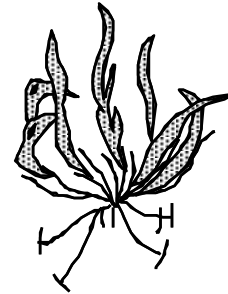


# Geological Society of Zimbabwe



## Newsletter



June 2014

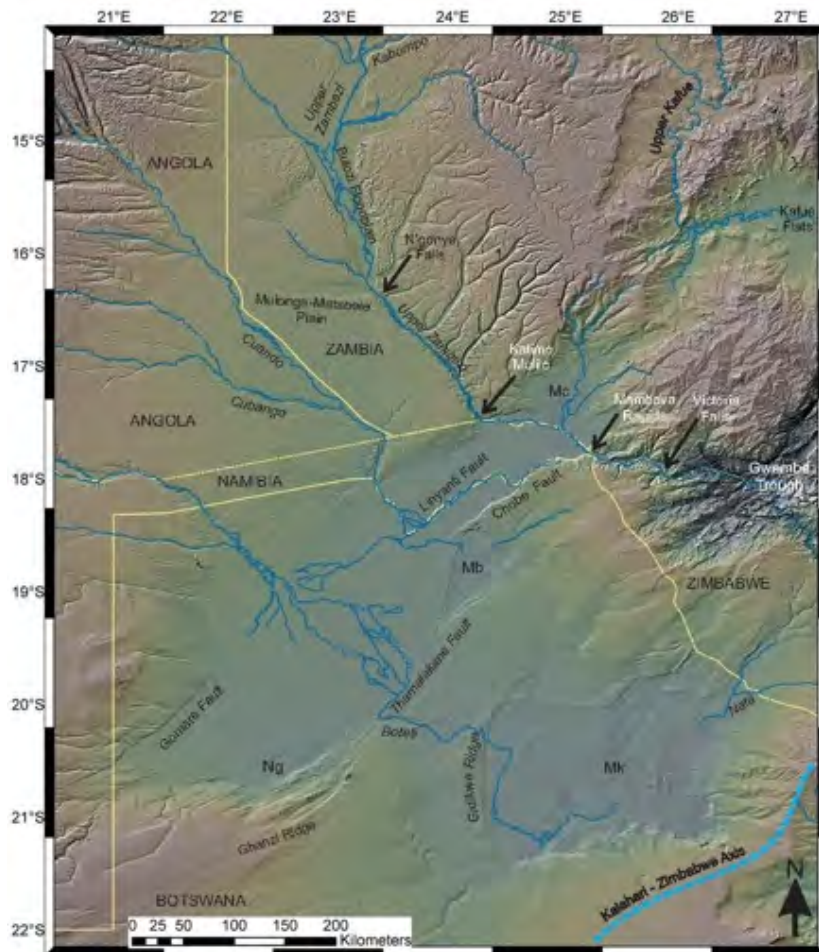


Fig. 1. Digital elevation model (DEM) illustrating the Makgadikgadi Depression in northern Botswana. Mk – Makgadikgadi Basin; Mb – Mbabe Depression; Ng – Lake Ngami. Note the subtle linear features reflecting major faults. See *Andy Moore* p. 6

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## Editorial

This is the first Newsletter to be circulated under the Chairmanship of Andrew du Toit. We welcome the new Committee to Office, and look forward to the fruits of their labours, some of which are detailed in the Chairman's column. Thanks are due to our regular contributors for their writing and time. Andy Moore has made the effort to express his talk to us on 27<sup>th</sup> June in the form of an illustrated abstract. We also give Martin Prendergast's 2013 Phaup Award-winning abstract for his paper on nickel laterite formation on land surfaces of the North Dyke, and that of Reuben Ranganai's abstract on geophysical interpretation of the Filabusi Greenstone Belt.

Sarah Sindiso MASENDEKE (23) was the 2013 winner of the **Mike Vinyu Award**, presented to the best geology student from the Zimbabwe School of Mines. She was attached to Unki Mine where her project was to study geological structure \presented in the 01 Level North Section of Unki Mine, specifically in bords 2, 3 and 4. She studied rock quality and by means of a structural plan and a rock mass-rating plan, she identified potentially hazardous ground.

Lovemore CHIMUKA was winner of the 2013 **Keith Viewing Award** with his paper on *Exploration Techniques: Discovery of Sese and Marowa Kimberlite Fields* given at the Victoria Falls Symposium being adjudged the best presentation.

During the compilation of this Newsletter, Andrew du Toit suffered the loss of his Mother, and Maideyi Meck lost her sister in Botswana. Our heartfelt condolences go out to both at this time.

*Tim Broderick*



## Chairperson's Chat

*Andrew du Toit*

Your Society has a new and enthusiastic committee with a number of new faces. We hope to breathe new life into the Society. Portfolios have not been allocated within the Committee, meaning that specific projects/events are being "Championed" by a delegated individual. We have already made good progress on a number of initiatives, and the calendar for the year is starting to take shape.

Date	Event	Description	Champion
27 June	Andy Moore	Lecture	Andrew du Toit
August	Wolfgang Meyer	Lecture	Andrew du Toit
October	Buchwa Mountain	Friday / Saturday	Charles Castelin
Oct / Nov	du Toit Memorial Lecture	Lecture	Gayle Hanssen
28 Nov	Summer Symposium, Harare	One day symposium	Andrew du Toit
	Chewore Dinosaur Footprints	Weekend Trip	Ali Ait Kaci
Sept 2016	IGC, Cape Town	Zimbabwe Trips	

Our first main initiative is to get our website up and running and effective. We are commissioning web developers to build the site and arrange for hosting. In addition to the usual information, calendar, contact details etc., we are also including an Atlas section where you will be able to log outcrops, add photographs and participate in moderated discussions. Our aim is for this to develop into an open and dynamic resource that will include our field excursion guide stops. Logged outcrops will be accessible through a *Googlemaps* interface. Our new administrator, Julie Kuhn, is getting to grips with the membership register and she will be actively following up on membership subs. She is in the Society's office in the Geology Department at UZ most Wednesday afternoons if you need to drop off or collect anything. Once we are happy that our membership list is fully up to date, we plan to publish the list on our website so that anyone can check who the genuine members of the society are.

New Members who have been approved are welcomed:

Foreign

- James Cumming
- Bruce Cumming
- Christopher Male
- George Roach

Student member

- David Edmeades (Rhodes)
- 

The Summer Symposium this year will be in Harare, and we invite all of you to participate. Our focus will be on the mineral potential of Zimbabwe and we are looking for specialists to share their views on that potential, and with opportunities and constraints related to our key minerals.

