogeography and fauna, the study also hints on climatic controls to evolution.
- By being published in Nature, a widely read paper by people from all walks of life, the study and discovery of *Mbiresaurus raathi* has put Zimbabwe in the limelight. The publication was quickly captured by many news agents including National Geographic, Scientific America, the BBC and the Herald.
- The paper therefore deserves the A.E Phaup Award for 2022."

Our thanks are extended to our regular correspondents with news from the University of Zimbabwe (Maideyi Meck), Midlands State (Masimba Mutakaya), and the Zimbabwe School of Mines (Fyrence Ndebele). We need to identify enthusiastic correspondents from NUST and Manicaland in order to resuscitate the news flow from these institutions with Earth Science leanings. Ernest Mugandani is thanked for his contribution on happenings at the Geological Survey and we welcome Forbes Mugumbate back with his commentary on mining activity in Zimbabwe. Kennedy Mtetwa continues to scan the literature for news relating to our mining industry.

Take Note – the 29th Colloquium of African Geology takes place from 26th to 29th September with field trips extending into October. This is an opportunity not to be missed. Consequently we are trying to fit our Summer Symposium in for Friday 1st September. This has a beneficial spin-off in that Tony Martin is presently undertaking a recce to Mutandahwe and the post-Karoo of southeast Zimbabwe so as to arrange a post-Symposium field trip for the Society that will hedge the hottest month, '*gumi guru*'. Please be aware of these dates.

Out of interest and for the purpose of preserving an archive I am following this editorial with a reproduction of my first Newsletter to the Society in March 1982. I also have scanned the minutes of the Inaugural Committee Meeting of the Geological Society of Zimbabwe in August 1981, which followed the Society referendum to seek authority to operate independently of the Geological Society of South Africa, to which we were affiliated as the first branch of that Society in 1960. Fortuitously we retain our good relationship and co-operation with our parent professional body. I will ask Andrew du Toit to include these minutes as a record under the 'History of the Society' on our website.

Please take note of Gayle Hannsen's overview of our Membership situation and respond as requested. Your co-operation in maintaining your membership of our Society is important, both for you as a professional and for us to sustain our services.

Tim Broderick (Icositet)

LOGO

THE GEOLOGICAL SOCIETY OF ZIMBABWE

NEWSLETTER FOR MARCH, 1982

Membership of the Society now stands at over 100, a very healthy state of affairs. In addition the Geology Department of the University of Zimbabwe has become our first Institutional Member. It is fitting therefore to open this communication with a welcome to all new Members.

Regretably, too, we have had some recent resignations. Hoppy Anderson, Pat Stidolph and Vernon Stocklmayer have left for Australia and Dave Catherall has also moved on. We wish them all the best of luck in their new ventures.

Also on the personalia side we are happy to record the news that Dave Edwards is progressing well after his accident and is back on part-time duty.

Arrangements for the GOLD '82 Symposium are progressing well as May approaches with alarming rapidity. The available places are being filled equally as quickly and locally-based Members still intending to register should do so as soon as possible. The number of delegates is being restricted to 200 so the "first come first= served" maxim stands.

Approximately 50 papers are to be delivered at the technical sessions and the proceedings, available free to delegates, should be published locally before the close of 1982. Papers being read give a far reaching coverage of gold deposits and have been received from North America, South America, the U.K., Finland, Western Europe, Africa (including Zimbabwe), India and Australasia.

The Symposium has been well-supported by the mining industry in Zimbabwe and promises to become a grand boost for the geology and understanding of gold occurrences throughout the world.

Looking further ahead to February, 1984, and in view of the current exploration and mining interest in coal, it is planned to organize a COAL '84 Workshop specifically aimed at the Zimbabwe participant but possibly including delagates from within our own sub-continent.

Leading international and local experts in various fields of

coal research are being invited to act as instructors for the course A preliminary programme has been drawn up with the aims of instructing participants in exploration methods as well as the evaluation and exploitation of coal. Delegates will be informed of recent developments in coal research and will discuss the need for standardized practice and the establishment of a national data base for coal.

On Monday 5th April at 5.15 p.m. a talk will be delivered by Bob Foster in the Geology Department lecture theatre. This will take the form of a travelogue on Bob's visit to North America in 1981 and is well illustrated with details of old and new gold mines. We look forward to seeing you there so enter the event in your diary.

Announcement is made of a short course on the weathering of ore minerals and the textural evaluation of base metal gossans. This is to be led by Dr I.M. Reynolds from 4th - 6th December, 1982 and further details can be obtained from:-

Miss D. Turner
Geology Department
Rhodes University
GRAHAMSTOWN 6140
South Africa

The Constitution of the Society, which was ratified on 11th December last year, is almost ready for distribution and will be once a fewwbinding hitches are solved.

Notice of the AGM has been delayed and details conserning this will be circulated to Members as soon as possible. Nominations for the A.E. Phaup Award can still be made and publications for consideration should be submitted to the Secretary.

Icositet.

Chairperson's Chat

Tenyears Gumede
tenyearsgumede@gmail.com

I have been reflecting on the mission of the Geological Society and how best I can serve its Members as the Chairman for the 2023-2024 year.

The Geological Society of Zimbabwe (GSZ) was formed to promote the geosciences and the profession of geology and I believe in fostering fellowship and co-operation among all persons interested in the earth sciences. The GSZ represents the heart of Zimbabwe's geoscience community and gives opportunities to interact with colleagues across the profession. It is a public foundation that is a charitable, tax-exempt organization encouraging and supporting scientific, educational, and charitable activities of benefit to geoscientists.

I am a beneficiary of the GSZ, the Society having funded my MSc Project on the Highbury Impact Structure in 1994 through their Research and Development Fund.

There are now around 400 members of the GSZ, many of whom need to renew their membership by paying their annual subscriptions! It has proved difficult for many professional societies, even across borders, to attract and maintain membership. We now operate and connect professionally in a way that has undergone major changes as a result of the digital revolution. More individuals than ever before utilize social media platforms (Linked-In, WhatsApp, etc.) to interact and discuss matters. Remote learning is simple to implement due to You-Tube, Zoom, Microsoft Meetings and Twitter spaces. Even college courses are available online for no cost on platforms like *edX*! Therefore, the challenge is to make the GSZ relevant by providing activities that cannot be replaced by the digital world, but at the same time utilizing the digital world to provide exciting discussions, research work, and a platform to increase our network.

To achieve the above, we intend to provide educational field trips on aspects of Zimbabwe geology and stage geological talks by means of Zoom and Microsoft Meetings. The Geological Society still runs the Research & Development Fund and the Library Fund to promote the science of geology. Furthermore, the GSZ encourages research. Every year, the Geoffrey Bond and J.F Wilson awards are presented to the Geology Honours students presenting the best projects from the University of Zimbabwe and the Midlands State University respectively. The premier A.E. Phaup Award, consisting of a suitably inscribed certificate, is presented to the author(s) who make the most important contribution towards the geology of Zimbabwe in any one year.

Our Society is going through growing pains in adapting to changes in the way we interact and work together, and I am excited to be a part of this evolution. We have several fun events lined up that will provide professional development and great networking opportunities.

TENYEARS GUMEDE – CHAIRMAN 2023

MSc, BSc (Hons), PGC (ITC, Delft), PGCRS, Dipl,BA (Nilai), FGSZ, FSAGA

Tenyears Gumede studied at the University of Zimbabwe and attained a Masters in Exploration Geophysics. He then attended ITC Delft (now the University of Twente, Netherlands) studying Airborne Mapping (Geology, Geophysics and GIS) and Nilai University, Malaysia (Business Studies) and has some 25 years of industry experience as a graduate/staff/senior/expatriate geophysicist with Anglo American Corporation for 10 years and expatriate geophysicist for Mineral Search of Africa and Norilsk Nickel Burundi for 4 years. He was a team player in several Anglo Projects including Bubi Gold Mine (Zimbabwe), McKays Gold Mine (Zimbabwe), and WHEN Gold Mine (Zimbabwe). He was also involved in the evaluation of Unki Platinum Mine (Great Dyke), Hunters Road low-grade high-tonnage nickel deposit in Zimbabwe and exploration for the Merensky Reef (BIC) using Reflection Seismics.

Since joining Knowledge Factory in 2009, Tenyears has consulted on a variety of mineralization styles for gold (vein, shear and BIF-hosted), nickel (sulphide and laterite), zinc (sulphide), iron, manganese, lithium/beryl, ruby and other pegmatite-hosted minerals/gems (tantalum, niobium, tourmaline etc.), coal and diamond applying a variety of geophysical techniques including remote sensing, GPR, aero/ground magnetics, radiometric, resistivity, gravity, seismic, electromagnetics and other applications. He has carried out exploration programmes in Zimbabwe, Mozambique, Zambia, Botswana, DRC, South Africa, Botswana, Burundi, Malawi, Rwanda, Uganda and Kenya.

He is currently exploration team leader for Oneiric Minerals (Pvt) Ltd, an exploration/mining development company actively exploring molybdenum and tungsten mineralization associated with the Mutandahwe Igneous Complex in southeastern Zimbabwe.

VICE CHAIRMAN 2023

Ernest Tafumanei Mugandani joined the Zimbabwe Geological Survey on 11th September 2005 as an Economic Geologist following a lateral transfer from the Ministry of Education, Arts, Sports, and Culture where he had served as a science teacher for two years.

He then rose through the ranks becoming Senior Economic Geologist in 2008 and Principal Economic Geologist in 2010. In September 2007 he became Acting Chief Economic Geologist until June 2015. In this role he was providing advisory services to the Mining affairs Board (MAB) in terms of Systematic Mineral Exploration in the country.

