International Union of Geological Sciences
IUGS E-Bulletin No. 122 — July 2016

News at a Glance

IUGS BUSINESS MEETING IN CAPE TOWN

The 35th International Geological Congress is approaching. Cape Town, South Africa, will be the venue for this important geological conference from August 28 to September 3, 2016. Earth scientists from all continents will meet in Cape Town to exchange geological information and knowledge.

In addition to hard scientific and technological work, a number of relevant business meetings dealing with the activity of research, professional and management associations and group will take place during the 35th IGC.

The International Union of Geological Sciences (IUGS) and the International Geological Congress (IGC), the two organizations responsible for the conference, will hold several important business meetings starting on 25 August. A summary of the programmed meetings is as follows:

25 August – IUGS Bureau Meeting, in which the President, Secretary General, Treasurer, Vice Presidents, and members of the Secretariat of the Union will participate.

26-27 August – IUGS Executive Committee Meeting. Participants in the 2 day meeting are the EC members plus the chairs of the Publication, Finance and Nominating Committees. Members of the IGC Committee will be invited to attend specific items of the meeting agenda.

28 August – The IGC Committee, formed of the Chair and Secretary General of the 35th IGC plus the Chairs of previous congresses – the Chair of the 36th IGC is invited - and the IUGS Bureau, will meet to discuss organizational aspects of the 35th IGC and, importantly, to receive representatives of the bidding delegations for the 37th IGC, 2024. Four bids will be evaluated: Berlin (Germany), Busan (Korea), Istanbul (Turkey) and Saint Petersburg (Russia). Discussion by the IGCC members

about the bid presentation will be a base for the address of the IGCC Chair to the Council before voting on the venues.

29 August – Reception of the representatives of the IUGS bodies (Commissions, Committees, Initiatives, Task Groups, Adhering Organizations, EC), IGCC and LOC, and other invitees). IUGS awards will be presented during the reception, supplementing the prestigious Emile Argand Award which will be presented during the Opening Ceremony of the 35th IGC.

30 August – Meeting of IUGS officers with Affiliated Organizations.

31 August–1 September – Meeting of the IUGS-IGC Council. This meeting is the highest level event of the Union. The Council (see composition in Art. 24 of the IUGS Statutes) is informed by the Governing Officers as well as the Chairs of the IUGS bodies on the activities of the Union during the past 4 years. The Council approves or rejects the reports, amends statutes, and elects the new Executive Committee. Moreover, the Council will also select the venue for the 37th IGC to be held in 2024. The 36thth IGC will be held in Delhi, 2020; an Inter-Congress Conference focused on Resources for Future Generations (RFG2018) is currently being organized in Vancouver, Canada.

On September 1, the IUGS Committee will meet for a second time to analyze and take forward the decisions taken by the Council.

2 September – Handover meeting of the Executive Committee. The new Executive elected by the Council will begin governing our Union for the period 2016-2020.

IUGS-IGC COUNCIL PROCEDURES

The following instructions follow those of the International Council for Sciences (ICSU) and are abstracted from Robert's Rules of Order

Motion: A subject to be acted upon comes to the body as a "Motion". The motion must be made and seconded.

Procedure

1. The Chair calls for a motion for an action
2. Someone says "I move that…."
3. Someone else says: I second the motion

Discussion: Each person who wishes to discuss the motion can do so after recognition by the Chair and speak **one time only for a maximum of one minute.**

Amendment: An amendment must also be moved and seconded, discussed and voted.

Procedure

1. To make an amendment, one says, "I would like to amend the motion…", or "I would like to offer an amendment to the motion to state…"
2. Someone else says: "I second the amendment"

Discussion: Each person who wishes to discuss the amendment can do so after recognition by the Chair and speak one time only for a maximum of one minute.

Voting: After suitable discussion, we come to the vote.

Moving the previous question:
Procedure

1. Someone says, "I move the previous question". This means "I think that it is time to vote". This motion must also be seconded, but it is not debatable
2. The vote is taken. It either takes a majority or a 2/3 vote, depending upon the issue

IGC and IUGS Statutes regarding amendments to the Statutes and Byelaws:

IGC:" 6.2 Any proposals to modify the Statutes of the Congress must be submitted in writing to the IGC Committee at least 9 months before the beginning of the next Session."