## Articles and Reports

### **Landscape evolution, regolith formation and nickel laterite development in the northern part of the Great Dyke, Zimbabwe**

*M.D. Prendergast*

Email: [marprend@hotmail.com](mailto:marprend@hotmail.com)

### **ABSTRACT of the A.E. Phaup Award-winning paper for 2013**

The hilly northern part of the north-northeast-trending Great Dyke - the Mvukwe Range - comprises a 300 km<sup>2</sup>, elongate mass of exposed serpentinite displaying remnants of two principal erosion surfaces: an areally-dominant upper surface and a subordinate lower surface confined to a northerly location. Both surfaces, assigned to successive phases of the composite, continent-wide, mid-Cretaceous to end-Oligocene, African Surface, are represented by variably-preserved table-lands of plateaus, mesas, buttes, and accordant summits. To the east and west, inselberg-bearing, granitic plains form a composite, Miocene, Post-African etch surface at contrasting lower elevations, resulting in eccentric dispositions of African erosion surfaces and Post-African internal valleys, all attributed to the varying

maturity of the main drainage systems either side of the Mvukwe Range, a probable regional watershed since pre-Karoo times.

The lower and upper African surfaces have present-day elevations of ca. 1525m and (mostly) ca. 1620m, respectively, although an original vertical separation of ca. 200m is estimated in the north. Complex northward variations in preservation and elevation of the upper surface, plus a general northward increase in modal olivine in the serpentinized dunite protolith, point to significant regional uplift, probably associated with Tertiary displacement of the Zambezi Escarpment horst active since the Triassic at the northern extremity of the Great Dyke, as well as possible re-activation of Zambezi belt-related Proterozoic faults.

Preserved African Surface regoliths comprise (cliff-forming) horizontally-fractured serpentinite overlain by a composite silica cap of horizontally-fractured serpentinite with sheeted silica veins below ferruginous silicified serpentinite. The predominantly, goethite-chrysotile African regoliths carry nickel enrichments of 1 - 2% Ni (or more) to depths of up to 10m (or more) in the fractured serpentinite and sheeted silica vein zones; other nickel enrichments occur more sporadically within the protolith. Three principal mineralogical associations are postulated for the contained nickel: (1) discrete, fracture-related, 'garnieritic' minerals (in both regolith and protolith), (2) nickeloan serpentine within drusy vugs associated with silica veins, and, probably, (3) pervasive enrichments associated with goethite and/or chrysotile. Cobalt, concentrated towards the top of the preserved regolith profile, is most likely linked to goethite via a primary association with Mn.



**Figure 15.** Secondary Ni-rich minerals, Mvurwi section: I. Discrete, green, possible 'garnierite'-type Ni-Mg silicate associated with small drusy vugs in thin, irregular silica veinlet in horizontally-fractured serpentinite in cliff-section, Hill B. Crude concentrates of this mineral contain > 7 % Ni.



**Figure 16.** Secondary Ni-rich minerals, Mvurwi section: II. Amorphous, pale green-yellow and pale blue, possible serpentine masses in drusy silica vugs in sheeted silica vein zone. Crude concentrates of this mineral contain > 12.7 % Ni. Width of photograph ca. 3 cm.

The geomorphological and geological features of Great Dyke nickel laterites are closely analogous to those of classic, saprolite-type nickel laterite deposits in Brazil. Both groups probably formed in fundamentally similar ways, the lower grade/thickness of the Great Dyke deposits attributable to the slightly differing climatological and geomorphological histories of northern Zimbabwe and of equatorial and tropical Brazil.

## **Gravity and Aeromagnetic Studies of the Filabusi Greenstone Belt, Zimbabwe Craton: Regional and Geotectonic Implications**

*Rubeni T. Ranganai*

Email: ranganai@mopipi.ub.bw

The Filabusi greenstone belt (FGB), Zimbabwe craton, has been geologically remapped relatively recently but its regional tectonic setting and subsurface structure have, until now, remained unresolved. This paper presents gravity and aeromagnetic studies that have been undertaken to provide this important information, and also extend mapping to areas of poor exposure. Several new NNW-trending dykes and structures cutting across the greenstone belt have been revealed, as well as a major extension of one of the metakomatiitic-BIF units, the Shamba Range. ESE-trending dykes identified in the southeast appear on a regional scale to be part of the giant Okavango dyke swarm in northern Botswana. An ~3 km-wide NNE-striking magnetic low occurs over the Irisvale-Lancaster shear zone (ILSZ) on the extreme west of the FGB where it roughly marks the boundary with the Bulawayo greenstone belt. Magnetic anomaly trends over ultramafic schists are consistent with strike-slip movement along the ILSZ, and together with the gravity anomalies, support northeasterly-directed detachment of the adjacent Fort Rixon belt from the Bulawayo-Filabusi belt. The Bouguer gravity anomaly map shows that the FGB is characterised by a well-defined positive anomaly up to 37 mGal, whose symmetry and extent confirm the postulated synclinal structure of the belt. Isolated oval shaped small gravity lows generally correlate with sub-/out-cropping K-rich post-volcanic granite plutons. 2.5D gravity models along three profiles across the greenstone belt show a simple “basin shape” with a possible maximum depth extent of only 4.5 km, compared to an estimated stratigraphic thickness of about 9.0 km. This suggests a truncation at shallow depth of the structurally repeated lithologies. Gravity data and models support the proposed FGB model; deposition of volcanics in an extensional, structurally determined, evolving basin. This autochthonous setting is consistent with other greenstone belts in the Zimbabwe craton and other parts of the world.

*International Journal of Geosciences*, 2012, 3, 1048-1064 doi:10.4236/ijg.2012.35106 Published Online November 2012 (<http://www.SciRP.org/journal/ijg>)

## **How Makgadikgadi Palaeo-lakes made the Victoria Falls**

*Andy Moore*

Email: andy.moore.bots@googlemail.com

The Makgadikgadi Pans complex of northern Botswana, dominated by the Sowa and Ntwetwe Pans, is the desiccated relic of a major inland lake system. The latter formed within a depression that was initiated by the south-westwards propagation of the East African Rift System (EARS) into Botswana (Fig. 1 – cover illustration). Active low-intensity seismic activity reflects ongoing tectonism in northern Botswana.

There are two prominent sand ridges (the Deception and Gidikwe Ridges) on the western margin of the Makgadikgadi depression, with elevations of ~995m and ~945m respectively (Fig. 2a). These are interpreted to reflect fossil offshore bars, related to former shorelines

within the basin. The actual former shorelines would have been located to the west of these two ridges, and separated from the latter by a shallow lagoon.

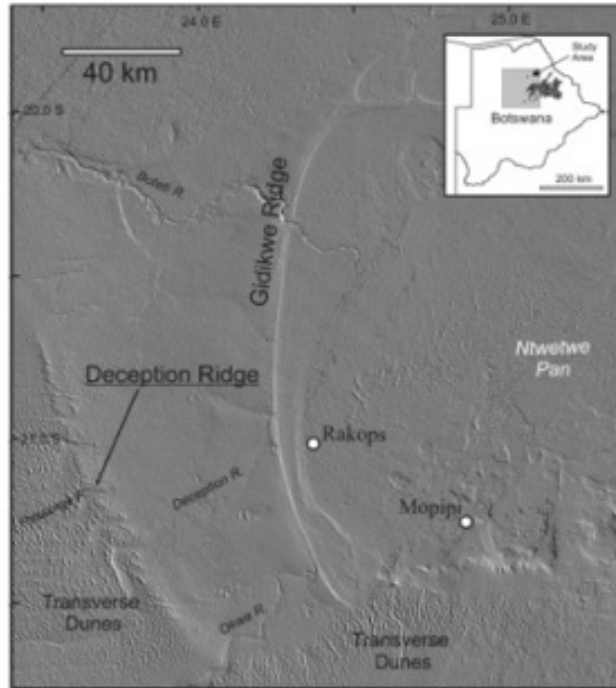


Fig 2 a. DEM of the western portion of the Makgadikgadi Basin. Note the Deception (~995m) and Gidikwe (~945m) fossil sand ridges.