In June 2015 he was appointed Acting Deputy Director to the Zimbabwe Geological Survey until 30th March 2018, acting briefly as Director from November 2017 to March 2018 during which period he was also appointed a Board Member of the Zimbabwe School of Mines.

He was then seconded to the Midlands Province in April 2018, briefly as Acting Provincial Mining Director, and then Acting Provincial Deputy Mining Director until February 2020. In that month he was promoted to the post of Deputy Provincial Mining Director for the Midlands Province, being seconded to Manicaland Province in February 2021 as Acting Provincial Mining Director for Manicaland until July 2022. While in Manicaland his substantive post was transferred from Midlands Province back to the Geological Survey as Deputy Director in May 2021, which is the current post he has held since July 2022.

Ernest is not new to the Executive Committee of GSZ, having been a member during the period 2014-2018.

He is the holder of a Bachelor of Science (BSc) degree in Geology and Geography from the University of Zimbabwe where he graduated in 2003. He also completed nine modules of an MSc programme in Mineral Production Engineering and Management in 2006 at the University of Zimbabwe, but did not compete the degree.

He is the holder of the following in-house international short course certificates:

- Petroleum Resources Exploration, Development, and Management for African and Asian countries (**China**, 2007),
- Special course on Mineral Exploration (**India**, 2009),
- Energy Policies and Development for developing countries (**China**, 2010),
- Application of remote sensing in Mineral Exploration (**Korea**, 2010),
- Mineral Resource Evaluation and Management (**China**, 2011),
- Mining governance (**Australia**, 2012), and
- Geological Information Management for Mineral Exploration in Africa (**Japan**, 2016).

OBITUARY

Collins Mwatahwa 15/02/1969 – 11/05/2023

Collins Mwatahwa entered the world of geology as an undergraduate student at the University of Zimbabwe in 1989 having completed his A-levels at Ellis Robins School. A brilliant student, he won a scholarship with Anglo American Corporation Zimbabwe, which took him through to his fourth year in 1992 when he obtained his Honours Degree in Geology. In the interim he worked on the Great Dyke with then Anglo American chrome subsidiary Zimbabwe Alloys Limited as a student on attachment. He worked at their Caesar Mine, Rhonda, and Inyala operations.

Upon completion of his studies, he joined Prospecting Ventures (Limited), Anglo American exploration arm in Zimbabwe. There he was to find a home as a competitive young geologist keen to make his mark. One of the qualities that was evident was that Collins always found something useful to do. He did not need to be pushed and gave himself no idle time, even though the rainy season could maroon an exploration geologist in the office for weeks on end. He worked on various commodities including gold, platinum group elements (PGEs) and base metals, which took him to virtually every greenstone belt on the Zimbabwean map. He rose through the ranks culminating in his appointment to the position of Exploration Manager in 2003, at a relatively youthful age of 33. In 2004, Anglo American Corporation Zimbabwe divested of most of its mining and exploration operations preferring to position itself where they could develop their Great Dyke PGE Resources. The Unki project east of Shurugwi became the main area of focus for Platinum Group Metals evaluation and exploration. As the project advanced to commissioning stage, and after mining was initiated in 2009, Collins moved into the role of Chief Geologist. Later, on 1st March 2021, he was appointed to the position of Mine Planning Manager, a position he held until his untimely death.

Besides his professional work with Anglo American, Collins was committed to the development and international relevance of the Geological Society of Zimbabwe. He held the post of Honorary Treasurer for numerous years, combining this task with the Chairmanship in 2008. He had been re-elected to the treasury post in the 2023-24 Committee of the Society. He was known for his dry humour and was complimented by many he interacted with across Company and Geological Society boundaries, and within the Zimbabwe entire geological landscape.

During his career he authored several geological publications and ventured into different fields that included environmental impact assessments, mine closure plans and social impact assessments.

Collins mixed easily and this enabled him to be a great teacher and motivator of young geologists. He is a great loss to the geological community and mining industry, but they can take solace in the fact that Collins has left his mark.

He was a family man who strived for the best for his children, a son Leeray and a daughter Lindsay, whom he leaves behind together with his wife Angelina. Collins will be missed by many and will be fondly remembered at Unki and in many geological and mining circles.

May his soul rest in eternal peace.

Complied by Arimon Ngilazi & Caston Musa 14th May 2023

Congratulations

Chagondah, Godfrey S.
(PhD) 3rd May 2023

Godfrey S. Chagondah was born in Masvingo Province in Zimbabwe and holds an MSc in Exploration Geology degree from Rhodes University (South Africa). He has a total working experience of 28 years in mining and exploration projects in various commodities gained through working with renowned companies in southern and East Africa. Godfrey's PhD study at the University of Johannesburg was supervised by Professor Axel Hofmann. Godfrey is a director for Enesia Resources (Pvt) Limited, a geological consulting company and is currently working on a lithium exploration project in Zimbabwe.

Godfrey's doctoral research project is titled: *Petrogenesis and metallogenesis of granitic rare-metal pegmatites along the southern margin of the Zimbabwe Craton: Implications to exploration*. He conducted desk-top studies, field and analytical work to investigate the petrogenesis of the Bikita and Mweza field rare-metal pegmatites and spatially associated potassic granites of the Chilimanzi and Razi suites. Geochemical and geochronological analyses allowed Godfrey to establish parameters of the timing and processes of magma generation. He was able to demonstrate that apart from S-type granites, moderately fractionated I-type granites can be regarded as potential sources for rare-element pegmatites, including the world-class Main Bikita Pegmatite of Zimbabwe. His study adds to the existing body of knowledge on rare-metal pegmatite genesis models globally, with implications for mineral exploration. Godfrey's work has been presented at South African and Zimbabwean geological symposia, one international geological conference and as Geological Society of Zimbabwe zoom talks. One article resulting from this doctoral research has been published in an accredited scientific journal while a second article is under peer review.

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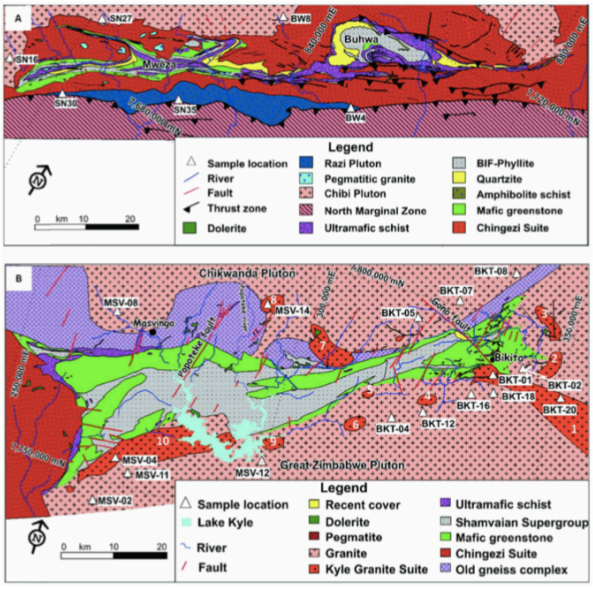
Articles and Reports

Petrogenesis of potassic granite suites along the southern margin of the Zimbabwe Craton

G.S. Chagondah, A. Hofmann and M.A. Elburg, L.M. Iaccheri, J.D. Kramers and A.H. Wilson

Abstract

An integrated approach embracing field studies, petrographic and geochemical investigations together with zircon U-Pb-Hf data was used to investigate the petrogenesis of potassic granite suites along the southern margin of the Zimbabwe Craton. Zircon U-Pb geochronology identifies age relationships, revealing coeval magmatism of the *ca.* 2635 ± 5 to 2625 ± 3 Ma Chilimanzi Suite, and the *ca.* 2627 ± 7 Ma Razi Suite. Both suites represent syn- to late-tectonic, high-K, calc-alkaline, and metaluminous to weakly peraluminous granites and granodiorites with I-type affinity. The granite suites contain xenocrystic zircons, with the Chikwanda Pluton of the Chilimanzi Suite yielding a grain of up to 3206 Ma old. Both granite suites exhibit εHf values of between -5.6 ± 1.3 and -7.3 ± 1.6 and T_{DM} model ages of *ca.* 3.4 to 3.5 Ga, which suggests a similar crustal source. The non-radiogenic zircon Hf isotopic compositions are consistent with formation of the granite suites through partial melting of pre-existing crustal protoliths, including Palaeoarchaean tonalite-trondhjemite-granodiorites (TTGs) of the Zimbabwe proto-craton. Partial melting of lower crust gave rise to granitic melts that became emplaced over a relatively short time interval from 2635 to 2625 Ma and heralded the stabilisation of the Zimbabwe Craton.



*Geological maps of (**A**) Mweza-Buhwa greenstone belt (after Worst, 1962), and (**B**) Masvingo greenstone belt and surrounding granitoid terrain (modified from Wilson, 1964). Map uses WGS84 co-ordinate system. Sample locations for granite suites used for whole-rock and zircon U-Pb geochronology are labelled. Kyle Granite Suite members: 1=Mangondo; 2=Nandiri; 3=Chikuru; 4=Rondebosch; 5=Kippure; 6=Niekerks Rust; 7=Good Hope; 8=Domboranunji; 9=Mutirikwi; and 10=Rezhura plutons.*

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Mtshingwe Fault Zone-associated alterations and implications on PGM mineralization of the Main Sulphide Zone

Tinashe Timothy Dingaan
Geoffrey Bond Award winner for 2022
University of Zimbabwe

Abstract
The research focused on determining the implications that the Mtshingwe Fault Zone has upon induced mineralogical alterations associated with related structures that might affect the Main Sulphide Zone PGM mineralization. The study area was confined to the Mtshingwe Shaft area of the South Hill orebody at Mimosa Mine, which lies adjacent to the Mtshingwe Fault Zone. The main objectives of the research were to determine the geotechnical structural geometry of the South Hill orebody area adjacent to the Mtshingwe Fault Zone and to describe zones of alteration associated with hydrothermal activity induced by faulting. From the geotechnical characterization, the research aimed to determine the disturbed PGM metal distribution, which would result in vertical and lateral variations in metal concentrations across the MSZ. Geotechnical data was collected through surface and underground geological mapping. Intensity of faulting and shearing increases southwards towards the fault margins. Petrographic analysis was conducted to characterize rocks around the geological structures. The geological structures were observed to be associated with alteration mineralogy comprising mainly talc, serpentine and chlorite formation as a result of low temperature hydrothermal reactions. Assay data from the study area was reviewed to determine vertical and lateral variations in metal concentrations across the MSZ. Significant lateral variability was noted from the underground assay data. Five boreholes had assays with abnormal profiles attributable to both magmatic and supergene processes. Remobilization of elements is localized and limited to the wall-rock adjacent to the major structures. The overall gain or loss of metal from the MSZ mining horizon was not established through this research.