IUGS: "57. The Council may consider amendments to the statutes and adopt changes by a two thirds vote when a quorum is represented, provided that proposed amendments have been circulated to members of the council at least three months in advance. Amendments affecting the International Geological Congress should follow the same regulations but considering the different voting system.

58. Amendments to the bye-laws may be made by a majority vote when a quorum is represented, provided that the proposed amendments shall have been circulated to members of the Council at least three months in advance.

IUCN DESKTOP REVIEW OF NEW WORLD HERITAGE NOMINATIONS

IUGS is responsible for the evaluation of the nominated sites under World Heritage Convention Criterion (viii) for outstanding geologic value, IUGS is calling for interested partners/evaluators, to review the geological interest of new proposals that the International Union for Conservation of Nature (IUCN) will need to evaluate for the 41st Session of the World Heritage (WH) Committee in 2017. These are marked with an asterisk below.

IUGS needs find about 8–10 IUGS partners per nominated site who could provide a desktop review. If you or your colleagues are interested in providing a review of a site that does not fall within criterion (viii), please let me know, as reviewer can also consider that if agreed by IUCN. Please send your expression of interest with indication of the proposed site to be evaluated to IUGS Vice President Marko Komac (marko.komac@geo-zs.si). IUGS thanks you for your cooperation. The final deadline for evaluation is September 30 2016.

Below is the full list of the new proposals that will be evaluated for the 41st Session of the World Heritage Committee in 2017, and further on is a summary of justifications for Criterion (viii) for three of the nominated properties as delivered by the IUCN. This year only one site (**marked with asterisk; the text is at the end of this announcement**) has been nominated under World Heritage Convention Criterion (viii) for outstanding geologic value.

The WH Convention Criterion (viii) requires sites to be:"outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features."
If an expert is interested in providing a review of a site, which is not nominated under (viii), this might be acceptable too. IUCN also asks IUGS experts to comment on the Cultural landscapes if the experts have sufficient knowledge of the applications, so please be free to take also this task if you want to.

Natural Properties
- Complexe W-Arly-Pendjari, Benin-Burkina Faso - (ix)(x) (documents in French only)
- Mole National Park, Ghana - (vii)(ix)(x)
- Qinghai Hoh Xil, China - (vii)(x)
- Bhitarkanika Conservation Area, India – (vii)(ix)(x)
- Primeval Beech Forests, Albania / Austria / Belgium / Bulgaria / Croatia / Italy / Romania / Slovenia / Spain / Ukraine - (ix)
- **Sila National Park, Italy - (viii)(ix)(x)***
- Los Alerces National Park, Argentina - (vii)(x)

Mixed Properties (natural and cultural values)
- Tehuacan-Cuicatalan Valley, Mexico - (iii)(iv)(vi)(ix)

In addition, IUCN will also provide advice to the cultural Advisory Body ICOMOS on the following cultural landscapes. Your comments on the following are also welcome and much appreciated as they are critical to this process and help to raise the standards of the Convention.

Cultural Landscapes (that will require IUCN comments)
- ±Khomani Cultural Landscape, South Africa
- Kujataa – a subarctic farming landscape in Greenland, Denmark
- Taputapuatea, France (documents in French only)
- The English Lake District, United Kingdom

Here is a summary justification for criterion (viii) for the Italian site:

Sila National Park (Italy)
Concerning the geological and geomorphological aspects, the main elements conferring the universal outstanding value to the identified territory can be summarised as follows:

1) The presence of three different orogens (Hercynian, Alpine and Apennines) in the same location can be considered a geological universal value, since it undoubtedly testifies the important role played by Sila in European continental crust development and mobility processes since over 300 Million years (Ma). The outcropping geological structures in the Sila territory present evidence of:
Hercynian continental crust nappes (Hercynian orogeny: 330-300 Ma);
Eo-Alpine and Meso-Alpine orogeny nappes (Alpine orogeny: 100-40 Ma);
ongoing Apenninic orogeny nappes (Apennine orogeny: 25-0 Ma).

