

# Geological Society of Africa

## Newsletter

**Volume 11 - Issue 1**  
(March/April 2021)



**Edited by**  
**Tamer Abu-Alam**  
Editor of the GSAf Newsletter

<http://gsafr.org/newsletter/>

# **Welcome to Fez, Morocco**

The 28<sup>th</sup> Colloquium of African Geology  
(CAG 28)

9<sup>th</sup>-17<sup>th</sup> October, 2021

Abstract deadline June 20<sup>th</sup>, 2021

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## GSAf MATTERS

### UNESCO document for GGN (Global Geoparks Network) initiatives in Africa

Message from: Kristof Vandenberghe

Chief of Earth Sciences and Geo-hazards Risk Reduction Section

Dear colleagues,

I hope you are all doing fine and manage to cope with the complexities of this global pandemic. I wish to inform and update you on the strategy that UNESCO and its statutory partner the Global Geoparks Network developed to promote the concept of UNESCO Global Geoparks in Africa and the Arab states. From the 161 UGGp, spread over 44 countries worldwide, only two are based in Africa (Morocco and Tanzania). We have worked therefore on a strategic approach to increase the interest, knowledge and capacity of UGGp in Africa. We planned for example a dedicated conference in Arusha (postponed due to Covid), included African participants in our intensive training (11-22 June 2020 – new one planned for 1-10 June 2021) and in our exchange program. We also organized two webinars dedicated to Geoparks in Africa and the Arab States on 11 and 14 December last. Some of you contributed and participated in those, and I wish to thank you once again for your interest and commitment.

We have learned from these past events and believe it would be important to provide personalized guidance to a number of these promising Geopark initiatives that we see arising. In addition to that, we also wish to target existing structures in Africa, like Nature Parks, Nature Reserves, Intercommunalities and other structures engaged in rural development and environmental protection. With the Global Geoparks Network, we developed, therefore, the GGN Grant. With this grant, UNESCO and GGN offer consultancy service including a detailed assessment of the potential of the site, a needs assessment, an on-site mission by two GGN experts for 10 days and further online assistance with the preparation of the application to become a UNESCO Global Geopark to a number of potential Geopark projects.

We would like to invite you to consider applying for this grant yourself, or send it to starting Geopark initiatives in your respective regions. Please feel free also to forward it to National Parks with a possible interest in the Geoparks concept, regional development entities, and any individual or group that has been working on geo-heritage initiatives in the region or could possibly be interested in doing so. Please note the deadline for application – 30 April 2021.

The call contains all information and an application form, but we stand ready of course to provide any additional information that you may require.

With kind regards, stay safe!

Kristof Vandenberghe

More information is at: <http://globalgeoparksnetwork.org/?p=5131>

### GSAf MATTERS: UNESCO call for GGN – deadline 30 April 2021

Dear Sir/Madam,

We are writing you on behalf of the United Nations Organisation for Education, Science, Culture, Communication and Information (UNESCO) and the Global Geoparks Network (GGN), to inform you about our joint strategy to promote the Geopark concept in Africa and the Arab States. In the frame of that strategy, we also offer personalized assistance to up to three aspiring Geoparks on the continent per year. This initiative, called the "GGN Grant", aims to assist a selected number of Geopark initiatives with tailor-made support, free of charge, all the way to the submission of an application file. Interested applicants can submit a proposal to GGN and UNESCO, providing a preliminary plan for development of a Geopark. Each year, UNESCO and GGN will launch a new call and a selection committee with experts from UNESCO

and the GGN working group on African Geoparks, will select three Geopark initiatives that will receive tailor-made guidance. With the current letter, we wish to launch a first call for candidates.

For those less familiar with the UNESCO Global Geopark (UGGp) concept, these are territories where landscapes and geological sites of "international geological significance" are managed with a holistic concept of protection, education and sustainable development. While protection of these geological sites is an important aspect of UGGp, their real strength is in the fact that local communities use this heritage to create economic benefit, very often through geo-tourism, small scale enterprises and the promotion of local products, that schools are engaged in the protection of the territory and that local students learn about sustainable development through the specific features of the UGGp where they are based, that the UGGp is run by a management body with full representation of local and indigenous peoples (where relevant), that research is conducted in and with the UGGp, that the UGGp engage themselves in networking activities and the exchange of good practices, that they educate visitors and locals alike on the value of their geological heritage and how this relates to the biological and cultural diversity in the territory, and that they engage in proper water management, climate change action, energy efficiency and environmental care.

### **Why?**

The concept has been very successful in many places of the world, and the network currently counts 161 sites in 44 countries. Africa and the Arab States however only have 1 UNESCO Global Geopark each (Ngorongoro-Lengai in Tanzania and M'Goun in Morocco), despite the potential of the region, and the many emerging local initiatives. With this in mind, UNESCO and GGN engaged in a strategy based on workshops, intensive courses, mentorship and exchange programmes, and offers for the first time this year, the GGN Grant.

### **What?**

The GGN Grant is a tailor-made consultancy service including a detailed assessment of the potential of the site, a needs assessment, an on-site mission by two GGN experts for 10 days and further on-line assistance with the preparation of the application to become a UNESCO Global Geopark. The cost of these visits will be borne by UNESCO. The support will also include participation of the site managers in intensive training courses (e.g. Lesvos Island, Beijing) and inclusion in the mentorship and knowledge exchange programme.

### **For whom?**

We target emerging Geopark initiatives in Africa and the Arab States, but also existing nature parks and national parks with geological features of international value, intermunicipalities involved in rural development and other management bodies that would like to start developing a viable Geopark.

The assessment criteria will in the first place be based on:

1. the presence of an existing management body and interested people with interest in the UNESCO Global Geoparks concept and able to engage in this endeavour and support the initiative;
2. the presence of geological heritage of international value;
3. the basic understanding and affinity of candidates with the UGGp concept.

Secondary criteria will relate to government support, funding perspective, tourism potential, security and community involvement.

### **How?**

Interested candidates should complete the attached form (<http://globalgeoparksnetwork.org/wp-content/uploads/2021/03/application-form-GRANT.pdf>) and send it before 30 April 2021 to [m.patzak@unesco.org](mailto:m.patzak@unesco.org) and [ggnassociation@hotmail.com](mailto:ggnassociation@hotmail.com). The three best proposals will be notified by **15 May 2021**.

For any further information regarding this offer or the UNESCO Global Geoparks in general, please contact [m.patzak@unesco.org](mailto:m.patzak@unesco.org) or [ggnassociation@hotmail.com](mailto:ggnassociation@hotmail.com).

Or consult: <http://www.unesco.org/new/en/natural-sciences/environment/earth-sciences/unesco-global-geoparks/> – [http://globalgeoparksnetwork.org/wp-content/uploads/2018/08/05\\_02\\_2018\\_FINAL\\_SPREDS.pdf](http://globalgeoparksnetwork.org/wp-content/uploads/2018/08/05_02_2018_FINAL_SPREDS.pdf)

www.visitgeoparks.org

We thank you very much for your consideration and remain at your disposal for any information you may require. Hoping that this initiative can contribute to valorise the rich geological heritage of Africa and the Arab States, we remain.

Yours sincerely,

Kristof Vandenberghe & Nickolas Zouros

## **GSAf MATTERS: Survey of African Geopark Initiatives and Feasibility Study on Potential Cooperation with the German UNESCO Commission and German Global Geoparks**

By: Wladyslaw Altermann

University of Johannesburg, South Africa, Vice-President (South) GSAf

### **Dear Friends, Colleagues and Geopark Enthusiasts across Africa**

The Geopark and Geo-Heritage Site movement on the African continent is still in its infancy. Nevertheless, as the past months have shown, there is considerable interest in Geoparks and the Global Geopark initiative by UNESCO in many African countries.