Integrating Geological Mapping, Magnetic and Induced Polarization Geophysical Techniques in Prospecting for Gold Mineral Deposits at Mutimurefu Prison Farm, Masvingo

Roland Mavesera
J.F. Wilson Award winner for 2022
Midlands State University

Abstract
Most of the country's known gold deposits are located in the proximity of largely abandoned mine workings. The project is aimed at integrating geological mapping with magnetic and induced polarization geophysical techniques in prospecting for potential gold mineral deposits at Mutimurefu Prison Farm, which is located close to ancient mine workings. This research supports the existence of gold mineralization extending away from the ancient workings.

Gold is structurally controlled in relation to faults, folds, contacts, veins and shear zones. Geological mapping was used to map structures and lithologies associated with gold mineralization in the study area. Shear zones, banded iron-formation and quartzite were the geological structures and lithologies mapped. Magnetic and induced polarization geophysical methods were used to map subsurface localities with potential for gold

mineralization. The ground magnetic method revealed a high magnetic anomaly, interpreted as a potential gold mineralization zone striking from west of the survey area to the northeast. Induced polarization results indicated a disseminated sulphide ore body suggestive of coincident potential for gold mineralization striking from west to northeast of the survey area. The strike length of the apparent ore body as defined is 1000m, the width is 500m in the western region, narrowing to 250m in the northeast whilst a depth of 180m or more is possible. The interpretation of these results provided drilling and trenching targets for the verification of potential gold mineralized localities.

Citation - Roland Mavesera

The study corroborates the observation that significant gold potential in Zimbabwe may be sterilised under inaccessible farmland because both prime agricultural soils and prime gold targets are associated with greenstone belts. The geophysics student applied geological mapping, magnetic surveys and induced polarisation techniques to identify potential gold mineralization associated with sheared quartzite, sheared banded iron-formation and along sheared lithological contacts exposed on Mutimurefu Prison Farm within the Masvingo Greenstone Belt. The targets are yet to be tested further, but the point has been made that making genuinely new gold discoveries is possible in Zimbabwe. Hitherto the game has largely been the re-discovery of deposits around ancient workings.

For this well-written and well explained piece, the Department of Geosciences, Midlands State University found Roland Tafadzwa Mavesera, under the supervision of Mr Munyaradzi Mate, to be the deserving recipient of the 2023 J.F. Wilson Award for the Best Geoscience Dissertation in 2022. Congratulations to the student and the supervisor!

Geosciences Department Chairperson: *Masimba Mutakaya*

Analysis of geological structures around the May Claims, Muriel Mine, Zimbabwe

Mercy Mupamhadzi
Mike Vinyu Award Winner for 2022
Zimbabwe School of Mines

Aim

To determine the implications of geological structures on ground stability at the May Claims.

Research was done at the Muriel Mine's, May Claims to carry out a structural analysis and determine the contribution that geological structures contribute to ground instability. Ground instability has been a major problem in mines both in Zimbabwe and around the world, with the geological structural setting being the major contributor to instability and falls of ground during the operational phase of mining. The research was inspired by the work of M.K.C. Roberts and V. Clark-Mostert (2010) who carried out a geological structural analysis on the Bushveld Complex and compared it to that of the Great Dyke of Zimbabwe. They emphasized on how this analysis is usually overlooked due to lack of resources, although it is critical in mine planning and design. Information on geological structure is the basis at various stages of planning and decision making in mining.

Muriel Mine has faced problems in fractured ground due to the fall of walls leading to the loss and dilution of high-grade ore. There was missing information on local geological structures at the May Claims, which is crucial in planning and determination of the appropriate mining method. Information was therefore to be gathered in the early stages of exploration. To achieve this the following objectives were set:

- to map the geology within the area,
- to map geological structures,
- to determine the *in situ* rock mass quality.
- and deduce zones with a high possibility of failure due to the associated geological structures.

Lithological and structural mapping, core logging and geotechnical logging were applied on the May Claims east of the current Muriel pits to analyse both regional and local geological structures. The Eldorado Shear Zone (a regional geological structure) extends to the east and passes through the May Claims, abutting against the Great Dyke.

Results

Results emphasize the presence of shear, joint and foliation planes, the intersection of which decreases the quality of the rock within the area and increases the likelihood of ground instability.

Two major lithologies were mapped at the May Claims, which are meta-basaltic greenstone, as being dominant and subordinate feldspar porphyry. These units strike in a northeast direction with dips of 80º being recorded, whilst east-trending granitic dykes cut across the stratigraphy. There is a serpentine-rich ultramafic unit that cuts across the meta-basalt and porphyry in a northerly direction.

The lithologies at the May Claims have different petrographic properties which determine the strength of the rock, how it fractures and thus imposes rock mass characteristics. Contrasting rock strength, rock mass characteristic and competence contribute to ground instability due to fracture spacing and variable dip directions and inclination. The meta-basalt is the oldest unit, having undergone intense shearing and jointing with associated dyke intrusion, all of which contribute to the reduction of rock mass quality.

Three later joint sets were mapped, which affect all lithologies. Joint set one (JS1) is sub-horizontal to horizontal with dips ranging from 0º to 14°; JS2 joints dip at 30˚ to 45° with planes trending NE-SW; whilst the JS3 set is sub-vertical to vertical on north-westerly striking planes with dips ranging from 60° to almost 90°. Other joint planes are moderately dipping and trend NW-SE.

The intensity of the joint system depends on the lithologies with the most jointed unit being meta-basalt as these rocks have undergone a long history of deformation and the regional shear-zone mainly affects the meta-basalts. Most joints are tight and dry, being classified as smooth whilst some are rough-smooth when hand tested. The fracture fill material is clay, which ranged from <0.01 to <0.05mm in thickness. Where clay infill was not observed the planes are stained.

The core derived from highly sheared and jointed zones possesses very poor to poor rock quality designation (RQD). From the mapped data and the stereo plot there are zones in which the potential for rock failure is highly probable. Where joints are closely spaced, the risk of ground instability is very high. Joints which are clay-filled have a high

susceptibility for ground failure due to the lubrication factor they contribute especially when saturated. Poor ground that is highly sheared with clay-filled joints is more vulnerable to failure as is highly foliated and intensely jointed bedrock.

Conclusion

It is concluded that geological structures, both of regional extent and locally induced, are the main contributing factors to potential ground instability as noted from the highly fractured and poor rock quality drilled from the vicinity of the shear zone and zones with 2 or more joint sets that intersect each other. The discontinuities are weaknesses within the rock mass which reduce its strength. Information on geological structures is therefore relevant in the mine planning extending through to the closure stage. It is noted that the analysis and documentation of geotechnical information is often overlooked.

From the RQD results, rock quality is negatively influenced by the presence of geological structures such as shearing and close jointing. The meta-basalt unit is the most jointed, foliated and sheared lithology whilst the porphyry is mostly foliated due to the intense deformation within the area as noted by the shearing and intrusion of ultramafic and felsic dykes. Ground instability in the area is mainly caused by intense shearing and jointing, especially if the latter planes are steeply dipping. Factors such as groundwater saturation and movement in combination with mining activity will enhance the probability of ground failure.

Recommendations

- Rock mass rating of drilled core should be done on all lithologies to assess the various competencies within rock units so as to allow implementation of appropriate mining methods and support systems.
- Structural analysis should be carried out continuously to insure mine safety and uninterrupted ore production.

Despite being short and not containing much data, due to lack of tools for further analysis, this project can be used as a basis for further research. It is effective in understanding the major and minor structures in the area of study and their relationship with ground stability especially around mineralized zones. The limitation of this investigation is that its focus was mainly on geological structures but other factors such as groundwater pressures and rock stresses are not taken into consideration.

Roberts, M.K.C. and Clark-Mostert, V. 2010. Is there some commonality between the geological structures in the Bushveld Complex and the Great Dyke? *The 4th International Platinum Conference, Platinum in transition 'Boom or Bust'. The Southern African Institute of Mining and Metallurgy.* pp.149-155.

Profile – Mercy Mupamhadzi

Mercy Mupamhadzi is a young lady who was born and raised in the Shurugwi District, Midlands Province. She attended her primary school at Charles Wraith in Shurugwi. Secondary education, also in Shurugwi, was at Parkinson High School where she was a prefect. Her Advanced Level was done at the Avenues and Educare colleges. It was in Shurugwi that the desire for her field of interest sprouted and was natured, since all that surrounded her had to do with the mining industry. Mercy's life is a mixture of happy and challenging moments, which has been made easier through the hand of God, family, friends and mentors.

Financial challenges made it hard to pursue her desired goal to be in the field of geology, hence she spent several years in enterprise, mainly bakery management. Mercy also took

part in entrepreneurial skills development and acquired a certificate in opportunity identification. Through the ups and downs she came to understand the meaning of the Chinese proverb, "it takes 5 years of persistent watering and fertilizer, for the Bamboo shoots to spring from the ground." Reflecting on these experiences has made her realize how her personal history has shaped her life and how determination pays off.