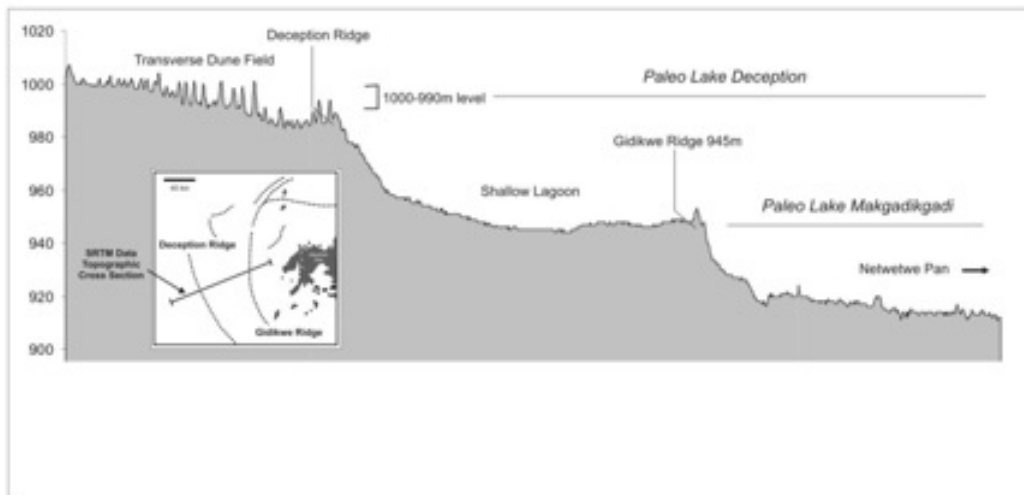


Fig. 2b. Cross-section across the Western Makgadikgadi Basin.

Further shoreline features have been identified at elevations of approximately 936m and 922m, with the sink of the basin being slightly lower than 900m. The position of these different shorelines is illustrated in Fig. 3. The lake bounded by the highest (~995m) shoreline would have covered an area of approximately 175 km<sup>2</sup>, making it more than twice the size of modern Lake Victoria.



Fig. 3. Palaeo-lakes associated with shorelines at different elevations.

There is considerable controversy regarding both the ages and evolution of the palaeo-lakes within the Makgadikgadi Basin. A number of detailed studies have used luminescence dating of quartz grains to try to constrain the ages of the fossil shorelines. The technique is based on the principle that quartz grains, once buried, absorb energy emitted by radioactivity in minerals such as zircon, and will luminesce if subsequently exposed to heat or visible light radiation. The intensity of the luminescence is proportional to both the burial time and the concentration of radioactive elements associated with the quartz grains. By analysing the concentration of radioactive elements, it is possible to estimate the time of burial.

Quartz luminescence ages of 945m shoreline features are typically less than 250ka (250 thousand years) (Middle-late Pleistocene) (Fig.4). They are believed to cluster around a number of different ages, which are inferred to reflect episodes of higher rainfall, which sustained high lake levels. This model thus envisages an oscillating 945m lake level, which is essentially climatically controlled. However, the shoreline luminescence ages show a strong overlap with ages (Fig. 4) of closely spatially associated deflated linear dune fields that straddle Zimbabwe, north-western Botswana, Namibia and southern Zambia (Fig. 1). Today, active linear dunes are only known to form under extremely arid conditions ( $\ll 200\text{mm}$  annual rainfall). The overlap of the dune ages with shoreline ages thus conflicts with the interpretation that the latter reflect episodes of elevated rainfall.



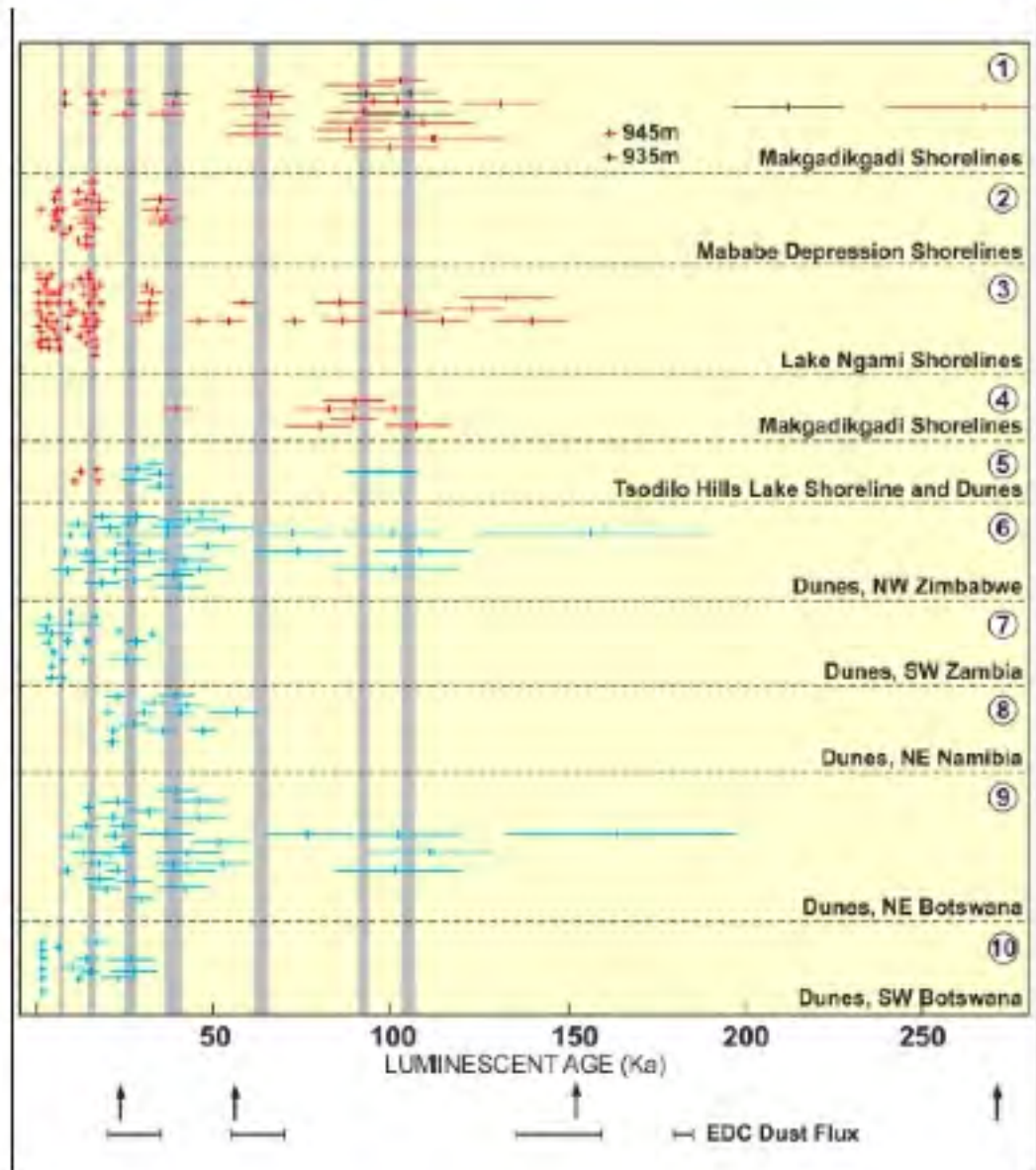


Fig. 4 Quartz luminescence ages of Makgadikgadi basin shorelines and closely spatially associated fossil dunes (vertical bars). Horizontal bars represent 1 $\sigma$  analytical error. Grey vertical bars are inferred to represent high lake stands associated with the 945m shoreline, ascribed to episodes of rainfall markedly higher than the present average (400-500mm) in northern Botswana.