The Sila continental crust block thus registers three different orogenic phases: (1) Hercynian, (2) Alpine and (3) Apenninic. It is composed of different nappes, including Precambrian and Paleozoic rocks folded and metamorphosed during the Carboniferous (Hercynian orogeny: 330-300 Ma) and Mesozoic rocks - folded and metamorphosed during the Cretaceous (Eo-Alpine orogeny: 100-80 Ma) and responsible also for the re-activation of Hercynian nappes). Both the Hercynian and Alpine orogens occurring in the Sila Massif later moved towards the SE to be involved in the Apennine orogeny process, still ongoing within the Calabrian Arc.

2) The two main processes occurred in the Neogene, and responsible for the orogenic movement of the Calabria region towards its current position, have been strongly induced by subduction of Permian oceanic lithosphere – the world's more ancient (280-180 Ma) - and by the Plio-Pleistocene expansion of the small Tyrrhenian Ocean basin, one of the youngest world’s oceans (< 2 Ma). This peculiar position of the Sila Massif is, within a plate tectonics perspective, unique in the world and thus has universal value.

3) The Sila plateau, comprising the proposed Park's territories, is characterized by a relict landscape, formed possibly between the Late Miocene and Early Pleistocene. Such ancient landforms are rarely preserved in a climate regime such as that in Italy. In fact, the rivers draining the Sila Massif have already been deeply engraved its flanks, forming deep valleys in response to the Pleistocene uplift. The erosion wave has not yet reached the relict landscape, which thus appears to be a unique record, almost exceptionally intact, of what Sila was some millions years ago.

35TH IGC: THE IMPORTANCE OF GEOSCIENCES IN MINING

The 35th International Geological Congress (IGC) is taking place from 27 August to 04 September 2016 at the Cape Town International Convention Centre. Mining development is one of the main areas where geoscience directly contributes to a country's economy. Africa is destined to supply a large portion of the world's future mineral resources through the application of various scientific approaches. For this reason, the theme: 'Resourcing Future Generations,' will feature prominently at this year's IGC.

CAPTION: Geoscience is important for a country's economy because it defines the mineral resource and ensures the success of mining ventures. Mogalakwena, the world's largest opencast platinum mine, (above) is located in a complex geological setting near Mokopane, Limpopo, South Africa and supplies a great percentage of the world's platinum. [Photo credit: Morris Viljoen]

"There is no mining without geology," says Aberra Mogessie, President of the Geological Society of Africa and convenor of a special symposium on the African Mining Vision (AMV) at the IGC. "Geological, geochemical and geophysical investigations form part of the foundation for successful exploration of mineral occurrences," says Mogessie.

Richard Viljoen, the co-president of the IGC, agrees and adds that effective mining, particularly of lower grade or erratic ore bodies, is based entirely on good quality geoscientific input. “Without accurate and reliable geoscientific input, most mining ventures are likely to fail,” says Viljoen.

The AMV was established by the African Union (AU) Heads of State and Government in 2009 in an attempt to better manage the continent’s mineral resources. “Africa holds an abundant amount of mineral resources, but so far it has not been able to reap the full potential benefits on offer,” says Viljoen. The AMV aims to effectively utilise Africa’s mineral resources through transparent, equitable and optimal exploitation of all mineral resources to underpin broad-based sustainable growth and socio-economic development on the continent. This will be achieved through:

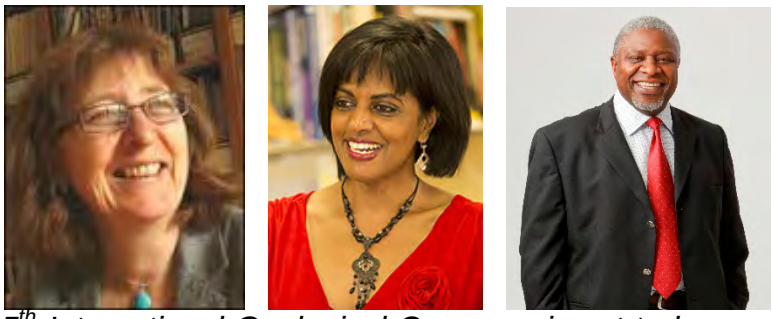
- Building the capacity of regional and national minerals-related institutions;
- Investing in improved physical, social and human capital;
- Developing technology and products in the mining sector; and
- Strengthening environmental and social management.