In 2020 the journey towards achieving her goal began at the Zimbabwe School of Mines in the Geology Department. It took 3 years of persistent hard work, some sleepless nights and support from her family, friends & mentors to get there. During that time Mercy also took part in the Christian Union Program and she has a certificate in Industrial Chaplaincy. During her industrial attachment period she discovered her interest in exploration geology through the help and guidance from attachment mentors.

There is a very fulfilling feeling about what she has accomplished so far. She, however, understands that she has only touched the tip of an iceberg in this pursuit. Therefore, Mercy hopes to make her own footprints and is eager to deepen her understanding of Geology whilst also playing her part in the goal of change by raising new ideas aimed at improving the African continent through positive contributions related to her field of work.
Summitted by *Fyrence Ndebele*

Citation for the Keith Viewing Award
For the best presentation at the 2022 Summer Symposium

Scott Maclennan has been selected as the recipient of the Keith Viewing Award for the best paper presented at the Summer Symposium in 2022.
The commendable paper presented by Scott investigated the relevance of the high temperature thermochronology of the Palaeo-Archaean aged eastern Pilbara Craton with that of the granite-greenstone terranes of the Zimbabwe Craton.
Scott observed that the Pilbara Craton represents one of the best-preserved records of Archaean crustal, magmatic and structural processes.
The differences in the geochemical and structural character of the eastern and western parts of the Pilbara Craton are hypothesized to record the onset of "modern style" rigid plate tectonic interactions at ca.3.2 Ga.
The older eastern Pilbara Craton is dominated by large granitoid-gneiss domes, with intervening meta-volcanic and siliciclastic rocks, which pattern is commonly referred to as 'dome and keel'. This pattern is common in Archaean granite-greenstone terranes in cratonic areas worldwide.
The present prevailing hypothesis is that the dome and keel pattern in the eastern Pilbara Craton was governed by intra-crustal processes with plate boundaries playing a minor role. In this model, low viscosity grantioids rise from the middle to lower crust into the upper crust, predominantly due to the sinking of mafic and ultramafic volcanic rocks.
High temperature thermochronometers, such as U-Pb in apatite or titanite, are sensitive to mid-crustal temperatures and record the exhumation of rocks into the upper crust. The high temperature thermochronology undertaken on the granitoids that make up the dome and keel pattern of the eastern Pilbara Craton were compared with the results from intra-crustal plate tectonic model predictions. An excellent comparison was then made between the geology of the Zimbabwe and Pilbara cratons.
Brent Barber

News

Geology Section: Department of Chemistry and Earth Science, University of Zimbabwe

Dr Maideyi Meck

The Geology Section under the Department of Chemistry and Earth Science has an intake of 22 Part-1 students, 20 Part-2 students, 40 Part-3 and 80 Part-4 students. Teaching is taking place both as face-to-face and as online lessons. Field courses for all levels will be run in the months of June and July with trips also planned for the same period.

PAMUST- The Pan African Minerals University of Science and Technology - has been initiated at the university. PAMUST is governed by the PAMUST Act [Chapter 25:33] of 2016. The University is still at its formative stages of development and is being incubated by the University of Zimbabwe. PAMUST will focus on post-graduate programmes and foster research in mining and related fields. It offers the following taught master's degree programmes:

- MSc Mineral and Geological Exploration (MMGE)
- MSc Energy and Petroleum Chemistry (MEP)
- MSc Mining Engineering (MME)
- MSc Advanced Mineral Processing and Extractive Metallurgy (MPEM)

MSc Mineral and Geological Exploration is being taught from the Geology Section, which currently has 10 taught Masters, 6 MPhil and 1 PhD-degree students registered for these programmes. **Dr Kosmas Chenjerai** has joined the department to assist in teaching the PAMUST students. The University will be establishing a mineral resources centre, which is envisaged to operate differently from the one that the Department of Geology operated previously.

A number of projects are currently ongoing in the department as listed. Involvement and suggestions for new research themes are welcomed from those in Industry.

1. Genesis and provenance of the diamondiferous sediments at the Chimanimani Deposits: implications for exploration in the Umkondo Basin, Zimbabwe.
2. Re-appraisal of the Umkondo basin, southeast of the Zimbabwe Craton: Implications relating to landslide initiation.
3. An assessment of geothermal wellhead power generation potential and the nexus with local seismic activity and geotechnical setting.

4. Ground failure in underground mines - Risk management framework assessment.
5. Coal appraisal in the Zambezi Valley.
6. Critical raw materials appraisal.

The Mennell Geological Society

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MIDLANDS STATE UNIVERSITY

FACULTY OF ENGINEERING & GEOSCIENCES
ZVISHAVANE CAMPUS

The citation for Roland Mavesera's inaugural presentation of the J.F. Wilson Award for the Honours Degree student presenting the best project in an Earth Sciences subject was submitted by Mr Masimba Mutakaya, the Geosciences Department Chairperson at Midlands State University. Roland's project abstract and the citation are presented elsewhere, and we look forward to continuing news of activity within the Geosciences Department.

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Research. *Innovation.* *Sustainable Development.*

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF APPLIED PHYSICS
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ZIMBABWE SCHOOL OF MINES

Serving the SADC mining industry

The Department of Geology continues to do well and two new staff members, Miss Nomasiko Mpofu and Mr Tichafa Mukuhlani were incorporated into the department at the beginning of February 2023.

The School has introduced a new Diploma in Gemology which is scheduled to start in July and is currently going to be reporting under the Geology Department. The third-year students recently went for a mine visit on the 14th- 15th of April. The mine visited was the Brown Hill Mine, a medium-scale gold mine near Mberengwa within the Belingwe Greenstone Belt. The students also had a stop on the Umzingwane Deformation Zone on which they had a mapping exercise.

The first-year students are scheduled to attend a field excursion to the Dete-Kamativi Inlier from the 7th – 11th May, 2023.

Thirty second-year students are still looking for industrial attachment. Any assistance in this regard will be most welcome.

Submitted by Fyrence Ndebele

Geological Survey Department

Ernest T. Mugandani
etmugandani@gmail.com

- The ZGS congratulates **Ernest T. Mugandani** for being nominated into the Geological Society of Zimbabwe (GSZ) Executive Committee and subsequently the Vice Chairmanship of the GSZ, from which position he is the representative to the Chamber of Mines of Zimbabwe (COMZ) for 2023/2024 period.

- The Zimbabwe Geological Survey (ZGS) welcomes **Ms Roseweter Mubaiwa** who joined the department in April 2023 as a geologist following her lateral transfer from the Ministry of Primary and Secondary Education.

- The Director, **Forbes Mugumbate**, had a very busy schedule between February and April 2023 following the gazetting of the Mines and Minerals Bill. He attended several workshops organized by the Parliamentary Portfolio Committee on Mines and Mining Development to discuss the bill both internally within the Ministry of Mines and externally as public consultations, which were held in almost all the Provinces of the country.

- The Deputy Director, **Ernest Mugandani**, attended a workshop on *Harmonized Geological Information on Strategic Minerals in Africa* organized by the African Minerals Development Centre (AMDC) in Accra, Ghana from 20th to 24th February 2023. The main purpose of the workshop was to raise awareness within African Member States of the African Union (AU) on the upcoming African Minerals and Energy Resources Classification and Management System (AMREC) template. Zimbabwe is fortunate to be well represented by Dr M.L. Meck in the crafting of

AMREC. She was also a participant during this awareness workshop in Ghana.

- **Ernest** also attended the Africa Energy Indaba that was held in Cape Town, South Africa from the 6th to 10th March 2023. The event was held under the theme, *African Energy Transitioning to a Sustainable and Prosperous Future*.

- **Ms Diana Mugadza**, a geologist together with **Brian Muteta**, Deputy Director for Non-Energy Minerals at the Ministry of Mines Head Office, attended the *2022 JOGMEC & Southern Africa Remote Sensing Seminar* held on the 10th February 2023 in Gaborone, Botswana. The two were presented with the results of the Remote Sensing Competition that was held online in January 2023. The Zimbabwe team came 4th out of 13 countries that had participated. Congratulations to the team trio - **Brian, Mangwiro** and **Diana**!!

- **Mangwiro Sibanda**, a Senior Geologist, attended a workshop to review and update *Disaster Risk Management Education Material* held in Mutare from 11th to 14th April 2023. He was the lead expert in the management of landslide risk. The department has been tasked to draft a pamphlet on landslide risk and probablity, which will be distributed at various forums by the Civil Protection Unit (CPU).

- **Ernest and Lloyd Shawarira** attended the International Atomic Energy Agency (IAEA) Integrated Nuclear Security Support Plan (INSSP) review mission workshop held at the Bronte Hotel in Harare from 20th to 23rd March 2023. Management of radioactive materials was the main area of focus during the workshop.

- The period February to April 2023 has seen renewed interest for co-operative projects in the field of Geological Information and Data Management being expressed by other Geological Surveys such as the French Geological Survey (BRGM) and the Russian Geological Survey. Discussions are now at an advanced stage, especially with BRGM. The World Bank has also expressed interest in sourcing funds for projects, especially related to minerals of the future including lithium, REE and nickel.

- Geoscientists from the ZGS managed to conduct some field visits to key lithium exploration and mining projects during the period February to April 2023. **Forbes, Ernest and Lloyd** visited the Arcadia Lithium Mine, Mangwiro visited the Bikita Lithium Mine and the Sabi Star lithium mine project while **Evelyn and McEpherson** conducted a field visit to the Zulu lithium project. These are amongst the well-known lithium exploration and mining projects at various stages of development and capitalization in Zimbabwe.