The UNESCO "Call for Global Geopark Network (GGN)", published in this issue (GSAf Newsletter, vol.11, issue 1, April 2021) by Kristof Vandenberghe and Nickolas Zouros, will hopefully trigger more geopark initiatives and increase the number of African Geoparks, World Heritage Sites (WHS) or National Parks (NP) in Africa. Some of the African countries profit already tremendously from national parks which attract tourists from all over the world, providing conservation opportunities for nature and job and education opportunities for the local population. A good example of such attractions is the Rhumisiki Rock in Cameroon – an excellent park candidate in beautiful surroundings, certainly worth a national initiative for or a UNESCO GG (see links provided by Kristof Vandenberghe, e.g. [http://globalgeoparksnetwork.org/wp-content/uploads/2018/08/05\\_02\\_2018\\_FINAL\\_SPREDS.pdf](http://globalgeoparksnetwork.org/wp-content/uploads/2018/08/05_02_2018_FINAL_SPREDS.pdf)).

Along with Biosphere Reservations and World Heritage Sites, Geoparks are one of the categories of UNESCO-certified sites of worldwide special natural relevance. The United Nation's UNESCO cooperates with the International Union of Geological Sciences (IUGS) and the Geological Society of Africa (GSAf). The UNESCO Global Geoparks initiative defines and supports unified geographical areas where sites and landscapes of international geological significance are managed with a holistic concept of protection, education and sustainable development. Two such UNESCO Global Geoparks exist already in Africa and are supported by the African Geopark Network. These are the Ngorongoro-Lengai Global Geopark in Tanzania and the M'Goun Global Geopark in Morocco.

But Africa is extremely rich in natural attractions, including geoheritage superlatives (compare IUGS Report on the International Geological Congress; IGC 35<sup>th</sup>. 2016, Cape Town, South Africa). The Geological Society of South Africa recently devoted some profits of IGC 35<sup>th</sup> to geoheritage initiatives and related projects in South Africa. Across Africa, many national and private initiatives exist, trying to boost the tourism industry and provide sustainable development and a source of income to the local population. They work to mitigate the collision of nature conservation with the interests of the local population and agriculture. Potential touristic attractions of geographic and biological nature, combined with recreational offers of sports, hiking, bathing, cultural heritage, and geology or mining sites of touristic and educational interest, are being identified and targeted by local authorities and private NGOs. Such sites of interest have many functions and organizational schemes: nature reservations, biosphere reservations, cultural reservations, geoparks, geological and/or cultural heritage sites, trails, etc., or a combination thereof and they experience different kinds of support on regional, national or even international level.

In November and December 2020, I have conducted a study on Geoparks and potential UNESCO Global Geoparks in Africa, for the German UNESCO Commission and Global Geoparks. It served as an initiative to establish close

relationships between the six German Global Geoparks and partners in Africa. My call to the GSAf, published in the GSAf Newsletter Vol 10/4, p.1-4; Dec. 2020 (<http://gsafr.org/newsletter/>) triggered a good response and call-outs during relevant UNESCO Global Geopark Webinars on Ngorongoro-Lengai and M'Goun found an echo from some African countries, mainly however, from Morocco, Egypt, Cameroon, Namibia, Ethiopia, South Africa, Kenya and others, including even the Comoros.

**The German Foreign Office and the German UNESCO Commission plans to provide funding for an international volunteer service for UNESCO Global Geoparks and aspiring geoparks, as well as UNESCO World Heritage Natural Sites of the "Global South", with a focus on Africa.**

A joint project of the Forum of the German UNESCO Global Geoparks with the "National GeoPark Thuringia Inselsberg - Drei Gleichen" (<https://www.geopark-thuringen.de/en/>), aims to support the development of German and African existing or planned geoparks, by establishing key competencies and mutual learning through the exchange of experience, and to promote the next generation of learners and professionals in conservation. Focus is on developing suitable formats for knowledge transfer and help in introduction and stabilization of organizational structures for potential and aspiring geoparks in Africa. This offer includes the training of staff and involvement of young people, school children and students from Africa and Germany. Due to the COVID-19 pandemic, the project has been slowed down in 2020 and is currently limited to virtual communication.

My feasibility study for the German partners screened as many initiatives in Africa as possible in the given short time and concentrated on numerous initiatives that were reported by colleagues from African countries or emerged from an extensive internet research. A questionnaire on African initiatives was developed and spread among about 40 colleagues and initiatives and introduced through the GSAf. The response by colleagues not addressed directly was however very scanty, perhaps reflecting the poor networking and information exchange outside of established channels. This unfortunately is typical of African network communication possibilities. Nevertheless, information on many sites of interest was asserted, e.g., Mosi-oa-Tunya / Victoria Falls (Zambia, Zimbabwe); Tassili n'Ajjerv (Algeria); Wadi Al-Hitan (Egypt); Virunga National Park (Democratic Republic of the Congo); Namib Sand Sea, Kgalagadi Park, (Botswana, South Africa); the Simien National Park, etc. (Ethiopia); Mount Kenya National Park/Natural Forest; Kenya Lake System in the Great Rift Valley; Lake Turkana National Parks (Kenya); Maloti-Drakensberg Park (Lesotho und South Africa); Table Mountain, Magalies- und Waterberge – Bushveld, Tswaing meteorite impact crater, Vredefort impact crater dome, etc. (South Africa); Mongo ma Ndemi (Mount Cameroon); Lake Malawi National Park (Malawi); Cliff of Bandiagara (Mali); Rwenzori Mountains National Park (Uganda); Okavango Delta – Moremi National Park (Botswana), etc. All of these sites offer excellent opportunities and many are already well developed as famous tourist destinations.

The criteria of my selection for final assessment were given by the needs to find a suitable and reliable, long term partnership and relatively progressed new initiatives that are already to some extent supported locally. It was important to emphasize that just as the African countries themselves are often underdeveloped, the geoparks, nature and national parks and the associated infrastructure are often not comparable with European standards. German experts cannot simply travel to Africa and immediately understand all the problems. Tribal culture, traditions or religious, political or legislative reasons must be taken into account as much as political and economic needs and obstacles. Likewise, it would be impossible and wrong to invite African representatives to Germany and say: "This is how it has to be done". Every country and every initiative will have idiosyncrasies that need to be understood in order to improve the situation. This was well exemplified by Dr Gabrielle Schneider from Namibia during the webinar "UNESCO Global Geopark Concept for Africa and the Arab States", emphasizing the difficulties Namibia faces for more than 20 years, to create a legal basis for geoparks. Prof. Asfawossen Asrat, from the University of Addis Ababa, member of the Global Geopark Council, emphasized: "... most initiatives are still ideas or at their initial stage of development .... They have to be changed into realities through geopark projects with the involvement of the local community and local authorities. What we do, is provide the academic basis (assessment of the geoheritage and geosites, which is the basis for initiating a geopark project) ...". Therefore, high expectations are often easily followed by profound disappointment.

Cooperation between the German and African geoparks requires therefore both sides to have a good understanding of the respective difficulties and problems. The state of initiatives and also the existing geoparks, UNESCO Global Geoparks and aspiring Geoparks in Africa is far from "satisfactory". My own experience e.g., in the Ngorongoro-Lengai and the Olduvai Gorge in Tanzania shows that conditions for tourism are far from satisfactory for an international audience. Such deficiencies and their background must be understood and recognized by the German partners in this cooperation.

My recommendations included a list of priorities which resulted from the criteria and conditions as discussed above and from already existing contacts between Germany and Africa in this respect. In my opinion, the project for the African Geopark Forum and networking deserves top priority and should definitely be supported. This was emphasized by many of my African contacts. In South Africa, Mr Alan Roxton Wiggill of Dinokeng JunXion in the Magaliesberge, north of Johannesburg or Pretoria ([www.dinokengjunxion.com](http://www.dinokengjunxion.com)) expressed a strong demand on a well-functioning exchange forum was advocated and supported by many of my other contacts. In some countries the way to an UNESCO GGN was viewed as too complicated and smaller initiatives or UNESCO World Heritage Sites seem currently the preferred way to go (e.g., [UNESCO WHS Barberton – Makhonjwa Mountains](#)).

