

#### SEPTEMBER 2016

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## CO-PRESIDENTS AND SECRETARY GENERAL'S MESSAGE

With the dust having almost settled and all the post congress field trips now complete, we have had some time to reflect on 35<sup>TH</sup> IGC. Although it was inevitable that there would be some challenges in managing an event of this magnitude and complexity, the overwhelming sentiment expressed by Prof. Roland Oberhänsli and the IUGS team, as well as from many delegates and accompanying persons, has been that the congress was an overwhelming success.

This success has been largely due to the commitment and hard work of the Local Organising Committee and professional congress organisation team coupled with guidance from the 35 IGC Foundation Board. We had a wonderful team and are very proud of their efforts, which were instrumental in us being able to stage such a world class event. The invaluable support of our sponsors was also a crucial factor in ensuring the success of the 35<sup>TH</sup> IGC and we extend our sincere thanks to them for their unwavering commitment.

The congress took place against the backdrop of extremely difficult economic times and thus we are most appreciative for the participation of the over 4000 delegates and accompanying persons who attended. We were thrilled with this attendance and welcomed delegates from 117 countries. Over 5000 abstracts were submitted for oral and poster sessions and we thank all the authors for their hard work. We trust that you enjoyed your stay in Cape Town together with any field trips you might have undertaken and we hope you had a safe journey home.

After six years of planning and hard work the closing of the 35<sup>TH</sup> IGC was somewhat an anti-climax. We take heart however in the knowledge that a number of excellent legacy projects, particularly from an educational, geoheritage and geotourism point of view have originated at the 35<sup>TH</sup> IGC. These will keep many of us busy for some time to come.

For the build up to the 36<sup>TH</sup> IGC in New Delhi in 2020, we wish the Indian organising committee all the best as their planning gets underway in earnest. We congratulate Korea on having won the bid to host the 37<sup>TH</sup> IGC in Busan in 2024. We look forward to these events and would be happy to assist and pass on a few lessons learned from the planning of the 35<sup>TH</sup> IGC, if required.

**Richard Viljoen,** Co-President 35<sup>™</sup> IGC, LOC

Jeanette McGill, Co-President 35<sup>™</sup> IGC, LOC

**Greg Botha** Secretary General 35<sup>™</sup> IGC, LOC

## SCIENTIFIC PROGRAMME

The 35<sup>™</sup> IGC was characterized by a Scientific Programme of great diversity and relevance as well as of outstanding quality. Three core topics representing the major strands of contemporary geoscience underpinned the scientific content, and provided the skeleton about which 48 different themes were presented. This structure is reflected as follows:-

- **GEOSCIENCE FOR SOCIETY**
- Geoheritage and ConservationGeoscience Education and Public Communication
- Climate Change Studies
- Groundwater and HydrogeologySoil Science
- Geoscience Data and Information Systems
- Public Sector Geoscience Programmes and Initiatives
  Geohazards
- Proximal and Remote Sensing Technologies
- History of the Geosciences

Environmental Geoscience

- Medical GeologyGlobal Geoscience Professionalism and Geoethics
- Geoscience benefitting Low-income Countries
- FUNDAMENTAL GEOSCIENCE
- Sedimentary Processes ancient to modern
- Basin Formation and Continental Margins
- A Dynamic Earth
   The Deep Farth
- The Deep EarthThe Hadean and Archaean Earth
- The Proterozoic Earth
- Geochronology
- Isotope Geoscience
   Planotary Sciences
- Planetary Sciences and Meterorite Impacts
  Magmatism Settings, Compositions and Processes
- Metamorphic Processes
- Mineralogy
- Evolution of the Biosphere and Biogeoscience
- Marine Geosciences and OceanographyArctic and Antarctic Geoscience
- Surficial Processes and Landscape Evolution
- Volcanology
- Rock Deformation and Structural GeologyPalaeontology and Palaeo-anthropology
- Instrumental, experimental and laboratory-based developments in the Geosciences
- Phanerozoic Earth History, Stratigraphy and the Geologic Time Scale
- **GEOSCIENCE IN THE ECONOMY**
- Mineral Resources Evaluation, Geostatistics and Mathematical Geoscience
- Mineral Exploration
- Mineral Deposits and Ore Forming ProcessesGold mineralizing systems
- Coal
- Petroleum Systems and Exploration
  Unconventional Hydrocarbons and Emerging Fuels
- Energy in a Carbon Constrained World
- Applied Mineralogy and Geometallurgy
- Engineering Geology and GeomechanicsCritical metals a global perspective
- Resourcing Future Generations



A total of 3639 oral and poster presentations were made from a registered delegate count of 4052. We are very pleased to have been able to accommodate most requests for an oral presentation, with the ratio of oral to poster being approximately 2:1. The oral presentations included 157 keynote addresses and 10 superb plenary addresses covering the entire range of topical issues in the geosciences (see below). Some 242 delegates attended 16 workshops in the days preceding the Congress, and around 750 people participated in 45 field trips that were conducted before, during and after the main event. The only negative feature associated with programme organization was the 914 abstracts that had to be removed from the schedule because of prospective delegates who, for a variety of reasons, could not attend – these presentations were removed from the programme to avoid the problem of large numbers of unannounced gaps in the schedule.