The overlap in quartz luminescence ages of the Makgadikgadi shorelines and the spatially associated linear dunes begs explanation. Quartz luminescence dating is based on the assumption that quartz grains, once buried, remain *in situ*, with the age of burial of the quartz grains increasing systematically with depth. However, there is abundant evidence that the Kalahari sediment has experienced extensive bioturbation (overturning of the sediment by a variety of burrowing organisms.) Termites appear to be particularly important in effecting such sediment over turn. Their impact appears to have become particularly pronounced in the late Cenozoic when they underwent a major evolutionary radiation and increase in numbers in response to the evolution of grasslands at the expense of forest habitat (Fig. 5).

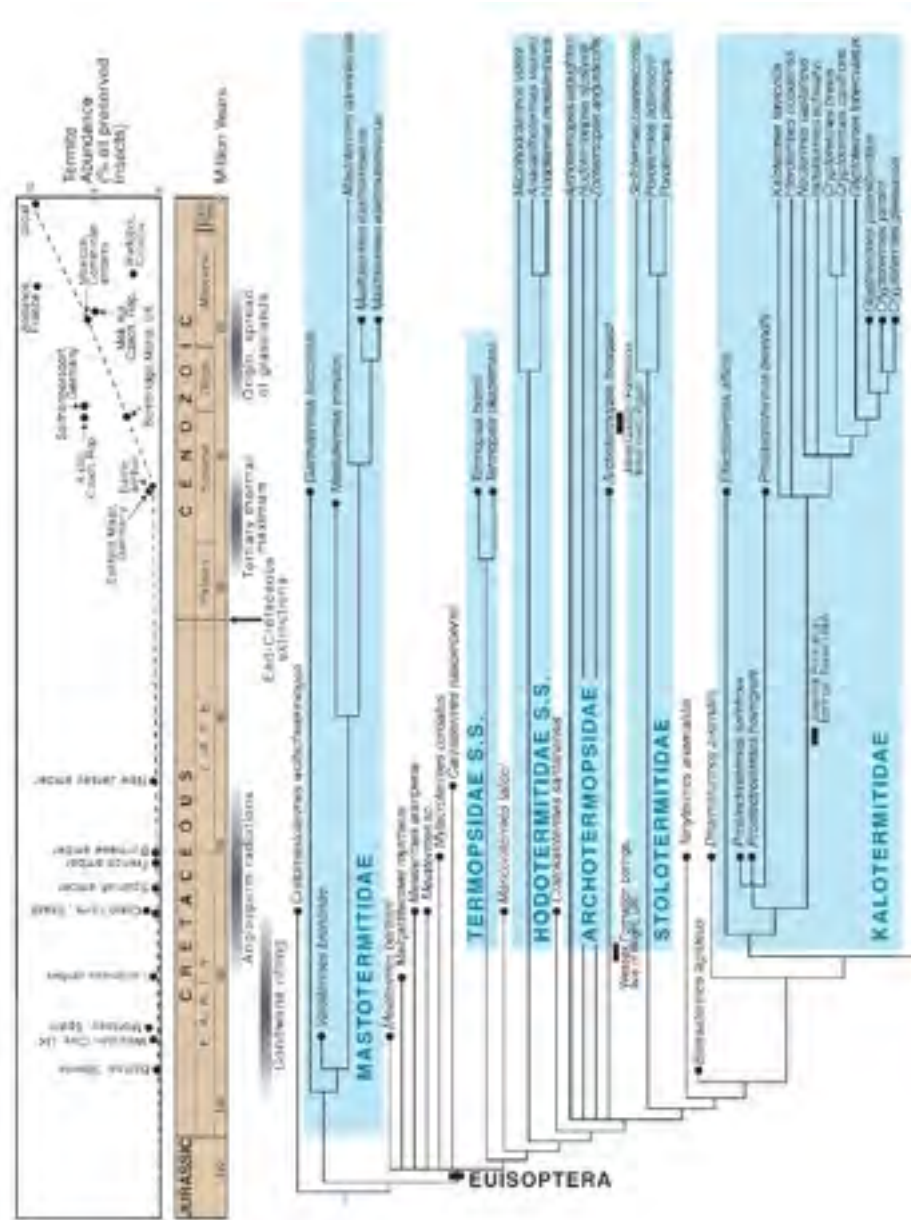


Fig. 5. Evolution of Termites. Note that late Cenozoic evolutionary radiation in response to the expansion of grasslands.

Extensive overturn of Kalahari sediments, particularly in the late Cenozoic, has resulted in extensive mixing of quartz sand grains, thus violating the underlying principle of luminescence dating – that quartz grains remain *in situ* following deposition. As a consequence, the luminescence ages reflect a poorly constrained mixture of old and young sand, and thus do not date the time of formation of the landform.