Finally, I have given the highest priority with the biggest chance for success and the greatest benefits, to the cooperation with Morocco and South Africa, Kenya and Cameroon, Tanzania, Namibia, Egypt, Ethiopia and finally the Senegal; some of these countries being already in contact with the involved German geoparks. As a result of this recommendation, discussions between Dr Enas Ahmed from Egypt (member of the UNESCO Global Geopark Council) and some of the involved German geoparks developed. Dr Ahmed has made interesting proposals for new geoparks in Egypt and has taken the initiative to contact the German partners directly. In order to establish further contacts between African and European geopark activists, I propose that enthusiasts, supporters and representatives participate in the 28<sup>th</sup> "Colloquium on African Geology", of the Geological Society of Africa (October, 2021 in Fez, Morocco). This biennial African geoscientific conference hosts participants from all over the world and offers sessions on topics of geoheritage, geological education and geoparks, and several excursions will be offered at CAG28<sup>th</sup>.

## KNOW AFRICA (COVER STORY)

### Rhumsiki rock, Cameroon



Rhumsiki is a village in the Far North Province of Cameroon. Rhumsiki is located in the Mandara Mountains 55 km from Mokolo, and is located 3 km from the border with Michika LGA, Adamawa State, Nigeria. The village is similar to many others in northern Cameroon. The inhabitants, members of the Kapsiki ethnic group, live in small houses built from local stone and topped with thatched roofs; these homes are scattered throughout the village and surrounding valley. Nevertheless, Rhumsiki is one of Cameroon's most popular tourist attractions and "the most touristic place in northern Cameroon".

The attraction is the surrounding scenery. Gwanfogne, et al., describe it as "remarkable", Lonely Planet as "striking", Rough Guides as "breathtaking" and Bradt Guides as an "almost lunar landscape". Writer and explorer André Gide wrote that Rhumsiki's surroundings are "one of the most beautiful landscapes in the world." The spectacular effect is created by surrounding volcanic plugs (the remnants of long-dormant volcanoes), basalt outcroppings, and the Mandara Mountains. The largest (and most photographed) of these rocks is Kapsiki Peak, a plug standing 1,224 m tall.

Rhumsiki has adapted to the flow of tourists. Children in the village act as tour guides, showing visitors several pre-arranged attractions. Among these are craftspeople, such as blacksmiths, potters, spinners, and weavers; native dancers; and the féticheur, a fortune-teller who predicts the future based on a crab's manipulation of pieces of wood. Rhumsiki is now a standard item on most tourist itineraries, a fact of which the travel literature disapproves. Rough Guides describes Rhumsiki as "overrun" and "tainted by organized tourism", and Lonely Planet calls it "something of a tourist trap." The standard guided tour of the village leads The Rough Guide to doubt its authenticity: "The appeal of the visit is largely to get a taste of the 'real' Cameroon, and the built-in flaw is that the more people come, the more distorted and unreal life in the village becomes."

The Rhumsiki 'plug' is very obviously phallic and both traditionally (barren women making sacrifices at its foot) and in the modern world (selling the hotel as a honeymoon destination) this has been one of the main features of Rhumsiki.

(For the full article and references - Modified from <https://en.wikipedia.org/wiki/Rhumsiki>)

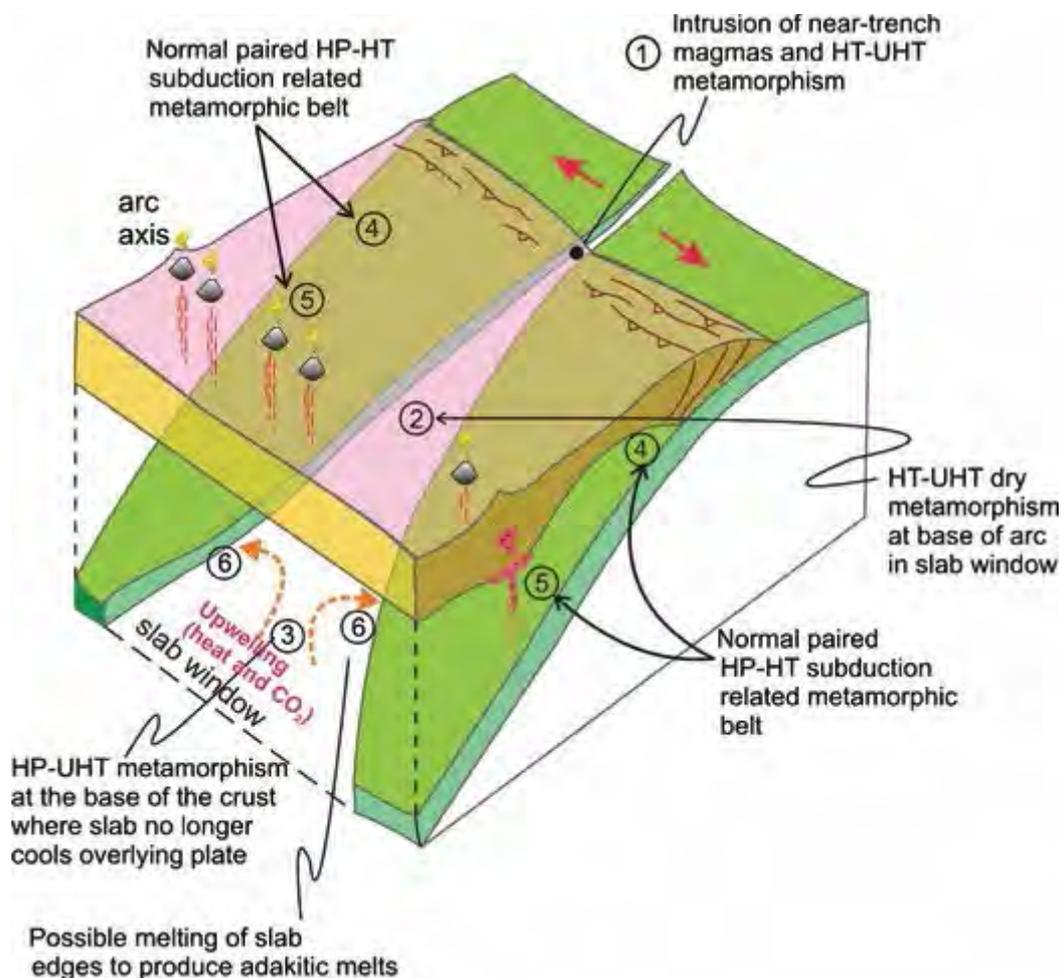
## GEOLOGY COMIC



# GEOLOGICAL EXPRESSIONS

## Slab window

A slab window is a gap that forms in a subducted oceanic plate when a mid-ocean ridge meets with a subduction zone and plate divergence at the ridge and convergence at the subduction zone continue, causing the ridge to be subducted. Formation of a slab window produces an area where the crust of the over-riding plate is lacking a rigid lithospheric mantle component and thus is exposed to hot asthenospheric mantle. This produces anomalous thermal, chemical and physical effects in the mantle that can dramatically change the over-riding plate by interrupting the established tectonic and magmatic regimes. In general, the data used to identify possible slab windows comes from seismic tomography and heat flow studies.



modified from [https://en.wikipedia.org/wiki/Slab\\_window](https://en.wikipedia.org/wiki/Slab_window)

The figure is from: Santosh and Kusky (2009) Origin of paired high pressure-ultrahigh-temperature orogens: A ridge subduction and slab window model. *Terra Nova* 22(1):35 – 42. DOI: 10.1111/j.1365-3121.2009.00914.x

# **Welcome to Fez, Morocco**

The 28<sup>th</sup> Colloquium of African Geology  
(CAG 28)

9<sup>th</sup>-17<sup>th</sup> October, 2021

Third circular

English version: <http://www.fsdmfes.ac.ma/CAG28/MDocs/files/CAG%2028%20Fez%20Third%20announcement%20I.pdf>

French version: <http://www.fsdmfes.ac.ma/CAG28/MDocs/files/CAG%2028%20Fez%20Troisieme%20Circulaire%20Fr.pdf>

## **Call for abstracts**

**You are invited to submit your abstract for oral or poster presentation at the Conference Centre of Fez University. Dates, modalities, procedures and guidelines are indicated in this announcement and in the conference website at:**

<http://www.fsdmfes.ac.ma/CAG28/Abstracts/Submission>

## **Call for papers: Special Issue of the Journal of African Earth Sciences**

A special issue of the Journal of African Earth Sciences (Elsevier) will be dedicated to the 28th Colloquium of African Geology. All the themes covered by the colloquium are concerned.