One of the highlights of the technical programme was the diverse range of 10 plenary addresses – two presented on each of the five congress days – and covering a broad range of current and controversial issues in the geosciences today. These talks included:-

Is Africa Doing Enough To Promote Its Mineral Endowment?

– Mr. Sipho Nkosi

Grand Challenges In Metal Life Cycles – Prof. Tom Graedel

Breaching The Boundaries Between Science And Profession – An Imperative For Geoscience In The Service Of Society

– Ms. Ruth Allington

Africa, Humans and the Global Climate – Prof. Bob Scholes

Geological Cycles and the Generation of the Continental Crust (The Alex du Toit Lecture) – Prof. Chris Hawkesworth

Palaeobiological Insights from Fossil Bones

– Prof. Anusuya Chinsamy-Turan

– Prof. Joe Cartwright

- Dr. John Anderson

– Prof. Michel Jebrak

Drilling Beneath The Hype - Technical Challenges For The Exploration Of Shale Gas

Africa Alive Corridors—a 3,5 Billion Year Geological, Biological and Cultural Biography of Africa

Mining Industry And Society - The New Challenging Frontier

Damaging Earthquakes In Africa - Their Seismotectonic Background And Seismic Hazard Implications – Prof. Mustapha Meghraoui

The 48 themes that made up the technical programme likewise covered the entire spectrum of geosciences subject matter, ranging from important societal issues (climate change, public sector geosciences, geohazards, education and outreach, etc) to hard-core economic topics (mineral exploration, conventional and non-conventional petroleum resources, critical metals, engineering geology, etc), and all underpinned by a central core that encompassed the fundamental subjects of the earth sciences (such as volcanology, sedimentary and metamorphic processes, Arctic and Antarctic geosciences, oceanography, Phanerozoic earth history, geochronology, etc). The two most popular themes were the Dynamic Earth and Mineral Deposits and Ore Forming Processes, that between them resulted in over 472 presentations.

In addition to the presentation of high-quality geosciences, the 35<sup>™</sup> IGC also provided a platform for networking and the launch of new initiatives. The Young Earth Scientists Network (YES) was well represented at the Congress and were able to host their delegates at a special lounge set aside specifically for their use. Approximately 88 presentations were given by YES delegates over the week of the Congress. Considerable media interest was generated from around the World on discussions relating to the identification of a new geological age, the 'Anthropocene' – these discussions were held under the auspices of the Phanerozoic Earth History, Stratigraphy and the Geologic Time Scale theme and relate to the debate around the need to recognize a new geological epoch that is defined as having been significantly influenced by mankind.

Other important events at the 35<sup>TH</sup> IGC included the launch of the PanAfGeo programme under the auspices of the Public Sector Geoscience theme. This is an initiative between European and African geological surveys and is aimed at strengthening competencies of African geoscientists across a variety of disciplines and in particular the governance of mineral resources. The Exxaro sponsored panel discussion on 'Protecting Mineral Assets for Future Generations' was mediated by a high-level panel of international experts and attracted lively discussion around the often controversial issues related to extracting mineral resources and societal expectations. The new flagship project of the IUGS itself, Resourcing Future Generations, also saw light for the first time at the Congress with an entire theme devoted to this topic, followed by a panel discussion on the broad aims of this commendable project that will be launched with a major conference in Canada in 2018.

The Commission For The Geological Map of the World (CGMW) initiated and sponsored the printing of a new 1:10million scale Geological Map of Africa specifically to commemorate the 35<sup>TH</sup> IGC. This map was distributed free to interested delegates, alongside the new Seismotectonic Map of Africa and a booklet relating to mineral resources, mining and environment. And finally the American Geophysical Union (AGU) participated for the first time in an International Geological Conference by sponsoring a very successful 'Hot Topics' Lounge that was the focus of discussion panels and short lectures as well as simply a venue where delegates could meet and interact. The AGU also hosted a dinner discussion for delegates interested in promoting the development of planetary sciences on the African continent.

#### ABSTRACTS

As is the tradition with previous IGC events the abstracts for both Oral and Poster presentations will be archived on the AGI's GEOREF system. These abstracts will be downloadable and citeable via GEOREF as soon as the abstracts have been uploaded. Details regarding the link to GEOREF will be sent to all delegates as soon as possible after the end of the Congress.

Should you wish to view the abstracts in the interim, please use My IGC App which will remain open. For download details, <u>click here</u>. All abstracts are linked to the presenting authors and are listed under speakers section.

## **FIELD TRIPS**

The 35<sup>™</sup> IGC organizing committee would like to express their gratitude for the huge contribution made by the field trip leaders towards making the 45 diverse field trips so enjoyable and memorable for the over 750 delegates that took part in these excursions.