The African Minerals Development Centre (AMDC) was founded by the AU Commission to provide strategic support to the AMV and is responsible for tying together all the various earth science initiatives and projects across the continent. “As part of their efforts, the AMDC is currently developing the Geological Mineral and Information System Strategy (GMISS) to provide the necessary guidance and support to AU members in improving their geological and mineral information systems,” says Mogessie. “This will encourage investment across the whole mineral value chain,” he adds.

“The GMISS views geological and geospatial information as crucial for several important economic, social, legal and environmental applications in mining and broad development processes in Africa,” says Mogessie.

“The themes of this year’s IGC will shed some light on the purpose and roles of the AMV, AMDC and GMISS. A comprehensive understanding of the industry from a wide range of mining industry geologists from all over the world will also be presented,” says Viljoen. “We are providing an opportunity for key players within the African mining industry to gain invaluable knowledge at the IGC. It should not be missed!”

35TH IGC PRESS RELEASE: Stellar speaker line-up for 35th International Geological Congress



Caption: The 35th International Geological Congress is set to be an explosive event with geoscience experts from all over the world converging at the Cape Town International Convention Centre (CTICC) from 27 August to 04 September 2016. Among the diverse plenary speakers are Ruth Allington from GWP Consultants in the United Kingdom (left image), Anusuya Chinsamy-Turan from the University of Cape Town (middle image) and Sipho Nkosi, former CEO of Exxaro Resources Limited (right image).

The International Geological Congress (IGC) brings together subject experts from all of the geosciences. The broad range of topics covered includes everything from mining and volcanology to medical geoscience, geoethics and palaeobiology – all captured in three core topics: geoscience for society, geoscience in the economy and fundamental geoscience. With over 4 000 presentations, the IGC is jam-packed with information and invaluable networking opportunities. Some of the most important sessions to look forward to are the ten plenary presentations that will be taking place during the IGC, with the best qualified professionals to present them.

'Geoscience for society' covers aspects where the geoscience meets the public. Plenary speaker Ruth Allington from GWP Consultants will present her views on how the geosciences can better service society by bridging the gap between academic science, applied geoscience and geological research. Similarly, Michel Jebrak from the University of Quebec will address how geologists in mining are key to helping the industry become more socially and environmentally responsible.

John Anderson from the Nelson Mandela Metropolitan University will discuss the Africa Alive Corridors Project, which aims to explore the history of mankind in Africa and use knowledge of this heritage to uplift all the people on the continent. Geosciences also meet society inasmuch as it mitigates the effect of natural disasters on human lives – Mustapha Meghraoui will discuss advances in the African seismic studies that will increase the accuracy of earthquake hazard assessment.

The second core topic, **'geoscience in the economy'**, mainly pertains to how geology, through mining, contributes to national financial well-being. Sipho Nkosi, former Chief Executive Officer of Exxaro Resources Limited, will be the first plenary speaker to explore this theme. He will discuss how Africa's mining industry can develop to gain the greatest possible economic benefit. Thomas Graedel from Yale University will explore how the mining industry might better optimise use of metals in various parts of the metal life cycle, while Joe Cartwright from the University of Oxford will delve into the challenges faced by the shale gas industry.

Lastly, **'fundamental geoscience'** forms an important part of this congress that celebrates the full breadth and depth of the geosciences. Plenary speaker Bob Scholes from the University of Witwatersrand will explain how Earth system processes and human development have influenced each other since the beginning of history, while Anusuya Chinsamy-Turan from the University of Cape Town will be presenting on how bone growth and development in extinct species have been determined by historical fossil studies. Finally, Chris Hawkesworth from the University of Bristol will elaborate on how the continental crust comes into being.