If you are interested in a special-issue JEAS publication, the submission deadline has been set for **October 30, 2021**, just after the CAG28. You will be able to send your manuscripts **from June 20, 2021**, the closing date for CAG 28 registration.

The provisional theme of the special issue is:

**“The growth of African Continental Crust through geological times. African cratons and their margins.”**

**This Special issue title is not restrictive in terms of topics and themes.**

In order to meet the requirements of the JEAS, **you are first asked to send us your intention of interest accompanied by the provisional title of your publication, the list of authors and their affiliation (s) and a short abstract ([cag28fez@gmail.com](mailto:cag28fez@gmail.com)).**

Please refer to the JEAS guidelines to prepare your manuscript from now at:

<https://www.elsevier.com/journals/journal-of-african-earth-sciences/1464-343x/guide-for-authors>

## **Appel à communications**

**Vous êtes invités à soumettre votre résumé pour une communication orale ou affichée au Centre de Conférence de l'Université de Fès. Les dates, les modalités et les procédures sont précisées dans cette circulaire et sur le site web du colloque à :**

<http://www.fsdmfes.ac.ma/CAG28/Abstracts/Submission>

## **Appel à Publications: Numéro spécial du Journal of African Earth Sciences**

Un numéro spécial du Journal of African Earth Sciences (Elsevier) sera dédié au 28ème colloque de Géologie Africaine. Tous les thèmes couverts par le congrès sont concernés.

Si vous êtes intéressés par une publication JEAS, la date de soumission a été fixée au **30 octobre 2021**, juste après le CAG28. Vous pourrez envoyer vos manuscrits finalisés à partir **du 20 juin 2021**, date de clôture des inscriptions au CAG28.

Cependant, vous êtes priés dans un premier temps, pour satisfaire aux exigences du JEAS, **de nous faire parvenir votre intention d'intérêt accompagnée du titre provisoire de votre publication, de la liste des auteurs et leur affiliation (s) et d'un court résumé à l'adresse e-mail du colloque [cag28fez@gmail.com](mailto:cag28fez@gmail.com).**

Référez-vous aux instructions du journal à l'adresse suivante pour la préparation des manuscrits :

<https://www.elsevier.com/journals/journal-of-african-earth-sciences/1464-343x/guide-for-authors>

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Le Journal of African Earth Sciences (JEAS) est le journal officiel de la Société Géologie d’Afrique (GSAf). Nous sommes associés par un protocole d’entente dument signé (MoU, convention) dont les objectifs sont l’encouragement et l’aide aux géoscientifiques africains pour publier et mettre en valeur leurs recherches dans un journal scientifique de haut niveau international. Par le passé, plusieurs numéros spéciaux ont pu être consacrés à différentes manifestations scientifiques, à titre indicatif, on peut citer : (CAG 17, El Jadida; CAG 24, Addis-Ababa; 3MA, Fez 2007 ; 3MA, Agadir 2015 ; AAWG3, 2009 ; ICG1, 2019...).

Nous retenons, pour le moment, comme thématique globale pour ce numéro, le titre suivant :

**“The growth of African Continental Crust through geological times. African Cratons and their margins”.**

**Ce titre ne restreint pas les thèmes et les sujets à proposer dans les articles. Tous les thèmes du programme seront concernés.**

## News from GSAf partners



The Geological Society of South Africa organizes several seminars and workshops in order to increase the competencies of African geoscientists. The following table shows some of these events organized during the following months. A full list of these activities is presented at the GSAf website (<http://gsafr.org/seminars/>).

Thu Apr 22, 2021 10am - 11am	Overberg Geoscientists & Mike Watkeys
Thu Apr 29, 2021 10am - 11am	Overberg Geoscientists & Tony Boniface
Fri May 7, 2021 10am - 11am	Overberg Geoscientists & John Bristow & David Mourant
Tue May 11, 2021 8am - 12:30pm	Foundations for a Geological Career - Day 1
Fri May 14, 2021 10am - 11am	Overberg Geoscientists & John Blaine
Tue May 18, 2021 8am - 12:30pm 10am - 12pm	Foundations for a Geological Career - Day 2 Zambia Geological Society - Colin Rice Drilling Course
Fri May 21, 2021 10am - 11am	Overberg Geoscientists & Cameron Penn-Clarke
Tue May 25, 2021 8am - 12:30pm 10am - 12pm	Foundations for a Geological Career - Day 3 Zambia Geological Society - Colin Rice Drilling Course

- Fri May 28, 2021  
 10am - 11am Overberg Geoscientists & Hayley Cawthra  
 1pm - 2pm Roskill talks about critical materials and the role of South Africa
- Tue Jun 1, 2021  
 8am - 12:30pm Foundations for a Geological Career - Day 4  
 10am - 12pm Zambia Geological Society - Colin Rice Drilling Course
- Thu Jun 3, 2021  
 10am - 11am Overberg Geoscientists & Wendy Taylor
- Tue Jun 8, 2021  
 8am - 12:30pm Foundations for a Geological Career - Day 5  
 10am - 12pm Zambia Geological Society - Colin Rice Drilling Course

## News from GSAf partners



The GSAf council congratulates Prof. Hassina Mouri (Department of Geology, University of Johannesburg) to be the first African female to join the executive committee of IUGS as vice president.

Hassina Mouri, a Professor in Medical Geology at the University of Johannesburg, became the first African female elected as the Vice President (2020-2024) for the International Union of Geological Sciences (IUGS), one of the world's largest scientific organisations on Friday, 30 October 2020.

Founded in 1961, with members representing over a million geoscientists, IUGS promotes and encourages international co-operation and participation in the study of geological problems, especially those of worldwide significance. It also supports and facilitates international and interdisciplinary cooperation in the Earth sciences.

Says Prof Mouri: "I would like to take this opportunity to extend my sincere gratitude for the confidence that the National Research Foundation (NRF) of South Africa had in me to nominate me for this prestigious position and to all council members who supported my nomination. This position, together with my most recent appointment by UNESCO for the position of council member of the International Geoscience

Programme (#IGCP), are equally important for African geoscience. It is a privilege and an honour and I look forward to contribute to both organisations and the future of earth sciences in Africa and globally.”

As a South African, born in Algeria, Prof Mouri has an internationally recognized educational background. She studied and worked in different institutions on three continents (Africa, Europe and America).

Before joining the University of Johannesburg, Prof Mouri's name has been associated with the University Paris; the Museum National d'Histoire Naturel Paris (MNHN); the University of Helsinki; the Geological Survey of Finland; the Swedish Museum of Natural History; the University of Minnesota and the University of Pretoria.



**Prof Hassina Mouri**

She has developed an interest in medical geology since 2013 with a focus on issues related to the African continent, presented her work at several international conferences, and published in several international journals.

Prof Mouri is the former chairperson of the South African National Committee for the IUGS (2017-2020) and a member of the advisory board of the South African Journal Of Science (SAJS).

During the extraordinary session of the council meeting held from the 28 to 30 October 2020, Prof. Mouri received the highest percentage of votes (38%) from the IUGS' council members. The First Runner-up who is the second elected Vice President is from Korea with 27% votes. The competition was quite rigorous given the status of the other candidates representing some of the most powerful members of the union including Russia and China.