- **Admire Charumbira** and **Edwin Muzanenhamo**, Senior Geophysicist and Geological Technician, conducted geophysical investigations around the Globe and Phoenix Primary School in Kwekwe from 18th to 22nd March 2023. This followed a ground subsidence that had occurred in one of the classroom blocks at the school.

- **McEpherson** and **Edwin** also participated in the 1st quarter National Gold Mobilization Exercise that was conducted from 1st to 8th March 2023 in various provinces of the country. The aim of the programme is to enforce and encourage the disposal of gold through Fidelity Printers and Refinery by all miners in the country.

OUTSTANDING ZIMBABWE KEY MINING CONFERENCES FOR 2023

(Source:** The Sunday Mail 5 February 2023 Business 3**)

	Conference Name	Date	Venue
1.	Mineral Value Addition and Beneficiation Conference	22 May 2023	Victoria Falls
2.	Africa, Middle-East, Asia (AFMEA) Conference	13-16 June 2023	Victoria Falls
3.	Zimbabwe International Conference	6 November 2023	Victoria Falls
RSVP: Chief Director Mining Development Office Linda (0242) 750829			

Mining News and Commentary

Forbes Mugumbate
fmugumbate@gmail.com

Tongai Muzenda dies

We start with sad and shocking news of the passing of Tongai Muzenda who was the General Manager of the Minerals Marketing Corporation of Zimbabwe (MMCZ). He died in a car accident in Harare on 26th April 2023. Tongai, who held a BSc Honours degree in Economics from the University of Zimbabwe and a Masters of Business Leadership (MBL) degree from the University of South Africa, worked for the mining industry in various managerial capacities such as Marketing and Commercial Director and Chief Executive Officer of Zimbabwe Alloys Limited. He briefly ventured into politics, becoming a Member of Parliament for Gutu West for five years, and served as a Deputy Minister of Public Service, Labour and Social Welfare for two years.

I knew him from the time we were both studying at the University of Zimbabwe where we would occasionally meet at the Students Union bar for a drink. He was the most humble and likeable person despite his background of being the son of the late Vice President of Zimbabwe, Simon Muzenda. The outpouring of grief from all walks of life gave testimony to how much he was loved and respected. The Government conferred him the Liberation War Hero status for his contributions to the development of Zimbabwe. He will be greatly missed.

Mines and Minerals Amendment Bill

Much of the period under review was devoted to preparations for the amendments to the Mines and Minerals Act that saw some members of the Parliamentary Portfolio Committee on Mines, and Ministry of Mines officials, visiting provinces to gather

contributions from various stakeholders including the geological community. The stakeholder consultations have since been completed, and the submissions by stakeholders have been consolidated and reviewed. The main areas of discussion can be summarised as follows:

- Every organization appears to want to be included in the composition of the Mining Affairs Board. It is however, not possible to accommodate everyone. Also, since the MAB helps in the running of the mining industry, accommodating people from diverse sectors will make the management of the mining industry a difficult task.

- The issues of declaration of certain minerals as strategic was contentious. Small-scale miners believe the conditions proposed for one to access strategic minerals are stringent, and meant to block them from participating, while large-scale miners argue that conditions for one to access strategic minerals should be publicised for one to be able to make informed decisions.

- With regards to Exclusive Prospecting Orders (EPOs), it was observed that the main problem was that of delay in issuance of the exploration licences. It was therefore recommended that a period of time within which the Mining Affairs Board should issue or reject an EPO application should be stipulated.

- Stakeholders complained that the Cadastre project is taking forever to be completed. Ministry of Mines' officials are believed to be taking advantage of the delay in the computerization of mining titles to engage in corrupt activities. The Ministry promised to expedite computerization.

- The area of greatest concern remains the relationship between miners and farmers. Areas for prospecting without clashing with farmers continue to shrink as the population increases, and also as the land tenure changes. This suggests a need for a radical change in the claims system. Unfortunately, the Bill basically maintains the old system that was introduced when there were vast tracts of open land.

The amendments to the Act are being somewhat rushed to make sure that the Bill is passed before the current parliament is dissolved to pave way for general elections that will take place between July and August this year.

Zimbabwe again ranks last in the Fraser Institute's mining survey

It is depressing to note that Zimbabwe has once again been placed on last on the list of 62 mining jurisdictions ranked by the Fraser Institute for 2022. The country was also ranked the least attractive mining jurisdiction in 2021.

The Fraser Institute's mining survey is considered the most comprehensive ranking of mining jurisdictions based on the countries' geologic attractiveness and government policies that encourage or deter mineral exploration and investment. Given the well-recognized attractiveness of Zimbabwe's geological environment, the poor performance can only be attributed to very poor government policies.

For this reporting period, Nevada is the most attractive jurisdiction in the world followed by Western Australia and Saskatchewan.

The West's worst nightmare: accessing critical minerals in Zimbabwe

Minerals such as lithium, nickel, copper, cobalt, manganese, and graphite, needed for the manufacturing of batteries for electric vehicles have become rare commodities. Ground with the potential for exploiting these minerals is no longer easily available.

In Zimbabwe most of the known critical mineral occurrences are now occupied by Chinese companies who are prepared to take great risks in buying prospects before conducting any feasibility studies. On the other hand, Western companies, who traditionally have accessed ground for prospecting through the normal channels of EPOs, pegging of claims, or entering into joint ventures with those holding prospective ground, are finding it difficult to compete with the Chinese approach.

However, there now appears to be a change in strategy judging from the number of Western companies and individuals that are approaching government for assistance to access deposits of these critical minerals. The concerns of Western companies were recently laid bare when a United States businessman argued that there is an urgent need to give President Emmerson Mnangagwa's administration a chance, and lift sanctions to pave the way for access to the Zimbabwe's lithium resources. The recent invitation by the British Government for President Mnangagwa to attend the Coronation of King Charles III in London shows a thawing of relationships between Zimbabwe and the West, and lithium is touted by some to be Zimbabwe's sanctions-busting card!

The lithium mineral bubble bursting?

The frenzy for lithium, which saw prices for the commodity surging by more than 1300% in less than two years, appears to be turning into a rapid retreat. This may be the result of more global supplies coming on stream, or that the break-neck growth of China's electric vehicle sector is starting to moderate.

The future of lithium is also being threatened by electric vehicle manufacturers that are now researching for a future without lithium. Sodium-ion batteries might prove to be the biggest challenge to lithium-ion batteries in future.

Authorities at Prospect Lithium Zimbabwe Ltd have already expressed worry at the plummeting prices as they make final touches to the US$275 million processing plant where production and exportation of concentrates has already commenced.

Zimbabwe, as a major lithium-bearing country, should take serious note of these developments. It is estimated that Zimbabwe can contribute 20% of the world's demand for lithium. It is therefore imperative that the country enacts favourable policies for rapid development of this potentially massive sector.

Lithium Policy

After having realised the potential held by the lithium sector, the Government of Zimbabwe has come up with a lithium policy that is expected to provide guidelines for optimal development of lithium mining. The following are the principles of the policy:

- Any individual or entity which owns a lithium concession can mine lithium ores for either

    - Processing at its own Approved Processing Plant (APP), or
    - for sale to those with local APPs;
- Any individual and or entity wishing to process lithium ores will be required to construct an APP locally;
- Movement permits for lithium ores will only be issued where such ores are destined for a local APP;
- Lithium ores can only be stored at the mining site where such ores were mined, or at a local APP;
- Any entity will require a Lithium Ore Purchase Licence (LOPL) to buy ores from miners. A local APP will be a condition for the issuance of the Lithium Ore Purchase Licence;
- All players in the lithium sector, whether miners or holders of an APP, shall submit a summary of monthly reconciliations of ore movements to the Ministry of Mines and Mining Development; and
- For any material to qualify as a concentrate for approval for export, it shall meet the minimum technical specifications set and the minimum selling price as set by the Minerals Marketing Corporation of Zimbabwe on a regular basis.

Changes in Gold Policy?

The policy in Zimbabwe is that all gold produced in the country should be sold to the Fidelity Printers and Refiners (FPR) where it is refined. This has caused problems due to the volatility of the local currency that is used to pay for part of the gold deliveries. The gold sector at one stage collapsed as a result of this policy.

A story recently published in international news agencies that Caledonia Mining had started the direct sale of gold produced from its Blanket Mine, to a refinery outside of the country, might be a tell-tale sign that there may be contemplation for a shift of policy in the marketing of gold. Since listing on the Victoria Falls Stock Exchange, and following completion of the Bilboes acquisition, Caledonia has been considering various options to achieve the direct export of its gold. In this development, the exportation of the gold is facilitated by FPR as the holder of a gold dealing licence. This way FPR can easily keep track of the gold. This new marketing arrangement is expected to make it easier for Caledonia to arrange debt facilities with funders outside Zimbabwe. We can only hope that this arrangement will be expanded to other gold producers that may also want to benefit from direct exportation of their gold produce.

Gold Production and other issues

Gold production dropped by 26% to 3.79 tonnes in the first two months of this year from the 5.129 tonnes reported in the preceding comparative period.

In order to boost production, Finance Minister Mthuli Ncube has launched a US$10 million revolving facility to support small-scale gold miners who account for about 60% of gold produced in Zimbabwe. Out of the fund, $5 million will be used to construct six gold service centres to allow for the provision of services to small-scale gold miners, while the remaining $5 million will be used to provide loans to miners to boost their production. Overall, the country is targeting the production of 40 tonnes this year compared to 35.38 tonnes produced in 2022. Small-scale miners contributed 65.5 percent of the 2022 total.