"The line-up for this year's IGC comprises a truly exceptional set of speakers and presenters," says Laurence Robb, Scientific Programme Chair of the 35th IGC. "The IGC being hosted in South Africa is a once-in-a-lifetime event. If you are interested in anything related to the geosciences, do not miss it," concludes Robb.

35TH IGC PRESS RELEASE: HOW AFRICA MEASURES UP IN THE GEOSCIENCES

Registrations are open for the 35th International Geological Congress (IGC); set to take place on African soil at the Cape Town International Convention Centre from 28 August to 02 September 2016. Considered as the World Cup of Geosciences, the IGC will address the health status of the continent's geosciences industry and the major challenges that it faces. The spotlight will be shown on Africa's geological activities and the many new developments worth getting excited about.

The African Geological Survey industry is an important progress indicator for the African geoscience society. "These organisations provide valuable information, allowing African countries to assess the size of natural mineral reserves and plan government budgets accordingly," says Luca Demicheli, Secretary General of EuroGeoSurveys. "The geoscientific knowledge and skills that these surveys offer can be translated into a direct economic benefit," he adds.

The value and importance of this information gave rise to the establishment of the PanAfGeo initiative – an initiative formed with the sole purpose of broadening and strengthening the geoscientific knowledge and skills available. With its feasibility study concluded, the PanAfGeo project is ready for the official launch that will take

place at this year's IGC, where Demicheli will be the convenor of the PanAfGeo symposium.

"The PanAfGeo feasibility study was the first of its kind, evaluating geoscientific knowledge and skills in African geological surveys", says Demicheli. "It took place over two years in 25 African countries. We now know where it is more urgent to act, and this is where the PanAfGeo project will operate," he adds.

"The increasing global demand for raw materials and a volatile market outlines the need for a successful geoscientific initiative of PanAfGeo's magnitude," explains Demicheli. The PanAfGeo initiative is a collaboration between the Organisation of African Geological Surveys (OAGS) and EuroGeoSurveys.

The study found several challenges in the industry, namely that 54.9% of the reason for reduced field activities result from insufficient staff training, and that 37.6% of the problem is made up of a lack of advanced equipment. "The study also indicated that geological surveys mainly focus on mineral resources whilst neglecting environmental elements such as natural hazards, groundwater and soils," continues Demicheli.

"The effectiveness of Geological Survey organisations in Africa has advanced in leaps and bounds over the past years. However, much still needs to be done. PanAfGeo will specifically address the challenge of supporting the development of the OAGS," says Demicheli.

The opportunities for PanAfGeo to contribute to the involved countries health and wealth are immense. "Essentially, a geologist is the Earth's doctor. We listen to the Earth. A geologist knows what needs to be done to find and protect groundwater; protect people from landslides, earthquakes or volcanism; and to discover and take advantage of the earth's resources in a safe and wise manner. Geosciences can really make a difference," says Demicheli. "PanAfGeo will provide African governments with the opportunity to capitalise on the trainings developed by PanAfGeo and on the geological collaboration among African countries," he adds.
PanAfGeo focusses on policy, governance and communication. Various technical areas that require immediate action have been identified to which a series of trainings for the staff members will be organised. Training sessions for African geological administrations will focus on: remote sensing and geoscientific mapping; mineral resources assessment; environmental management of mines; artisanal and small-scale mining; geoscience information management; geohazards monitoring; and geoheritage valorization.

Greg Botha, Secretary-General of the 35th IGC and a senior specialist at the Council for Geoscience, adds: "The industry in Africa is also something to get excited about – there is so much potential. The IGC is proud to host the official launch of the PanAfGeo – it demonstrates what can be achieved when international bodies work

together and with so many experts from all over the world converging, we look forward to seeing the African geosciences industry taken to new heights".

Registrations are open. Visit http://www.35igc.org/Verso/60/Registration to sign up. For more information about the IGC visit http://www.35igc.org/. Join the 35th IGC Facebook page at https://www.facebook.com/35thigc/.

35TH IGC: PUBLICATIONS

Two publications are being specially prepared for 35IGC and will be available to interested delegates.
Delegates should indicate on their registration form whether they would like to purchase "Africa's Top Geological Sites" and/or secure a free copy of "The Great Mineral Fields of Africa".