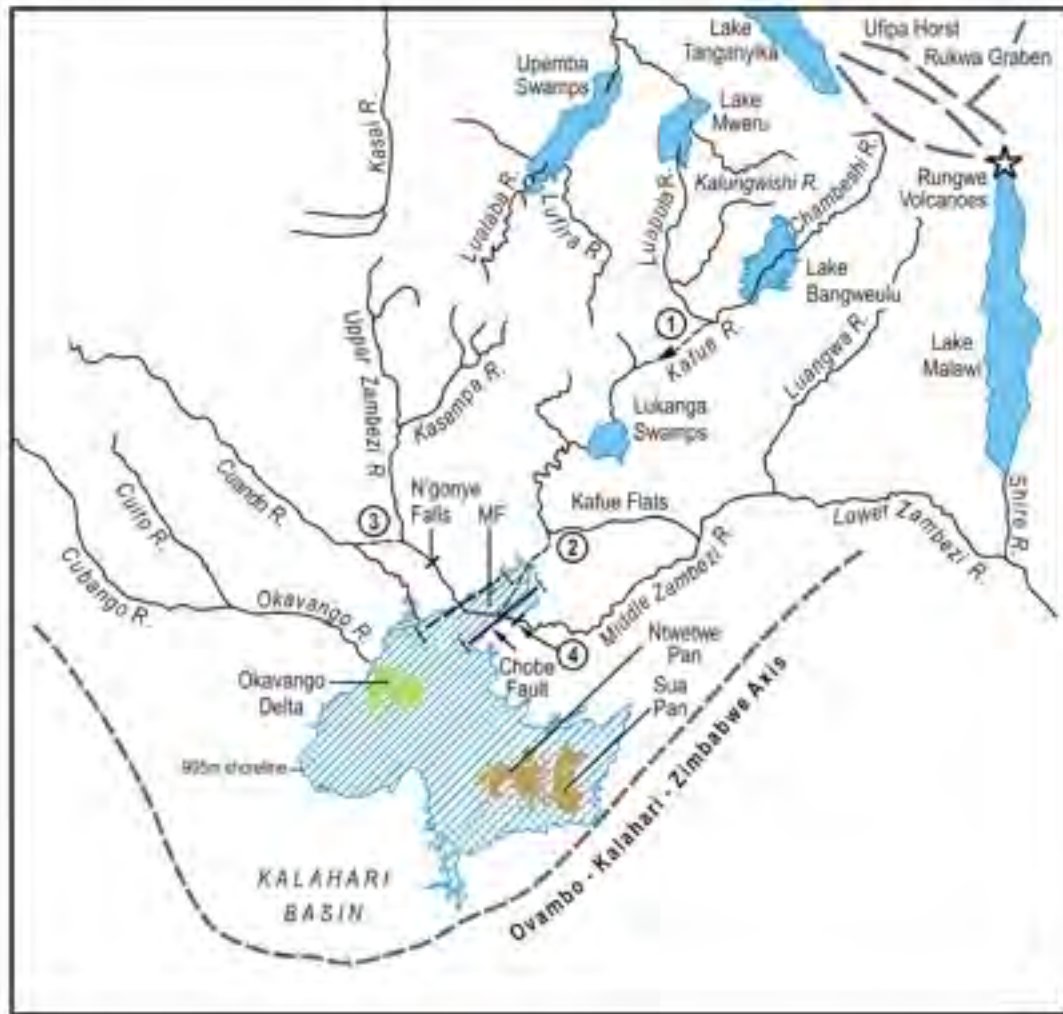


Fig. 6. Blue diagonal lines show the extent of the lake associated with the 995m shoreline in the Makgadikgadi Basin in relation to the desiccated Sua and Ntwetwe Pans. 1: Former link between the Chambeshi and Upper Kafue rivers; 2: former link between the Kafue and Upper Zambezi; 3: former link between the Cuando and Upper Zambezi; 4: Victoria Falls; MF: Machilli Flats.

An alternative to the climatic model to explain the evolution of the Makgadikgadi palaeo-lakes envisages that the primary control was linked to drainage evolution during the Plio-Pleistocene. At the time of formation of the Makgadikgadi depression, the Chambeshi and Kafue formed a single major SW-flowing drainage, with the Upper Zambezi as a north-bank tributary. This major river system would have flowed into the Makgadikgadi depression via the Machilli Flats graben (Fig. 6), to sustain the lake at its maximum 995m shoreline. Inflow to the lake was substantially reduced by diversion of the Chambeshi into the Luapula (a tributary of the Congo River.) This severed the former link between this river and the Upper Kafue (1 in Fig. 6). The result was contraction of the Lake from the 995m to 945m shoreline. Diversion of the Kafue to the east, to ultimately flow into the mid-Zambezi, severed the link between this river and the Makgadikgadi Basin via the Machilli Flats (Fig. 6, dashed line 2). The consequent reduction of inflow into the basin resulted in a further contraction of the Palaeo-lake to the 936m shoreline. Further disruptions of flow into the basin ultimately resulted in desiccation of the Makgadikgadi palaeo-lakes.

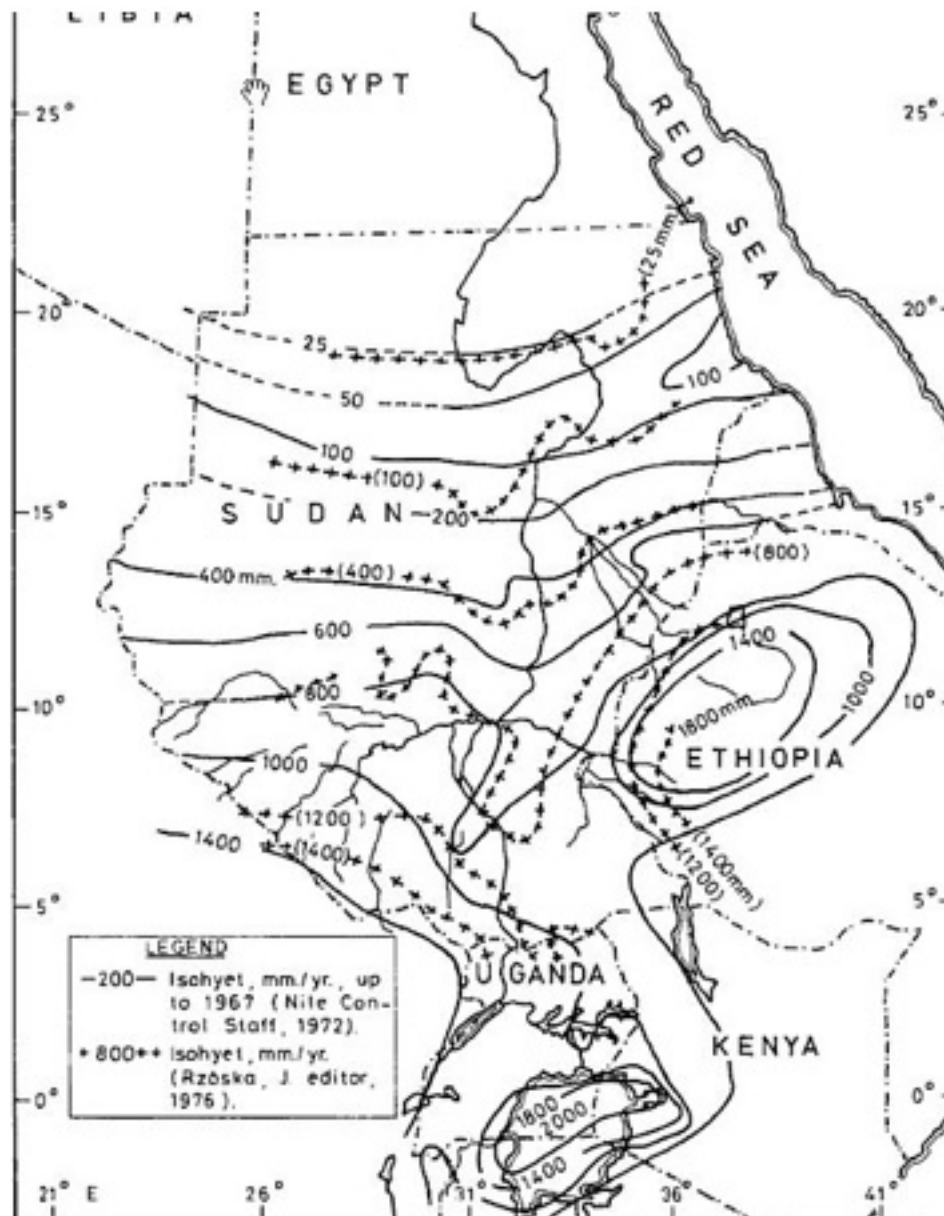


Fig. 7. Rainfall (mm) over NE Africa. Note the elevated rainfall over Lake Victoria in the extreme south of the image.