The enhancement of gold production is meant to assist the country in its fight against high inflation and to reduce dependence on the US dollar domestically. The Government is making efforts to peg local currency to gold and to use gold as a medium of exchange. Gold coins have already been introduced into the market. The Reserve Bank is also introducing gold-backed digital tokens as an attempt to stabilise the Zimbabwean dollar.

While government is making efforts to boost gold production, and to use gold to stabilise the local currency, Al Jazeera ran a four-part programme suggesting rampant gold smuggling and money laundering in Zimbabwe by people now dubbed as the Gold Mafia. This has put Zimbabwe's image under scrutiny, as it suggests a lack of transparency and accountability. The potential ramifications of these revelations may be significant, hence the announcement by the government that it is investigating the allegations.

MINING NEWS

gleaned from https://www.mining.com/

by Kennedy Mtetwa

Zimbabwe allows miners, exporters to keep more forex from exports

Reuters | February 2, 2023 | 7:37 am Top Companies Africa Coal Lithium Platinum

Zimbabwe's central bank said it will allow exporters, including miners, to keep 75% of their export earnings in foreign currency after the current cap of 60% drew complaints from the industry. The new measure, however, falls short of miners' demands to keep 80% of their export earnings in foreign currency.

The foreign currency-starved southern African country requires all exporters to convert part of their export earnings into local currency at an official exchange rate significantly higher than the widely used black market exchange rate, leading to losses for the businesses.

Some international miners with operations in Zimbabwe include Anglo American Platinum, Impala Platinum, Sibanye Stillwater, Zhejiang Huayou Cobalt, Sinomine Resource Group, Tsingshan Holding Group and Sinosteel Corporation.

"Export retentions have been increased and standardized at 75% across all sectors," the Reserve Bank of Zimbabwe (RBZ) said in a monetary policy statement on Thursday.

Zimbabwe has significant mineral resources, including gold, platinum group metals, coal and lithium, which has attracted international firms, especially from China. Over the years, the country has struggled to attract significant foreign investment due to concerns over foreign currency rules and policy uncertainty.

In December, Zimbabwe banned raw lithium exports, targeting marauding artisanal miners who were digging up old mines in search of the mineral. However, the ban triggered fears that Zimbabwe could be defaulting to a resource nationalism stance, four years after the government scrapped a law that required local control of all major mines.

(By Nelson Banya; Editing by Elaine Hardcastle)

China Natural Resources to acquire lithium mine in Zimbabwe

Reuters | **February 28, 2023 | 7:38 am** Africa China Lithium

China Natural Resources Inc said on Tuesday it would acquire Williams Minerals, the operator of a lithium mine in Zimbabwe, amid surging demand for the metal used in batteries for electric vehicles. The company plans to issue restricted shares and promissory notes to fund the acquisition for a maximum of $1.75 billion, with $140 million as initial payment. It may also pay some of the amount in cash. Williams Minerals is owned by Top Pacific Ltd and Feishang Group Ltd, the latter also being the controlling shareholder of China Natural Resources.

Africa's lithium production is likely to soar this decade, with the bulk of that coming from Zimbabwe.

China Natural Resources, however, said there was no guarantee that the transaction, expected to close in the second fiscal quarter of 2023, would take place under the current terms.

(By Sourasis Bose; Editing by Shilpi Majumdar)

Zimbabwe's ban on lithium ore exports triggers stockpile buildup

Bloomberg News | March 14, 2023 | 7:00 am Battery Metals Intelligence Africa Lithium

Zimbabwe is one of the top 10 lithium producers but currently produces only a fraction of the worldwide total. Zimbabwe's ban on lithium ore exports has resulted in stockpiles of the key battery metal building up in the southern African country.

The ban — introduced by government last December in a bid to encourage local processing of the metal — has resulted in 2 million tons of ore being stockpiled, according to Zimbabwe Miners Federation President Henrietta Rushwaya. Now the industry has asked President Emmerson Mnangagwa to review the ban as it threatens the viability of their operations.

"The unexpected ban has prejudiced standing offtake agreements between miners and international buyers, some of whom had taken loans from their respective countries to trade in these minerals," Rushwaya said in the letter to Mnangagwa.

The ban has impacted small- and medium-scale miners, but it is not clear how much lithium is contained in the stockpiled ore.

Most of the lithium from Zimbabwe — which has one of Africa's largest resources of the metal — is usually shipped to China or South Africa, Rushwaya said by phone. Nations from the US to China are rushing to secure supplies of materials necessary for green-energy transition as the world turns away from fossil fuels.

Chengxin Lithium Group Co. and Sinomine Resource Group Co. are exploring a joint venture to set up a battery metals processing plant in Zimbabwe, while Zhejiang Huayou Cobalt Ltd. has invested $300 million to develop a processing plant at its Arcadia lithium mine.

(By Godfrey Marawanyika, with assistance from Ray Ndlovu)

Huayou starts trial production at Zimbabwe lithium mine, invests in Namibian project

Reuters | March 22, 2023 | 7:45 am Battery Metals Africa Australia China Lithium

Chinese battery minerals producer Zhejiang Huayou Cobalt said on Wednesday it had started trial production of lithium concentrates at its Arcadia Mine in Zimbabwe. Huayou, one of the world's biggest cobalt producers, acquired Arcadia from Australia-

listed Prospect Resources and its Zimbabwean partners in a $422 million deal completed in 2022. After the transaction, Huayou said it would spend $300 million to build a plant to process 4.5 million tonnes of lithium ore at Arcadia.

"All production lines of the Arcadia lithium mine project … have completed equipment installation and commissioning, put materials into trial production and successfully produced the first batch of products," Huayou said in a statement.

The processing plant was completed in nine months instead of the planned year, but the company did not say when it would go into full production and was not immediately available to comment. The Arcadia Mine is expected to produce 50,000 tonnes of lithium carbonate equivalent lithium concentrate, Huayou said. The company said Arcadia, its biggest investment in Africa to date, was a key step towards its strategy to secure and build a chain of lithium assets.

On Wednesday, Huayou also announced a A$2.5 million ($1.67 million) investment in Australia-listed Askari Metals to advance the exploration of its Uis lithium project in Namibia.

Huayou also has two copper and cobalt projects in the Democratic Republic of Congo, with an annual production of 100,000 tonnes of cathode copper and 10,000 tonnes of cobalt.

In Indonesia, the company has three nickel and cobalt projects, with an expected annual production of 225,000 tonnes of nickel and 23,000 tonnes of cobalt products by 2024.

($1 = 1.4937 Australian dollars)

(By Nelson Banya; Editing by Mark Potter and Richard Chang)

Premier African Minerals completes Zimbabwe lithium plant, production imminent

Reuters | March 29, 2023 | 7:42 am Battery Metals Africa Lithium

Zimbabwe holds some of the world's biggest hard-rock lithium deposits and has recently attracted about $700 million in investment from several Chinese firms.

Premier African Minerals said on Wednesday it had finished building a lithium processing plant at its Zulu Mine in Zimbabwe and expected to start production of spodumene concentrate later this week. Spodumene is a lithium ore with a high concentration of lithium, a key component in the production of batteries for electric vehicles.

Premier built the plant, which has capacity to produce nearly 50,000 tonnes of spodumene concentrate annually, as part of a $35 million offtake deal signed last year with China's CanMax Technologies (formerly Suzhou TA&A).

"We expect to produce spodumene, a lepidolite mica-rich concentrate and a tantalum-rich concentrate, late this week provided that final formal outstanding approvals from certain Zimbabwean authorities are received," Premier CEO George Roach said in a statement.

(By Nelson Banya; Editing by Mark Potter)

Zimbabwe to investigate gold-smuggling allegations

Cecilia Jamasmie | April 4, 2023 | 9:23 am Intelligence News Suppliers & Equipment Video Africa Gold

The government of Zimbabwe has broken the silence around allegations of gold smuggling and money laundering exposed in an Al-Jazeera documentary last month, saying on Thursday that it will launch an inquiry into the claims.

In a four-part documentary released on March 23rd, the news network shows individuals allegedly affiliated with Zimbabwean government smuggling gold to evade western

sanctions. According to Al-Jazeera's Investigative Unit (I-Unit), the gold mafia is licensed to buy the precious metal from small producers that would otherwise have been smuggled out of the country. The group then exports the gold to Dubai, where the proceeds of the metal sales is transferred into bank accounts to make the transactions look legitimate.

"Government takes the allegations raised in the documentary seriously, and has directed relevant organs to institute investigations into the issues raised," Information Minister and Publicity Minister Monica Mutsvangwa said in the statement. "Any person found to have engaged in acts of corruption, fraud or any form of crime will face the full wrath of the law."

The broadcaster has also alleged the money laundering and gold-smuggling rings involve millionaires, one of whom was accused of almost bankrupting Kenya through a similar, corrupt scheme also involving gold.

"It is concerning that the documentary suggests that authorities do not complete sufficient due diligence into potential investors – including official gold traders," Transparency International says. "The revelations are a possible source of information to bust criminal networks that are actively engaging in gold smuggling and laundering money from Zimbabwe and other selected African countries," the organization adds.

Uebert Angel, presidential envoy and ambassador-at-large to Europe and the Americas since March 2021, was secretly filmed saying how easy it was for him to move $1.2 billion, given his diplomatic immunity. Other individuals filmed or named in the documentary as being part of smuggling rings include Zimbabwe Miners Federation President Henrietta Rushwaya, believed to be the niece of President Emmerson Mnangagwa.

Gold accounts for almost half — over $2 billion — of the Zimbabwe's exports. But the nation faces strict international sanctions that makes it harder for locals to export the precious metal through official channels, according to the Business and Human Rights Resource Centre. Figures from the World Bank show that half of the country's estimated 16 million people live in extreme poverty – on $30 or less monthly.