To do so, registered delegates should use their registration log in and book accordingly. Details of each are as follows;
1. Africa's Top Geological Sites *(Geoheritage publication)* - **cost of R180.** [To be collected from GSSA booth].
2. The Great Mineral Fields of Africa *(The Special Episodes Volume)* - **Free of charge** [To be collected from the IUGS booth].

35TH IGC MEETING APP - MY IGC

For the first time in the history of the IGC, the Organizers will be providing all attendees with an APP called MY IGC; downloadable in advance of the Conference. **MYIGC** will provide you with all the information you need for a successful meeting.

- View the agenda
- View the abstracts
- View the exhibitor list
- Download the programme and build your personal itinerary
- Network with colleagues
- Receive updates and messages at the conference

AFRICAN UNION KWAME NKRUMAH SCIENTIFIC AWARDS 2016 EDITION OPEN CALL FOR APPLICATIONS

The African Union Commission has launched the **African Union Kwame Nkrumah Scientific Awards 2016 Edition**. You are kindly invited to apply for the awards and disseminate the information of the call to fellow African Scientists, Researchers and Innovators.
For more information and application forms please visit: http://au.int/en/auknsa
The deadline for submission of applications is the 31st October 2016.

PROFESSOR ZHANG HONGREN, FORMER IUGS PRESIDENT - OBITUARY

It is with sadness that the International Union of the Geological Sciences (IUGS) community received the news of the passing away of Professor Zhang Hongren in Beijing on July 16, 2016 at the age of 82 years.

Zhang Hongren was born in Jiangsu Province of China in September 1934. He studied geology at Beijing College of Geology from 1952 to 1955, Novocherkask Polytechnic Institute from 1954 to 1955 and Dnepropetrovsk Mining Institute from 1955 to 1959. After graduation, he joined local geological teams based in Yunnan and was later transferred to the Ministry of Geology and Mineral Resources of China (MGMR) in Beijing and served as Vice Minister of MGMR from 1986 to 1998. During his lifetime career as a geologist, Zhang Hongren was devoted to scientific research and administration in relation to mineral exploration, groundwater resource evaluation and geohazard prevention and mitigation.

Professor Zhang Hongren had been engaged in IUGS activities since the early 1990s. He served as Secretary-General of the Organizing Committee of the 30th International Geological Congress held in Beijing in 1996, Editor-in-Chief of Episodes from 1997 to 2004, President of IUGS from 2004 to 2008 and Past President and Chair of the IUGS Nominating Committee from 2008 to 2012. During his service as the IUGS President, he actively promoted collaboration with a strong network within GeoUnions and close cooperation with ICSU, UNESCO and other related international scientific organizations. To strengthen global public awareness of geology, IUGS actively promoted the International Year of Planet Earth (IYPE) under his leadership.

In recognition of his outstanding contributions to IUGS activities, Professor Zhang Hongren was awarded the IUGS Medal of Honour at the 69th IUGS Executive Committee Meeting held in Yunnan Province, China in January 2016.

In the name of the IUGS community, our deep condolences go to his family, friends and colleagues in the international geological community.

NOTES

• If you require notices, information on publications, etc. to be considered for inclusion in forthcoming IUGS e-bulletins, please mail to barich@uni-potsdam.de or amel.barich@gmail.com.
• Please check the IUGS Calendar of Events for upcoming scientific meetings this coming month. If you require information on international conferences, meetings, etc. to be considered for inclusion in this Calendar please mail to: peter.bobrowsky@canada.ca
• To be added to or removed from the IUGS e-bulletin distribution list, please mailto:iugs.beijing@gmail.com.
• Follow the IUGS on Social Media! We are on Facebook, Twitter, LinkedIn and Google+.

Prepared by:
Amel Barich
IUGS Councillor
IUGS Publication Committee Member
Post-doctoral Researcher

Institute of Earth and Environmental Science
Potsdam University — Germany

+49 331 977 5846
barich@uni-potsdam.de
http://www.iugs.org