Because of its large size (~68 000 km<sup>2</sup>), Lake Victoria has resulted in a marked local increase in rainfall, well in excess of the local evaporation rate. This excess in precipitation drains into the White Nile (Fig. 7). By analogy, it would be anticipated that a lake the size of the 995m Palaeo-Makgadikgadi would have also resulted in an elevated rainfall, well in excess of the present-day evaporation rate of northern Botswana (1500-1800mm annually). This would cause the Makgadikgadi palaeo-lake to expand until it was able to overtop any topographic low, allowing the water to escape to lower elevations. Reference to Fig. 6 suggests that the logical escape would have been into the mid-Zambezi, probably via a north bank tributary of the latter river, which is now the eastern Batoka Gorge (Fig. 8).

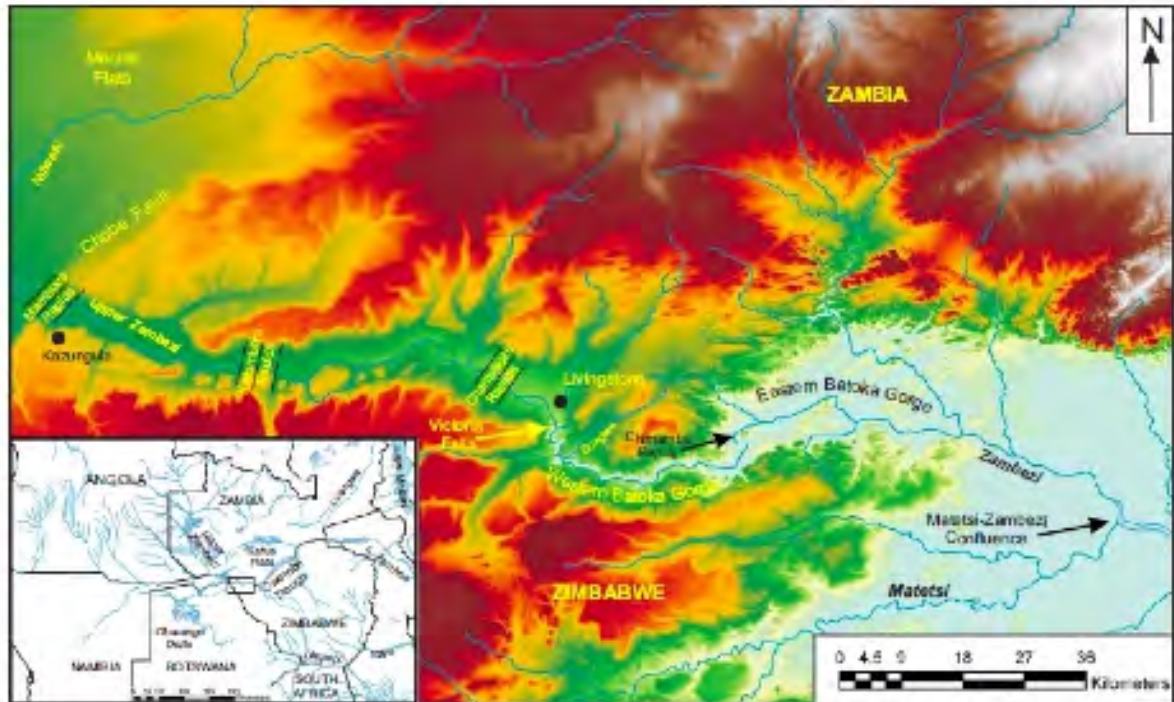


Fig. 8. DEM illustrating the modern topography above and below Victoria Falls.

The resultant 300-400m drop in the erosive base level would have initiated rapid headward erosion of the mid-Zambezi to incise the Batoka Gorge. Victoria Falls represents the modern knick-point linked to this ongoing process of headward erosion.

The age of the 995m palaeo-lake can be broadly constrained by archaeological evidence, coupled with estimated ages of river capture based on the timing of isolation of fish and Lechwe antelope populations, using genetic data. These lines of evidence suggest that the Palaeo-lake system in the Makgadikgadi basin was initiated approximately 2 million years ago, in the early Pleistocene. This is almost an order of magnitude earlier than the estimates based on quartz luminescence studies. The estimated age of the Palaeo-lake system would in turn reflect the timing of link between the upper- and mid-Zambezi.

### Acknowledgements

This extended abstract draws heavily on research carried out together with Woody Cotterill of the University of Stellenbosch and Frank Eckardt of the University of Cape Town. It is a great pleasure to acknowledge this stimulating collaboration, and in particular Woody Cotterill's groundbreaking studies of Lechwe antelope and fish genetic evidence for drainage evolution in south-central Africa.

# News



## Geology Department, University of Zimbabwe

*Maideyi Meck*

The Department continues to survive. The second semester of the 2013-2014 academic year came to an end on 6<sup>th</sup> of June. The second-year field trip was carried out from 7<sup>th</sup> to 16<sup>th</sup> June in the Mberengwa-Zvishavane area. Camp was set at the Shabanie Mine McAdam Rugby Pavilion. The facility had a few short comings including no water or electricity. The Department is therefore requesting mining companies in and around Zvishavane to avail camping grounds with ablution facilities. A total number of 27 students, 4 technical staff and 5 academic members made the trip to Zvishavane.

The second-year students are expected to go on an attachment as part of the new honours programme. As a department we have only managed to secure 7 places out of the 19 needed. The Department is appealing to mining companies to absorb our students for a one-year attachment which is a requirement for the BSc Honours Degree. We have written to several companies and talked to many individuals, but up until now there is very low response.

The first-year field trip is set for August in and around Chinhoyi, as well as through the Harare-Shamva Greenstone Belt. Geologists in the field are welcome to join in for the outing, and we hope they may share their experience with our budding geologists.

Dr Nhamo's continues as the chairperson of the Department.

The student's Mennell Society is up and running and they are organizing events for themselves. They are indebted to the Geological Society of Zimbabwe for advice and encouragement given.

As a Councillor of the GSAf for the Southern African Region (2012-2016) term, Dr Meck will happily forward any news or discovery from Zimbabwe to the GSAF Newsletter for their wide distribution.