Zimbabwe to introduce gold-backed digital currency

Zimbabwe will soon introduce a gold-backed digital currency meant to stabilize the local unit from its continued depreciation against the dollar, state-run *Sunday Mail* reported, citing central bank governor John Mangudya. This will allow those holding small amounts of Zimbabwe dollars to exchange their money for digital tokens to store value and hedge against currency volatility, the report said. The tokens will help ensure that those with low amounts of currency can buy the gold units "so that we leave no one and no place behind," Mangudya told the *Sunday Mail*.

Last year, the southern African country also introduced gold coins in a bid to mop up excess liquidity and stabilize the local unit. Officially, the local currency trades at Z$1,000.4 against the dollar but readily changes hands at Z$1,750 on the streets of the capital.

Mangudya said current exchange rate volatility was due to expectations of increased foreign currency supply in the market when the tobacco auction season started in March, the *Sunday Mail* reported. To date, since the start of the auction season, Zimbabwe has exported 54.9 [million] kilograms of tobacco valued at $307 million. During the same period last year, it had shipped 57 million kilograms valued at $295.5 million.

Zimbabwe abandoned its currency in 2009, replacing it mainly with the US dollar after an episode of hyperinflation rendered the local money worthless. The Zimbabwe dollar was reintroduced in 2019 in a bid to revive the stagnating economy, but the government in June decided to make the greenback legal tender again to try and tame rampant price increases.
(By Godfrey Marawanyika)

Zimbabwe's digital currency plan needs $100 million of gold

Bloomberg News | April 24, 2023 | 10:17 am Intelligence Africa Gold

Zimbabwe needs $100 million of gold to kick-start its proposed bullion-backed digital currency, as the southern African nation makes another attempt to stabilize its floundering dollar. The central bank will rely on gold reserves, which it has been accumulating, to support the initiative and stem the local currency's volatility, according to Persistence Gwanyanya, a member of the central bank's monetary policy committee.
"Any amount around or less than $100 million will be able to deal with our challenge in a big way," Gwanyanya said in an interview by phone on Monday from the capital, Harare. "We expect the central bank to bring a respectable quantity that can stabilize the Zimbabwe dollar and boost demand."
Zimbabwe has been struggling to stem a decline in the currency in the nation where the US dollar is the unit of choice. The central bank has been building gold reserves as well as acquiring other precious minerals since the introduction of a policy last year that compels miners to pay part of their royalties in cash and metal. It is banking on the stash to help it with the latest plan.
State-owned media reported earlier this month that the country had 350 kilograms (12,346 ounces) of gold in reserves, citing John Mangudya, the central bank governor.
Zimbabwe targets a 14% increase in gold production to 40 tons this year. It earned $377 million from gold production in the first quarter compared with $463 million a year ago, according to data provided by Fidelity Gold Refineries, the nation's sole refinery.
The plan for a gold-backed digital currency was approved by the monetary policy committee last month. Zimbabwe introduced gold coins last June as a store of value and to help support the local unit.
The Reserve Bank of Zimbabwe is finalizing a date to start the gold-backed digital currency, according to Innocent Matshe, the central bank's deputy governor.
"It's a concept which is pretty straightforward, we tokenize the gold, we have the gold," he said by phone. "Every time we issue a coin, it is backed by real gold. We are still finalizing the details, but most countries are asking us how we came up with that plan."
Matshe declined to comment on the value of gold which will be used to back the digital currency.
(By Ray Ndlovu and Godfrey Marawanyika)

Zimbabwe will issue gold-backed digital tokens from next month

Bloomberg News | April 28, 2023 | 10:55 am Africa Gold

Zimbabwe's central bank plans to sell a gold-backed digital currency to the public from May 8 in another attempt to stabilize its tumbling currency and offer an alternative to the US dollar. The tokens, to be sold through banks in local and foreign currency at a 20% margin above the interbank mid-rate, will be introduced in two phases, central bank

governor John Mangudya, said in an emailed statement on Friday. The currency will initially be used for investment and then for transactions.
"The issuance of the gold-backed digital tokens is meant to expand the value-preserving instruments available in the economy and enhance the divisibility of the investment instruments and widen their access and usage by the public," Mangudya said.
This year, Zimbabwe's local currency has declined 35% against the US dollar, which superseded it as the preferred currency for transactions. The central bank has been building gold reserves and acquiring other precious minerals since the introduction of a policy in 2022 that compels miners to pay part of their royalties in cash and metal. It is banking on the stash to help it with the latest plan.
Persistence Gwanyanya, a member of the central bank's monetary policy committee, said Monday that the authority needs about $100 million of gold for the project.
The plan for the digital currency was approved by the MPC in March, eight months after Zimbabwe introduced gold coins as a store of value to try help support the local unit. Nigeria in 2021 became the first country in Africa to introduce a digital currency.
(By Godfrey Marawanyika)

Fraser Institute - Annual Survey of Mining Companies, 2022

Published on May 4, 2023

The top

The top jurisdiction in the world for investment based on the Investment Attractiveness Index is Nevada, which moved up from 3rd place in 2021. Western Australia, which topped the ranking last year, ranked 2nd this year. Saskatchewan continues to be on the podium, dropping slightly from a rank of 2nd in 2021 to 3rd this year. Rounding out the top 10 are Newfoundland & Labrador, Colorado, Northern Territory, Arizona, Quebec, South Australia, and Botswana. The United States, Canada and Australia each have three jurisdictions in this year's top 10, followed by Africa with 1.

The bottom

When considering both policy and mineral potential in the Investment Attractiveness Index, Zimbabwe ranks as the least attractive jurisdiction in the world for investment followed by Mozambique, South Sudan, and Angola. Also, in the bottom 10 (beginning with the least attractive for investment) are Zambia, South Africa, China, the Democratic Republic of Congo, Papua New Guinea, and Tanzania. Africa is the region with the most jurisdictions (8) in the bottom 10. Asia and Oceania both have one jurisdiction each in the bottom 10.

https://www.fraserinstitute.org/studies/annual-survey-of-mining-companies-2022?utm_source=Facebook-and-Twitter&utm_campaign=Mining-Survey-2022&utm_medium=Social&utm_content=Learn_More&utm_term=415

GSZ Research and Development Fund

Enquiries relating to the distribution of funds through this facility should be made with the standing Chairperson.

SEG Timothy Nutt Memorial Fund

This fund will be available to provide financial support for geology students and young economic geologists located in Zimbabwe or in southern Africa with ties to Zimbabwe. The fund may be used to support SEG student chapter activities, travel to meetings, field trips, for research or study grants, technical lectures or any other activities approved by the SEG Regional Vice President for Africa.

Strong preference will be given to those applicants who are SEG Student Members.

To become an SEG Student member visit www.segweb.org/join

Applicants must describe what the project is, why the research is important and how it is to be done.

An estimate of expenses for the project must be included with the application.

Grants are expected to be fully utilized by April 30 following the calendar year in which they are awarded / dispersed. .

Grant recipients are required to provide a year-end accounting of how the money was spent together with a suitable progress report or final abstract.

A 2018 Research Grant application form may be downloaded from
www.segweb.org/StudentResearchGrants

Student Research Grants Committee c/o Assistant for Student Affairs, Society of Economic Geologists Foundation 7811 Shaffer Parkway, Littleton, CO 80127-3732 USA

Phone: +1.720.981.7882/Fax: +1.720.981.7874

Conferences

Geological Society of Zimbabwe

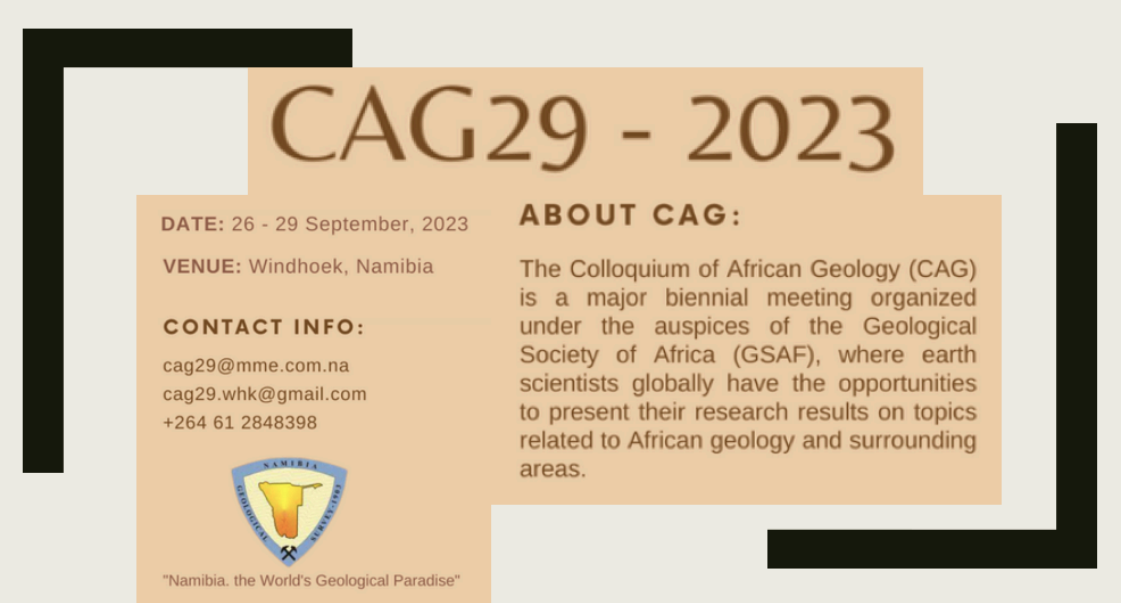
Summer Symposium 2023

Friday 1st September 2023

We are planning to hold the Summer Symposium in early September this year so that it is still cool and dry enough for a field trip to the SE Lowveld over the weekend following the Symposium.