## Contributions from GSAf partners



### **Geoethics: an international statement for the geoscience community**

Text provided by: Giuseppe Di Capua

Italian Institute of Geophysics and Volcanology, Rome, Italy; IAPG – International Association for Promoting Geoethics

The interest by geoscientists in geoethical aspects of geoscience knowledge, education, research, practice and communication has grown considerably in the last ten years. Today the topic of geoethics has gained significant visibility within the scientific community. The IAPG – International Association for Promoting Geoethics (<https://www.geoethics.org>), founded in 2012 at the 34th International Geological Congress in Brisbane (Australia), has worked to widen the discussion and create awareness about issues of ethics as applied to the geosciences. Thanks to continuous voluntary work, the respectful exchange, and fruitful sharing of ideas, the IAPG community has produced a solid conceptual substratum on which to base the future development of geoethics, by clarifying the meaning of the word “geoethics”, formalizing its definition, and better identifying a framework of reference values on which the geoscience community can base more effective codes of conduct and guidance. The members of the IAPG community have published various books and articles in peer-reviewed international journals, and organized numerous scientific sessions to bring geoethics to the most important geoscience conferences, such as EGU and AGU. Geoethical issues have been also included in scientific projects. The tangible result of these efforts is that, now, many prestigious geoscience organizations recognize geoethics as a fundamental issue, worthy of attention. In 2016, at the 35th IGC in Cape Town (South Africa) it was marked a new milestone for geoethics: the “Cape Town Statement on Geoethics” was tabled by the IAPG and reviewed in an international effort. This document focuses the attention of geoscientists on the development of shared values, policies, guidelines, strategies and tools, with the long-range goal of fostering the regular adoption of ethical values and practices within the geoscience community. The document summarizes the definition, values, concepts, and contents of geoethics, providing a perspective for the future development of geoethical thinking. It contains the “Geoethical Promise” an Hippocratic-like oath for geoscientists. Currently the “Cape Town Statement on

Geoethics” is officially supported by 27 geoscience organizations (among them the GSAf) and is translated in 35 languages.

**The Cape Town Statement on Geoethics can be cited as follows:**

Di Capua G., Peppoloni S. and Bobrowsky P.T. (2017). The Cape Town Statement on Geoethics. *Annals of Geophysics*, Vol. 60, Fast Track 7, doi: 10.4401/ag-7553

The IAPG publication that collects the Cape Town Statement in 35 languages is for free download, and can be cited as follows:

Peppoloni Silvia (ed.) (2018). Spreading geoethics through the languages of the world. Translations of the Cape Town Statement on Geoethics. International Association for Promoting Geoethics (IAPG), <http://www.geoethics.org/ctsg>

## **CAPE TOWN STATEMENT ON GEOETHICS**

### **Preamble**

The concepts, values and views on individual responsibilities of geoscientists, expressed in the “Cape Town Statement on Geoethics” reflect an international consensus. The statement aims to capture the attention of geoscientists and organisations, and to stimulate them to improve their shared policies, guidelines, strategies and tools to ensure they consciously embrace (geo)ethical professional conduct in their work.

### **Introduction**

Geosciences have major impacts on the functioning and knowledge-base of modern societies. Geoscientists have specific knowledge and skills, which are required to investigate, manage and intervene in various components of the Earth system to support human life and well-being, to defend people against geohazards and to ensure natural resources are managed and used sustainably. This entails ethical obligations. Therefore, geoscientists must embrace ethical values in order best to serve the public good.

Geoethics is an emerging subject, which promotes a way of thinking and practicing geosciences, within the wider context of the roles of geoscientists interacting with colleagues, society and the planet.

Only by guaranteeing the intellectual freedom of researchers and practitioners to explore and discover in the Earth system, is it possible for geoscientists to follow ethical approaches in their work. Likewise, only by increasing researchers’ and practitioners’ awareness of the ethical implications of their work is it possible to develop excellent geoscience to serve society and to reduce the human impact on the environment.

### **Definition of Geoethics**

Geoethics consists of research and reflection on the values which underpin appropriate behaviours and practices, wherever human activities interact with the Earth system.

Geoethics deals with the ethical, social and cultural implications of geosciences knowledge, education, research, practice and communication, and with the social role and responsibility of geoscientists in conducting their activities.

## **Purpose**

Embracing geoethics is essential: to improve both the quality of professional work and the credibility of geoscientists, to foster excellence in geosciences, to assure sustainable benefits for communities, as well as to protect local and global environments; all with the aim of creating and maintaining the conditions for the healthy and prosperous development of future generations.

## **Fundamental Values of Geoethics**

- Honesty, integrity, transparency and reliability of the geoscientist, including strict adherence to scientific methods;
- Competence, including regular training and life-long learning;
- Sharing knowledge at all levels as a valuable activity, which implies communicating science and results, while taking into account intrinsic limitations such as probabilities and uncertainties;
- Verifying the sources of information and data, and applying objective, unbiased peer-review processes to technical and scientific publications;
- Working with a spirit of cooperation and reciprocity, which involves understanding and respect for different ideas and hypotheses;
- Respecting natural processes and phenomena, where possible, when planning and implementing interventions in the environment;
- Protecting geodiversity as an essential aspect of the development of life and biodiversity, cultural and social diversity, and the sustainable development of communities;
- Enhancing geoheritage, which brings together scientific and cultural factors that have intrinsic social and economic value, to strengthen the sense of belonging of people for their environment;
- Ensuring sustainability of economic and social activities in order to assure future generations' supply of energy and other natural resources.
- Promoting geo-education and outreach for all, to further sustainable economic development, geohazard prevention and mitigation, environmental protection, and increased societal resilience and well-being.

## **Geoethical Promise**

The adoption of the following Hippocratic-like oath (the "Geoethical Promise") by early-career geoscientists is proposed, to promote respect for geoethics values in geoscience research and practice:

I promise...

... I will practice geosciences being fully aware of the societal implications, and I will do my best for the protection of the Earth system for the benefit of humankind.

... I understand my responsibilities towards society, future generations and the Earth for sustainable development.

... I will put the interest of society foremost in my work.

... I will never misuse my geoscience knowledge, resisting constraint or coercion.

... I will always be ready to provide my professional assistance when needed, and will be impartial in making my expertise available to decision makers.

... I will continue lifelong development of my geoscientific knowledge.

... I will always maintain intellectual honesty in my work, being aware of the limits of my competencies and skills.

... I will act to foster progress in the geosciences, the sharing of geoscientific knowledge, and the dissemination of the geoethical approach.

... I will always be fully respectful of Earth processes in my work as a geoscientist.

I promise!

### **Final Statement**

It is essential to enrich the roles and responsibilities of geoscientists towards communities and the environments in which they dwell, as well as paying attention to each scientist's individual conscience and relationships with colleagues. Human communities will face great environmental challenges in the future. Geoscientists have know-how that is essential to orientate societies towards more sustainable practices in our conscious interactions with the Earth system. Applying a wider knowledge-base than natural sciences, geoscientists need to take multidisciplinary approaches to economic and environmental problems, embracing (geo)ethical and social perspectives. Geoscientists are primarily at the service of society. This is the deeper purpose of their activity.

In the coming years, especially when addressing matters like energy supply, use of geo-resources, land management, pollution abatement, mitigation of geo-risks, and climate change adaptation and mitigation, ethical and social issues will be central in scientific discussion and in public debate. In addition, handling large quantities of data, science and risk communication, education strategies, issues of research integrity, anti-harassment and anti-discrimination policies, gender balance and inclusion of those living with disabilities will be major topics for geoscientists.

Raising the (geo)ethical awareness and competences of the members of the geoscience community is essential, also to increase trust and credibility among the public. This can best be achieved in the near future by two means: by promoting more effectively existing guidance such as codes of ethics/conduct and research integrity statements; and by introducing geoethics into geoscience curricula, to make geoethics a basic feature of the training and professional activity of geoscientists.