### Contact details:

Name	Position	Other	Email	Cell
Dr Nhamo	Chairperson	Chemistry, UZ	Inhamo2@gmail.com	
Dr M.L. Meck	Lecturer		<a href="mailto:mabvira@science.uz.ac.zw">mabvira@science.uz.ac.zw</a>	0772-906612
Prof. I. Manuel	Lecturer		<a href="mailto:isrvn@yahoo.com">isrvn@yahoo.com</a>	0712-206767
Mr D. Maguze	Chief Technician		<a href="mailto:dmaguze@science.uz.ac.zw">dmaguze@science.uz.ac.zw</a>	0712-639792
Mrs G. Chipari	Secretary, DG		<a href="mailto:gchipari@science.uz.ac.zw">gchipari@science.uz.ac.zw</a>	0772-950681
Mr A. du Toit	Chairperson, GSZ		<a href="mailto:andrew.dutoit@zimplats.com">andrew.dutoit@zimplats.com</a>	0772-513763
Mr. K. Musiwa		Mining, UZ	<a href="mailto:kudzie@eng.uz.ac.zw">kudzie@eng.uz.ac.zw</a>	0772-948915
DG Direct line/Fax:	263-4-303557			

**Note:** DG – Department of Geology; GSZ – Geological Society of Zimbabwe

Other Staff Members at DG: Dr T Mulugheta; Dr T Njila; Mr T Marova; Mr G Chinoda; Ms D Mudimbu; Mrs N Chinuno

## **The Professor Tom Blenkinsop UZ Geology Field Trip Fund**

Following the successful presentation of the 2013 A.M. Macregor Memorial Lecture in Harare and Bulawayo, and his lead of the field trip in the Renco Mine area, Professor Tom Blenkinsop made a generous donation of \$200 to the Geological Society of Zimbabwe (GSZ). This was in support of University of Zimbabwe (UZ) geology student field trips. Over the years the UZ Geology Department has been under funded, resulting in their failure to raise sufficient money to conduct the mandatory field trips for its students. The GSZ responded by donating funds and materials from its own resources as well as from members. This assistance went towards the welfare of the geology students, especially in meeting costs for field trips.

Using the donation from Prof. Blenkinsop as seed money, the GSZ has now established the "*Professor Tom Blenkinsop UZ Geology Field Trip Fund*" to be administered by its Executive Committee. Tom has indicated an interest in supporting the Geology Department on a long term basis, not only to help in mobilizing funds for various activities, but by also providing moral and material support. Annually the students go on their main field trip, which lasts around 2 weeks with direct costs being in the range of \$6000 per class. Therefore we are appealing to all our members to donate generously to this worthy cause both in cash or in kind. Materials such as fuel and food are most welcome.

The direct benefits that accrue to the geological profession are that it ensures a properly trained graduate. Referring to the adage that the best geologist is the one who has seen the most rocks, our students need quality field trips. From these field excursions we also want to develop the Zimbabwe Geology Atlas.

Your donations, either in cash or in kind, should be forwarded to our Treasurer, Collins Mwatahwa – E-mail: [cmwatahwa@Angloplat.com](mailto:cmwatahwa@Angloplat.com) or to our Administrator, Julie Kuhn - E-mail: [geol.soc.zimbabwe@gmail.com](mailto:geol.soc.zimbabwe@gmail.com)

THANK YOU FOR YOUR GENEROSITY

H. N. Gumbo

June 2014



**ZIMBABWE**

## *Geological Survey Department*

*Forbes Mugumbate*

### **Staffing**

Following approval by the Civil Service Commission for the Department to recruit new members of staff, 6 geological technicians and 3 geologists have joined the Geological Survey, and have all resumed duties. All three geologists have BSc Honours degrees from South African universities. Our professional staff now comprises:

Director

Temba Hawadi

Deputy Director

Forbes Mugumbate

Geologist/Snr/Principle

Sokesimbone Lunga

Frank Muzanhamo

Ernst Mugandani

Sibongubhle Mpindiwa

Tendai Kashiri

Mitshell Maisera

Lloyd Magombedze

Brain Muteta

Tapiwa Magidi

Two Kufakunesu

Benedict Ncube

Geophysicist/Snr/Principle

Mathias Ngoro

Lloyd Shavarira

Admire Charumbira

The Ministry is sponsoring four students who are studying geology at the University of Zimbabwe.

### **Projects**

Regional geochemical surveying covering about 24,000 km<sup>2</sup> in areas surrounding Harare and Gweru has been completed with the exception of the Mufurudzi National Land, into which the Ministry of Environment, Water and Climate has been tardy about providing authority to enter for the survey teams. The area will be surveyed before the Chinese team leaves for



home.

Tenders for the supply of cartographic, geophysical and geological equipment to the Department under African Development Bank sponsorship were closed, and winners will be informed soon. Also under this project, Terms of References for various consultancies have been drafted, and expert companies and individuals will be approached for consideration of their capacities to provide the required services. Drafting of the much-awaited 1:1million-scale geological map of Zimbabwe is expected to be completed under the project, and several outstanding bulletins and maps are intended to be edited, drawn and printed.

## **MINING INDUSTRY NEWS**

*Forbes Mugumbate*

### **Golden Valley**

We start with sad news of the death of seven miners at Golden Valley mine. The miners perished when a hoist transporting them down a shaft broke loose and plunged into a pool of water drowning the miners. Eleven miners survived. We convey our condolences to the families and relatives of the deceased.

### **Chamber of Mines AGM**

The Chamber of Mines held its 75th Annual General Meeting (AGM) in Victoria Falls in May 2014 under the theme “Mining for Economic Transformation: Resettling the role of the mining sector as the cornerstone of ZimAsset” and re-elected Alex Mhembere as the president for another term, which runs from 2014 to 2015. Other elected office bearers are the Freda-Rebecca mining Director Toendepi Muganyi as First Vice President, and the immediate past President Winston Chitando as second vice president.

### **Indigenization Policy**

There is growing evidence that many potential investors are shying away from investing in Zimbabwe due to the misunderstanding of the Indigenization Policy. Companies regard the policy as taking away their control over mining operations yet they will be the ones operating and providing expansion capital. Government appears to be realizing the lack of clarity on the policy as evidenced by the President when he explained the meaning of the policy during the official opening of the 2014 Zimbabwe International Trade Fair in Bulawayo. There were also newspaper reports that the ruling party, ZANU PF, was to meet to discuss amendments to the Act. There are reports that two models are being considered as possible vehicles through which the indigenization policy could be implemented; the Production Sharing Model whereby the investor recoups his investment first before sharing the production according to the dictates of the Law, and the Joint Empowerment Investment Model that encourages locals to use the value of their properties as equity.

### **Alluvial Gold**

The Ministry of Environment, Water and Climate has passed a Statutory Instrument virtually banning mining of alluvial gold. Mining is now prohibited within 200m of the highest bank of

any river. Areas outside this limit would ordinarily be pegged under normal conditions as stipulated in the Act. Miners are still to react to the new development.

### **ZMDC and Mining Promotion Corporation (MPC) Boards**

Government has appointed a new Board of Management to lead the ZMDC following the dissolution of the previous Board accused of incompetence. The Board will be chaired by David Murangari.

Meanwhile the Mining Promotion Corporation was resuscitated by appointment of a Board chaired by Professor Gudyanga, Permanent Secretary in the Ministry of Mines, on a temporary basis.

## **News about Zim Geoscientists**

We hope your contributions may improve with the Facebook initiative. Talk to you on the Geological Society of Zimbabwe Group, an open link. Join us there for better communication.