We are therefore starting to allocate speaking slots. If you would like to present, please let us know (andrewdutoitzim@gmail.com or smabhanga@gmail.com. We welcome presentations on a broad range of subjects of general interest to Geologists.

We look forward to seeing you!



The Geological Survey of Namibia is the principal organizer of the 29th Colloquium of African Geology (CAG29) on behalf of the GSAf, as well as in cooperation with various stakeholders, including the Young Earth Scientists (YES) Network Namibia, the Geoscience Department-University of Namibia, the Geoscience Council of Namibia, the Namibian Hydrogeological Association, and the Department of Mining and Process Engineering-Namibia University of Science and Technology. The Local Organizing Committee (LOC) is quite dynamic and diverse

in its composition, with representatives from associations, institutions, mining companies, governmental and non-governmental organizations, and the media.

The Colloquium of African Geology (CAG) is a major biennial meeting organized under the auspices of the Geological Society of Africa (GSAf). Professor W. Q. Kennedy, assisted by Dr Tom Clifford, convened the very first CAG at the University of Leeds, England, in March 1964. There was a pulse of excitement that electrified the assembled audience from Africa, Europe, North and South America, Australia and New Zealand when Prof Kennedy announced his new concept of a 'Pan-African thermo-tectonic event'.

Since then, there have been 28 events, 18 of which were held in Europe, and only 10 in Africa, specifically in South Africa, Ethiopia, Tanzania, Nigeria, Swaziland, Zimbabwe, Morocco(twice), Mozambique and Tunisia.

With the inspiring theme "The earth sciences and Africa's development: current realities, future projections", CAG29 will be held at the Safari Hotel Conference Centre, Windhoek, from September 26th to 29th, 2023. At this stage of the organization, the LOC is calling for abstracts.

The general program structure will be as follow:

Pre-CAG29 field trips	18 to 24 September 2023
Online registration opens on the conference website	26 March 2023
On-site registration opens, exhibition set-up	Midday, 25 September 2023
Welcome reception and icebreaker	Evening, 25 September 2023
Opening ceremony	Morning, 26 September 2023
Scientific Program	26-29 September 2023
Gala Dinner	27 or 28 September 2023
GM Geological Society of Africa	29 September 2023
Business meetings and activities for accompanying participants	25-30 September 2023
Workshops and Short Courses	18 September to 07 October 2023
Post-CAG29 field trips	30 September to 07 October 2023

Please take note of the following deadlines:

Scientific Program	Date
Abstract submissions period open	27 April 2023
Field-trip registration open	1 May 2023
Workshop and Short Courses registration open	1 May 2023
Abstract Submissions period close	30 May 2023
Field-trip registration Closes	1 July 2023
Workshop and Short Courses registration closes	1 July 2023
Start of notifications of accepted abstracts	10 June 2023
Online registration and payment deadline	14 September 2023
Deadline for presenting author registration	1 August 2023
Release of third circular (final programme)	14 August 2023

The online registration form is available at (https://cag29gsaf.org/registration/) and will be accessible until 10th September 2023. Participants who prefer to register using a printed form can access the printable registration form from the website. The form should be sent to the CAG29 Secretariat by email at cag29.whk@gmail.com / cag29contact@cag29whk.com

CIMERA (Centre of Excellence for Integrated Mineral and Energy Resource Analysis) will host the 8th Metallogeny Short Course in **October 2023 in Johannesburg** under the theme: **The Role of Mineral Wealth in the Energy Transition - Southern Africa.**

The course is a partnership between the Society for Geology Applied to Mineral Deposits (SGA), the International Union of Geological Sciences (IUGS), the Society of Economic Geologists (SEG) and UNESCO, and will include lectures and field excursions to mines in Gauteng and Limpopo. We have a few speaker opportunities available.

It is a prestigious course that takes place in different African countries every two years. The link for further information is posted below.

Much appreciated

Gobona Lizzie Tau
DSI-NRF CIMERA Manager
www.cimera.co.za
Quick Links:
8th Metallogeny Short Course

Kimberley International Diamond Symposium
23-27 August 2023

Register though the Geological Society of South Africa Website or Newsletter
https://www.gssa.org.za/uploads/newsletters/Events/Diamond_Symposium.pdf

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Be aware of this upcoming conference to mark *"100 Years of the Merensky Reef. Minerals Metals and Mining".* Geological Society of South Africa, 15-24 August, 2024.

EVENTS

GSSA events 2023

GSSA Events from January 2023 – November 2023
(Preliminary Programme)

Preliminary Date	Event
11-13 January	Geocongress (Stellenbosch university/hybrid)
14 March	CPD workshop (online)
18 April	Advanced Excel Skills for Geoscientists (online) with Marius Swart/Earthlab
2-3 May	Sampling & data management (hybrid)
6-7 May	KZN brittle deformation field trip (KZN north coast) with Prof M Watkeys
16 May	Soft skills for geoscientists (online). Report writing and science communication skills (with Seyens Visual Communications)
TBC (4 x ½ days) + self-study	Drilling methods and techniques in resource exploration (with Colin Rice) (online)
24-27 June	Base metals (hybrid & site visit)
July	Map making (with J van den Berg/Minrom) (contact in Cape Town)
11 July	ESG inquisition feedback (online)
1 August	Introduction to drilling (online)
August	Professionalism and ethics (online)
Sept (2 days?)	Data analytics / machine learning (with Prof G Nwaila/UWWR) (hybrid)
September (4 x ½ days) + self-study	Drilling methods and techniques in resource exploration (with Colin Rice) (online)
October	3D geological modelling (with Dr I Basson/TECT) (hybrid)
October	Mineral economics for geoscientists (hybrid)
15-16	November African Exploration Showcase (online?)

For further information on specific events see https://www.gssa.org.za/
or email info@gssa.org.za

MEMBERSHIP OVERVIEW

For those not in the know, there are several categories of membership for the Geological Society of Zimbabwe:

- **Honorary:** This membership has been bestowed on all presenters of the A.M. Macgregor Memorial Lecture, and to those who have made outstanding contributions to the Society over the years. Currently we have 16 such members.
- **Ordinary:** Professional membership by application for geologists who have a registered degree. To apply for this category, we need a copy of your degree certificate, a form sponsored by 2 current Ordinary Members, and your CV.
- **Foreign:** As above, but for those not resident in Zimbabwe.
- **Associate:** For interested parties not holding a degree but who are interested in participation.
- **Institutional:** Corporate membership and ardent supporters of the Zimbabwe Mining Industry.

Currently GAYLE HANSSEN gaylehanssen@gmail.com is the Committee Member in charge of membership. We encourage all those that have not paid their 2023 membership dues or who are in arrears to please relate to the fee schedule below and send your PoP to Gayle and to our Honorary Secretary geol.soc.zimbabwe@gmail.com. Your membership status then will be updated on the Society website. Currently we have many unpaid members but at the end of **JUNE 2023** we will update this to only include those Members who are paid up. For more information on your membership number, or if you would like to encourage your colleagues to join, please visit our membership page on the Geology Society website below:

http://www.geologicalsociety.org.zw/membership

The Membership Application Form can be down-loaded from the Membership Page of the website.

MEMBERSHIP SUBSCRIPTION FEES

(The first year's fee is the joining fee. If your application is rejected this joining fee will be forfeited)

Members (including Associate Members) US$30 annually
(or ZWL equivalent at the bank rate on the day of payment if US$ unobtainable)

Institutional Member US$500 annually

Note: Foreign Members are classified as such on the basis of postal address. There is a different NOSTRO account for external payments, details for which will be provided on request.

Banking Details **OR** **Ecocash**

Geological Society of Zimbabwe
First Capital Bank (Barclays)
Kurima House Branch

Merchant Number 82758

USD Nostro FCA Domestic: 21573779436
OR
RTGS Account Number: 21576533195
OR
FOR EXTERNAL FOREX TRANSACTIONS
Account Name: Geological Society of Zimbabwe
Branch Name: NGO Center
Account Numbers: Nostro FCA: 21573779533
Swift Code BARCZWHX

GEOLOGICAL SOCIETY OF ZIMBABWE: CONTACT DETAILS OF MEMBERS OF THE EXECUTIVE COMMITTEE FOR 2023

NAME	PORTFOLIO	EMAIL
Gumede, Tenyears	Chairman	tenyearsgumede@gmail.com
Mugandani, Ernest	Vice Chairman	etmugandani@gmail.com
Musiwa, Kudzai	Hon. Secretary	kudzimusi@gmail.com
Mwatahwa, Collins	Hon. Treasurer	collinsm885@gmail.com
Mabhanga, Shephard	Assist. Treasurer/Newsletter	smabhanga@gmail.com
du Toit, Andrew	Summer Symposium	andrewdutoitzim@gmail.com
Mtetwa, Kennedy	Professional Registration	kcmtetwa@yahoo.co.uk
Duma, Steve	Student Mentorship	duma.steven@gmail.com
Hanssen, Gayle	Membership and Field Trips	gaylehanssen@gmail.com
Mapingire, Brian	Talks	Brianmapingire7@gmail.com
Muoneka, Benefit	Regional Representatives	muonekab@gmail.com

Institutional Membership, 2023

Bruker RSA

Chamber of Mines of Zimbabwe

Freda Rebecca Mine

Invictus Energy

MaxGeo

Metallon Gold

Mimosa Mining Company (Pvt) Ltd

New Dawn Mining

Optimum Drilling

Prospect Resources

RioZim Limited

RZM Murowa (Pvt) Limited

Samrec Vermiculite Zimbabwe (Pvt) Limited

Sandvik

SMC Drilling

Trojan Nickel Mine

University of Zimbabwe Geology Department

Unki Mines (Pvt) Limited

Vast Resources

Zimbabwe Geological Survey

Zimbabwe Platinum Mines Limited