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The Cape Town Statement on Geoethics was prepared during the 35th IGC – International Geological Congress in Cape Town, South Africa (27 August – 4 September 2016).

Drafting Committee: Giuseppe Di Capua, Silvia Peppoloni, Peter Bobrowsky.

With the contribution of: Nic Bilham, Martin Bohle, Andy Clay, Emilia Hermelinda Lopera Parejas, David Mogk.

Approved by the IAPG Executive Council on 26th October 2016.

# Contributions from geoscientists

## Acknowledgment

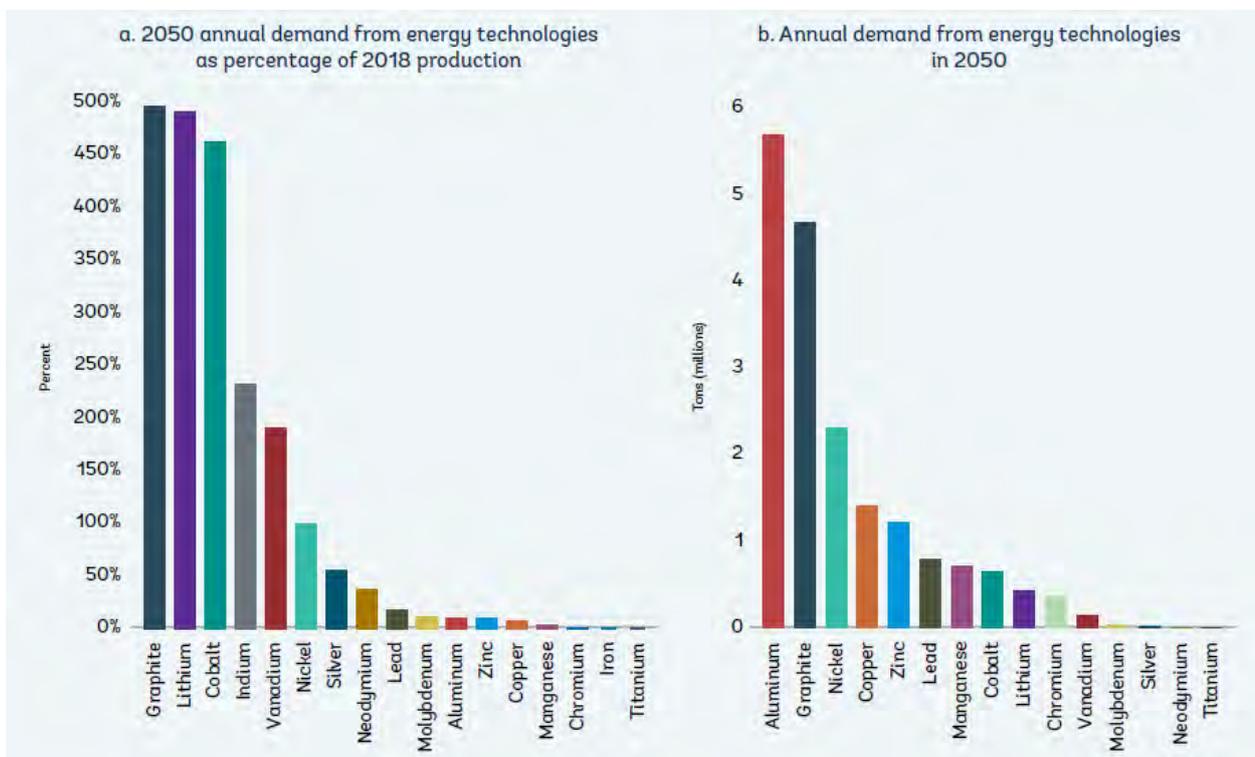
The editor thanks to all the members of the GSAf who contributed to the "Contributions from geoscientists" section. An especial thank goes to members of the GSAf council who helped to get these articles. The editor thanks Anna- Karren Nguno (Councillor for Southern Africa) for reaching out to our members to get contributions from them. The council hopes to see more contributions from society's followers.

## Mineral resources and the journey towards Africa's industrialization

By: Mary Barton

[mary.hikumuah@gmail.com](mailto:mary.hikumuah@gmail.com)

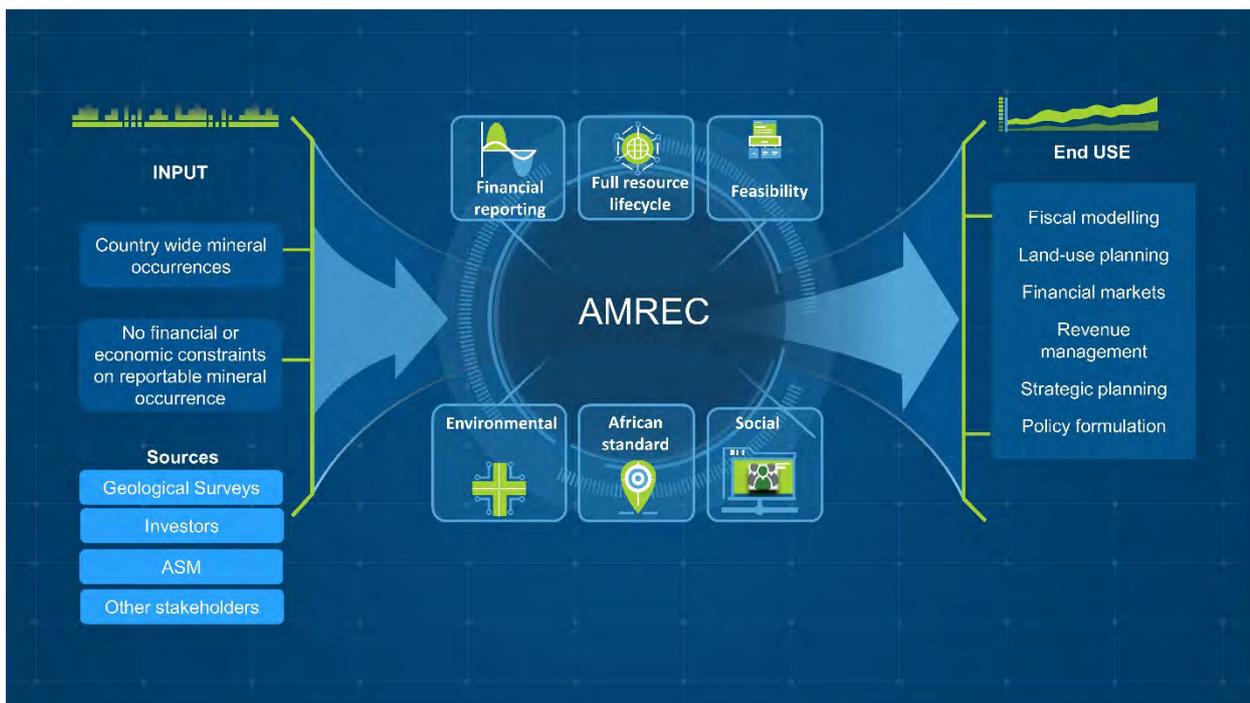
The race to reduce carbon emissions and transform into a greener economy requires more mining. Increased mineral production for climate action may prove counter-intuitive. The June 2020 World Bank report "Minerals for Climate Action: The Mineral Intensity of the Clean Energy Transition" found that the green energy transition will require a wide range of minerals in large quantities. This demand will drive an unprecedented rush in mineral exploration and subsequent development and production. The report predicts that the production of some minerals could increase by close to 500% by 2050. Such production levels will once again place the spotlight on Africa's vast resources. However, the impending mineral-intensive era will magnify issues that currently plague the continent. Such issues include illicit financial flows, lack of industrialization and high poverty rates. But if managed differently, there will be a real opportunity for Africa to achieve a positive outcome.