**Please provide us with news about yourself or other geologists. We need to keep in touch with all of you out there. E-mail: [hgumbo@mweb.co.zw](mailto:hgumbo@mweb.co.zw) or [makari@zol.co.zw](mailto:makari@zol.co.zw)**

## **Conferences**

**The Roy Miller Symposium - "A conference to recognise a lifetime of service to the geological sciences in Namibia"**, Windhoek, Namibia, 18th-20th August 2014. [roy\\_miller\\_symposium@geolsocnamibia.org](mailto:roy_miller_symposium@geolsocnamibia.org)

**IMA 2014 – Experiencing Mineralogy at its best. 21<sup>st</sup> General Meeting of the International Mineralogical Association.** 1 – 5 September, 2014, Sandton Convention Centre, Gauteng, South Africa. [www.ima2014.co.za](http://www.ima2014.co.za)

**Kimberley Diamond Symposium and Trade Show.** Thursday 11 – Saturday 13 September 2014. Mittah Seperepere Convention Centre, Kimberley, South Africa. [www.gssa.org.za](http://www.gssa.org.za)

**The 6<sup>th</sup> International Platinum Conference.** SAIMM, 20-22<sup>nd</sup> October, 2014. Sun City, South Africa. <http://www.saimm.co.za> [cameron@saimm.co.za](mailto:cameron@saimm.co.za)

**The 23<sup>rd</sup> International Geological Congress,** Cape Town, South Africa – 2016.

## 3D EARTH EXPLORATION (Pty) LIMITED

*Geophysical Contractors & Mineral Exploration Consultants*

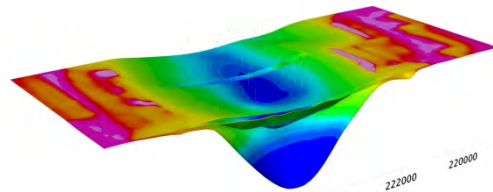
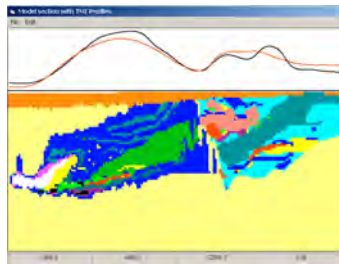
3D Earth Exploration is a Botswana-registered company operating in the Africa theatre and provides the following services:

- Ground geophysics surveys
- Physical rock properties measurements ...&... 3D Data processing and interpretation

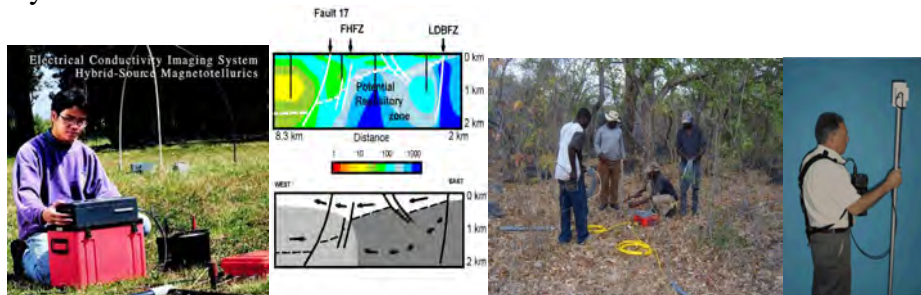


GDD MPP-EM2S+ Magnetic susceptibility and conductivity probe and axim .....Onsite data processing

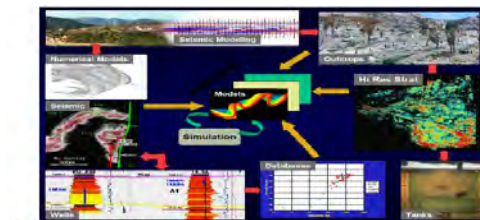
- 3D magnetic and gravity data modelling



- CSAMT, ground magnetic surveys, Induced Polarisation, gravity (CG3/5, La Coste), rock properties, EM, GPR, radiometrics and a wide range of other ground geophysics surveys.



- 3D Data integration and visualisation



**CONTACT:**

*For more information please contact Mr Hillary Gumbo +263-772-566912, email: [hgumbo@mweb.co.zw](mailto:hgumbo@mweb.co.zw)*

**Geological Society of Zimbabwe**  
**Summer Symposium 2014**  
**28th November 2014**  
Department of Geology, UZ  
**Call for Papers**

We are looking for presentations on a broad range of subjects of interest to geologists.

This year the focus is on understanding the Mineral Resource Potential of Zimbabwe. We therefore invite specialists to talk on specific commodities and outline the potential and opportunities in their chosen area.

We are also looking for topics of general interest to Geologists.

If you would like to present, please let us know ([andrew.dutoit@zimplats.com](mailto:andrew.dutoit@zimplats.com))

*Please put this date in you diary now*



**GSZ Research and Development Fund**

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



## SEG Timothy Nutt Scholarship 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.

# 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 year-end.

# 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.

See the Society of Economic Geologists website for further details and the next call for applications.

<b>GEOLOGICAL SOCIETY OF ZIMBABWE: CONTACT DETAILS OF MEMBERS OF THE EXECUTIVE COMMITTEE FOR 2014</b>		
<b>NAME</b>	<b>PORTFOLIO</b>	<b>EMAIL</b>
du Toit, Andrew	Chairman	<a href="mailto:andrew.dutoit@zimplats.com">andrew.dutoit@zimplats.com</a>
Ait Kaci Ahmed, Ali	Vice-Chairman & Newsletter	<a href="mailto:ali_aitkaci@yahoo.fr">ali_aitkaci@yahoo.fr</a>
Kuhn, Julie	Administrator & Secretary	<a href="mailto:geol.soc.zimbabwe@gmail.com">geol.soc.zimbabwe@gmail.com</a>
Mwatahwa, Collins	Hon. Treasurer	<a href="mailto:cmwatahwa@angloplat.co.zw">cmwatahwa@angloplat.co.zw</a>
Castelin, Charles		<a href="mailto:chas.cas@mweb.co.zw">chas.cas@mweb.co.zw</a>
Chatora, Daniel		<a href="mailto:dchatora@gmail.com">dchatora@gmail.com</a>
Hanssen, Gayle		<a href="mailto:gaylehanssen@gmail.com">gaylehanssen@gmail.com</a>
Marova, Taka		<a href="mailto:taka_marova@yahoo.ca">taka_marova@yahoo.ca</a>
Matthews, Paul	Matabeleland Representative	<a href="mailto:pmatthews2904@gmail.com">pmatthews2904@gmail.com</a>
Meck, Maideyi		<a href="mailto:maideyimeck@yahoo.com">maideyimeck@yahoo.com</a>
Mugandani, Ernest		<a href="mailto:emghans@yahoo.co.uk">emghans@yahoo.co.uk</a>
Mugumbate, Forbes	Geological Survey Representative	<a href="mailto:fmugumbate@gmail.com">fmugumbate@gmail.com</a>
Musiwa, Kudzai		<a href="mailto:kudzimusi@gmail.com">kudzimusi@gmail.com</a>
Ncube, Bekithemba		<a href="mailto:bekithemba.ncube@zimplats.com">bekithemba.ncube@zimplats.com</a>

## **Institutional Membership, 2014**

Bruker RSA

Chamber of Mines of Zimbabwe

Goldsearch Technical Services

Samrec Vermiculite Zimbabwe (Pvt) Limited

SMC

Unki Mines (Pvt) Limited

Zimbabwe Mining Development Corporation

Zimbabwe Mining Investments

Zimbabwe Platinum Mines Limited