Graph showing a) projected 2050 annual demand for various minerals from energy technologies as a percentage of 2018 production and b) projected annual demand for various minerals from energy technologies in 2050. (source: World Bank, 2020)

Despite the intense mineral exploration that takes place on the continent, African states still lack a complete picture of their mineral endowments. This can partially be attributed to the fact that resource classification and knowledge systems have been geared towards meeting the short-term economic needs of the investment and financial stakeholders. The absence of mineral inventories that could be tapped on over the long term has made revenue management, policy structuring and strategic planning difficult for many states. African states must embark on a systematic classification of their resources so that they can better plan and manage their role in the green energy transition.

Under the overarching umbrella of the Africa Mining Vision, the Africa Mineral Development Centre (AMDC) has developed a United Nations Framework Classification–based African Mineral and Energy Resources Classification and Management System (AMREC). AMREC incorporates both the social and environmental viability of mining projects. This system opens up a route towards green industrialization for African states.



Overview of the AMREC inputs and potential end-use themes

African states will have an opportunity to take a different approach to mineral social-environmental economics and project viability with the help of the mineral inventory information. African policies for the mining sector tend to be geared towards generating revenue (fiscal and investment), with little to no meaningful focus on sustainable development and industrialization. If Africa is to develop itself truly, the mining industry must play a central role in supplying the continent's raw material. States need to start developing policies and activities that are geared towards developing the infrastructure, skills, raw material supply and services needed for industrialization.

On the financial markets, investment decisions are driven only by the portion of the resource that is known to be economically recoverable in the short-term, i.e. the reserve. Reserves depend on factors such as technology, government regulations, the prices of substitute minerals and, most importantly, costs and commodity prices. Additionally, the value of a mineral asset is determined by looking at its estimated future financial performance and breaking it down into major financial components: capital costs, revenue, operating costs, other project costs, depreciation, fiscal components and cash flow. Deciding whether to invest in a mining project is therefore complicated, as many of these financial components are uncertain and thus create a certain level of risk, which impacts the value of the project. For many investors, this valuation is geared towards investment recoupment, as soon as possible, once production commences.

For governments, which are further looking than the industry, an avenue exists to develop resources that would be considered uneconomic today by the financial markets. In this scenario, the valuation of a project would be based on the benefits achieved from the end-use product, rather than on production alone. For example, a country with abundant

sunlight that wants to transition to solar photovoltaic energy could start assessing its mineral potential for the raw materials needed as input for that transition to occur. The value of those mineral projects would then be the value of future cash flows (or other benefits) from the solar photovoltaic project or the end-use of the solar energy produced, and the significant risks (operating cost and commodity price) could be considered as diversified away by the downstream activities. Similar could be taken for many other economic activities such as manufacturing, infrastructure or health care, to name a few.

None of this will be easy, and success will depend on competencies, good governance, good institutions and political will. What remains true is this: no industrialization can happen without energy and mineral resources. Africa, therefore, needs to know what it has, where it wants to go and how it can use its assets to get to the goal.

## A Geoscience Museum that matters in Namibia

By: Helke Mocke,  
Geological Survey of Namibia

In 2019 Namibia's population stood at 2.5 million ([www.worldbank.org](http://www.worldbank.org)) and according to the Annual Report of 2019 of the Namibia Chamber of Mines, mining contributed 9.3 % to the country's GDP in 2019 (<https://chamberofmines.org.na/annual-reviews/>). With mining playing such a huge role in Namibia, it is no wonder that research and knowledge of geosciences are so crucial. But how can the country explain the value of geosciences to the average Namibian, so that they can understand that "geology does underlie everything"? The slogan "Geology underlies everything" is being used by the Geological Society of Namibia to explain how important geosciences are in our everyday lives.

Geoscientists working for the Geological Survey of Namibia have been doing outreach activities for years, many of which have been face to face, over national television or radio, and the survey has the National Earth Science Museum which showcases Namibia's geoscience treasures in simple, easy to understand displays.

The museum has been in existence since 1995 and is a great attraction for many schools and universities across the country as well as tourists. Tours are being offered upon request and can last half an hour up to 2 hours, depending on the time available to visitors as well as the age group. Most of the exhibits are within trapezoid-shaped display cabinets.

Each cabinet exhibits several items such as rocks, minerals, and fossils, or small replicas, old mining equipment, landscapes and models, as well as information boards with simplified explanations on the topic. Some displays emphasize how geology plays an important role in our daily lives, for example by showing examples of certain household products in our kitchens and bathrooms, and the minerals that are used to produce these.



Display showing the application of geoscience in the kitchen.

In 2013 the museum launched two interactive displays, a dinosaur digging pit and an electronic earthquake, to make the museum more attractive to younger visitors. The dinosaur dig allows visitors to find dinosaur bones, realistic replicas made by an artist, in a pit with recycled plastic beads that imitate sediment. This allows the person to act out the fantasy of being a real palaeontologist hunting and excavating fossils. The electronic earthquake has two plates with a natural-looking landscape that includes rivers that move past each other when a button is pressed, showing how an earthquake can disrupt the direction of a natural river. The interactive displays are a big hit with the children and they had a huge impact on reviving the popularity of the museum, especially with the young visitors.



Children looking for dinosaur fossils in the dino dig.

The museum manager has noticed that when visitors do come to the museum they just want to enjoy their visit with as little effort as possible. Too much-written text in a display does not draw the attention of the viewer, but items, photos and graphs do. Therefore, if one can bring across information on geosciences in simple, easy-to-understand ways using striking photos, graphs, geoscience items and interactive displays, non-geoscientists are more likely to grasp the concepts and ideas we are trying to convey. The main issue is also that people are not drawn to information that is conveyed in scientific jargon that is difficult to understand.

Another great idea that never goes out of fashion is the hands-on experience, which is one of the popular activities in our museum especially when special tours are given to school groups.

Over the last ten years, the National Earth Science Museum has been providing special activities to school groups, like experiments that explain the properties of rocks, minerals and meteorites. We have even had debates on climate change, an art competition and for the pre-primary kids, we provide "touch a fossil and weight a meteorite" activities when they visit the museum.

The museum is not only an educational and awareness creation tool for the survey but also serves as a safe house for collections of various mineral, rock, meteorite and fossil specimens that are found throughout Namibia.



Children touching a meteorite.



Professor Patricia Vickers-Rich with her student Len Kriesfeld studying Ediacara fossils in the collections.

Many researchers find their way to these collections, adding to the research that shapes our understanding of these geoscience treasures. In addition museum staff that has been trained in especially the field of palaeontology, also contributes to this research, while experience gained in the field and through collaborations has contributed more knowledge on minerals to the scientific and non-scientific world.

Our museum also plays a training and benchmarking role. Museum managers bring student interns and newly appointed staff to the museum to show them how items can be displayed and information conveyed. Operating companies and managers often bring their tour guides to our museum to train them on various geoscience topics, which results in them being able to provide higher quality tours to tourists visiting our beautiful country. Various institutions that are planning to develop their museums have visited our museum as a benchmarking exercise. This shows us that other institutions appreciate and see the museum as a good example of how to create a small museum with a high impact on its visitors.

To conclude, this does not mean we stop improving, but we continuously strive to come up with new ideas, add new information and materials, and learn what our visitors expect to see the next time they pay us a visit.

## Geoheritage, Geoparks and Geotourism

### The New Geotourism reference book released in 2021

A contribution by Bahram N. Sadry



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Editor note: This article will appear in three parts. This is part 1 of the article. This part includes a book review by Thomas A. Hose.

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“In the 21st century, as the destinations are expanding vertically and horizontally (in both developed and developing countries), environmental protection and conservation need to be advancing vertically and horizontally and the need for recognition of abiotic nature in tourism sustainable development and its influence on life and growth on Earth is a must.” (Sadry, 2021)

Geotourism provision essentially allows travelers (or geotourists) to acquire knowledge and understanding of a destination’s Earth history, geological elements and landscapes. Indeed, across most of the world geotourism has long been considered a geologically focused form of tourism. Perhaps, surprisingly, its antecedents can be traced back to at least the seventeenth century. By promoting and imparting something of the wonder of geo-scientific inquiry and its outputs geotourism can engender amongst its participants sufficient empathy to motivate their support for the protection and conservation of geodiversity and geoheritage – that is, ‘geoconservation’. Both modern geotourism and geoconservation, alongside practitioner reportage, have from the early 1990s attracted academic study and consequently evolving managerial and theoretical underpinnings.

The seminal 1995 geotourism definition, published in Environmental Interpretation magazine, following further research and reflection, was subsequently revised several times by its author. That author has freely acknowledged that others - particularly in Australia, China and Europe - had either mentioned ‘tourism geology’ or something similar but had generally not indicated any specific meaning of their terms; their mentions with the associated studies really helped to lay the groundwork for modern geotourism’s widespread acceptance as a new paradigm.

# The GEOTOURISM INDUSTRY in the 21<sup>st</sup> CENTURY

*The Origin, Principles, and  
Futuristic Approach*



Editor **Bahram Nekouie Sadry**

 **CRC Press**  
Taylor & Francis Group  
APPLE ACADEMIC PRESS

Foreword 1 of the newest geotourism reference book in 2021: *The Geotourism Industry in the 21st Century-The Origin, Principles, and Futuristic Approach* by Dr Thomas A. Hose, (Honorary Research Associate, School of Earth Sciences; University of Bristol; UK and the father of geotourism in the modern era)

The first dedicated national geotourism conference, *Tourism in Geological Landscapes*, was held in Belfast at the Ulster Museum in 1998. The Inaugural Global Geotourism Conference, much practitioner-focused, was held only a decade ago in Fremantle, Australia. The first international conference on the history of geotourism, *The Appreciating Physical Landscapes: Geotourism 1670-1970* conference, was held in London at the Geological Society as recently as 2012. Meanwhile, The First International Conference on Geoparks was held in Beijing in 2004.

The emergence of modern geotourism and the provision of geosites and geomorphosites interpreted for tourists both predate, by at least a couple of decades, the designation of the first geoparks; the latter can be standalone ensembles of geosites and geomorphosites or part of some national or international designation. The first geoparks were established in Europe in 2000. Significantly, UNESCO's original Geoparks Programme Feasibility Study report of that year included the seminal geotourism definition and its major concepts. Formal designation as a member of the Global UNESCO Network of Geoparks network has been available since 2004. Whilst geoparks were initially a European development, it is in Asia that they have particularly expanded in numbers and popularity. For example, the People's Republic of China has more than a quarter (31 of 111) and the region had over a third (39 of 111) of the UNESCO Global Geoparks designated by the mid-2010s; additionally, that country had by then designated 185, and recognized another potential 56 National Geoparks. Geoparks have done much, and more significantly than any other single initiative, to promote and develop geology-based tourism. Indeed, to maintain their UNESCO geopark membership, they must offer interpretative services. Probably the greatest contribution of geoparks is their requirement to engage with the broader, especially local and business, than just the Earth science communities. They are one of the success stories of twenty-first-century sustainable tourism, something for which their proponents are to be congratulated.

Modern geotourism provision meets geotourists' needs by encouraging them to visit localities with spectacular or readily appreciated, and usually (on-site and/or off-site) interpreted geological/geomorphological features. These features are often more readily, at least in the marked seasonal climates of Europe and North America, seen outside of the major vegetation growth period; hence, potentially it can extend the tourism season in some coastal and upland areas. Of course, the appreciation of physical landscapes and the extraction of their mineral resources has been a pragmatic human activity, long before the recognition and practice of geotourism, especially for the purposes of agriculture, construction and metallurgy; evidence for this can be found in both the archaeological and historical records.

The breadth of geotourism's encompass is clear from the preceding paragraphs. They suggest that any attempt to summarise this breadth of geoscience and its tourism component in a single book is a major and challenging undertaking.

The book chapters of this book are spread across five sections covering geotourism's concepts, assessment, interpretative provision, geoparks, and its global future. These chapters have been contributed by an international assemblage of 35 authors, each contributing from their perspectives and experiences. The various authors explore the spectrum of modern geotourism provision, practice, and development. The range of topics covered ranges from urban tourism to the world's best geosites and from mining geoheritage to geotrails and interpretative writing. The included case studies, geographically spread from Albania to the Azores and the Americas to Japan, indicate the variety and wide distribution, geographically and by type, of modern geotourism provision. The diversity of views expressed in these chapters challenges readers to engage in studies to further understanding and disseminating geotourism beyond its current strongholds.

This book is a timely contribution to studies on the status and practice of modern geotourism. Its publication would not have been realized without the personal vision, wide connections, organizational skills and perseverance of the Editor, Bahram Nekouie Sadry. Fellow students of geotourism and the wider readership of geography and tourism specialists owe him, for this sterling effort, a considerable debt of gratitude - one which I am most happy to wholeheartedly express. As Bahram suggests in the book's opening sentence "Geotourism is an emerging and promising field for enjoyable and meaningful experiences in contemporary tourism." Similarly, this book is an enjoyable read and will add understanding and meaning to its readers' own geotourism experiences!

Thomas A. Hose,

March 2019

Reference:

Sadry, B.N. (Ed.) (2021) *The Geotourism Industry in the 21st Century: The Origin, Principles, and Futuristic Approach*; Florida: Apple Academic Press.

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About the Author: Bahram N. Sadry is the editor of a newest geotourism reference book: *The Geotourism Industry in the 21st Century-The Origin, Principles, and Futuristic Approach*. He is a member of ProGeo since 2009 and a member of Geomorphosites working group since 2009. Sadry is the executive manager of the first geo-tourguide training courses in Iran (2014)

Announcement of an event:

**Celebrating the life and legacy of Dr. Eric. C.  
Grimm: Africa region**

# Celebrating the life and legacy of Dr. Eric. C. Grimm: Africa region

When: Wednesday 28 April 2021 (13:00-17:00 UTC). Where: Zoom (link below).

Full event details: <https://sites.google.com/view/ericgrimm/home> Twitter hashtag: #Eric24h

13:00-13:05 – Introduction and organizational notes

Sarah Ivory (Penn State University, USA) & William Gosling (University of Amsterdam, The Netherlands)

13:05-13:20 – Overview of Eric's contributions in Africa

Anne-Marie Lézine (CNRS-LOCEAN, France)

13:20-13:35 – Application of historical ecology as tool to

**determine human impact on highland forests during different socio-political regimes- Study case Keriita**

Rahab Kinyanjui (National Museums of Kenya, Kenya)

13:35-13:50 – Knowledge through harmony: Using R tools to harmonize pollen taxa and streamline

**applications of African Pollen Database data to paleoecological problems**

Chris Kiahtipes (University of South Florida, USA)

Break

14:00-14:15 – Precessional variability in the vegetation of the Greater Cape Floristic Region

Lydie Dupont (University of Bremen, Germany)

14:15-14:30 – Multi-proxy evidence of changing vegetation and human livelihoods in response to the last millennium aridification in semi-arid Madagascar

Estelle Razanatsoa (University of Cape Town, South Africa)

14:30-14:45 – Personal stories

Break

15:00-15:15 – Looking back – Holocene vegetation dynamics from two Kenyan landscapes

Esther Githumbi (University of Lund, Sweden)

15:15-15:30 – From the descriptive to the interpretative: Decades of research supported by the African Pollen Database

Robert Marchant (University of York, UK)

15:30-15:45 – Interpretation of scarce fossil pollen assemblages in drylands of Southern Africa

Louis Scott (University of Free State, South Africa)

15:45-close – Informal toast to Eric

Break

16:00-16:45 - Post-meeting Neotoma Data Steward meeting and workshop

Zoom details: Meeting ID: 992 3431 7677; Passcode: 649208

<https://uwmadison.zoom.us/j/99234317677?pwd=RnpPbFJBUHo3SVFRN0IxQ1VYVFRZz09>



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