It is a pity that so many of the trips advertised initially had to be cancelled because the delegate numbers did not reach the minimum occupancy required to run the excursions at the advertised price. However, participants were able to undertake 21 one-day trips within South Africa, 17 multi-day excursions across this region, and 6 excursions that visited Namibia, Tanzania, Angola and Zimbabwe.

The field trip leaders contributed 24 superb guidebooks totaling over 1560 pages that will serve as a useful legacy of the field trips. The guidebooks are all high quality, specialized records that fill a gap between the many journal publications referenced and popular media. Due to the many requests received for copies of the guidebooks, the Geological Society of South Africa will make these available as a long term record of the congress. Plans are underway to have copies of the guidebooks printed and/or made available on memory sticks.

The positive feedback about the excursions from many satisfied participants should serve as the big pat on the back to all the field trip leaders deserve for their dedication! We hope that the participants in these memorable trips will continue to derive much pleasure from the scientific debate, friendships made and networking opportunities. Where these have been provided the field trip website has been updated with a short report and photographs submitted by the trip leaders and participants. A selection of photos from some of the field trips has been included below.



Roger Swart and John Ward led the six day field trip in Namibia and treated their participants to an unforgettable desert experience. The 160 km route traversed the Namib Sand Sea World Heritage Site from the base of the Great Escarpment to the Atlantic Ocean. The objective was to introduce the major dune types of the northern Namib Sand Sea, from the reticulate and stellate forms in the east through the dominant linear types in the central area to the mobile crescentic forms in the western coastal belt, and their associated unique biota that has evolved in this hyper- and ultra-psammophilous environment, exploiting wind-borne detritus for food and fog for moisture. This combination of dunes and their highly specialised biota, overlying the earlier Mid Cenozoic desert aeolianites of the Tsondab sandstone Formation palaeo-sand sea, is found nowhere else and underpins the status of most of the 34,000 km<sup>2</sup> Namib Sand Sea as a World Heritage Site. Following rudimentary 4x4 tracks and crossing the mobile desert dunes, the trip visited the mysterious "fairy circles", the Kuiseb Canyon, Gobabeb Research and Training Centre and then crossed the sand sea to the Atlantic shoreline where Conception Bay, Sandwich Harbour, the Kuiseb River delta near

Walvis Bay and picturesque Swakopmund were visited. The logistical support of Faces of the Namib and tour operator Natural Destinations contributed to the success of this challenging field trip.



35<sup>TH</sup> IGC Co-President Jeannette McGill led the 'once-in-a-lifetime experience' for the small group who tackled the challenging "Africa's Geological Summits" field trip. The trip started by descending to the deepest point on the African continent, AngloGold Ashanti's Mponeng Gold Mine (-4200m) in the heart of the Witwatersrand Basin gold deposit. The group then transferred to Moshi, Tanzania on the edge of the Rift Valley where they ascended to the very highest point of the African continent, Kilimanjaro (5895m), the highest freestanding mountain on earth. Guided by Adventure Dynamics International, the group climbed for 6 days along the Rongai route, summiting on Monday 22 August. By completing this "greater than Everest ascent" the participants became part of a very select group having been to the highest and lowest points on the African continent.



The geological walking tour of Robben Island arranged and led by John Rogers exposed a side of the infamous prison island that few visitors experience. The geological history of the island was demonstrated, including the folded Neoproterozoic Tygerberg Formation basement, intruded by Cretaceous dolerite dykes, and overlain locally by Late Pleistocene raised beach/calcarenite and Holocene gravel beach deposits. The ferry trip and drive or hikes across the island were blessed with a bright day and calm weather, something that cannot be guaranteed on any visit to this island. The clear view of Table Mountain across Table Bay is something the participants will cherish for many years.



This field trip crossed the scenic southern Cape coastal plain, past Africa's southernmost point and returned through the southern branch of the Cape Fold Mountains. Trip leaders Jean Malan and Jurie Viljoen revealed the geological evolution of the Gondwanian rifted margin and features of the continental break-up margin. The sedimentary geology and tectonic setting of the Cape Supergroup basement, the Mesozoic basins and Cenozoic coastal deposits were the focus of the excursion that traversed several half graben basins preserving syn-rift basin fill deposits equivalent to the shallow marine gas reservoirs exploited offshore. The participants were also treated to game viewing, a stay at a hot spring resort, visit to an ostrich farm and a tractor trip up to the summit of Arangieskop mountain followed by a traditional farm meal.



Fifteen participants on the 5 day, post-conference excursion, Geology of the Barberton Greenstone Belt (Post 7), flew from Cape Town to Nelspruit and were taken to Badplaas. From there the group examined the oldest strata near Kromdraai in the Songimvelo Game Reserve while being led by Prof. Eugene Grosch (Rhodes University). They also examined complex flow and deformation structures deep within plutonic rocks that melted the basal strata of the greenstone belt. Near Tjakastad the group traversed the several kilometerthick succession of submarine pillow lavas to examine the interaction between the rare komatiite lavas and the sea water. After moving to Barberton, Christoph Heubeck (Jena University, Germany) led the study of geology along the northern margin of the mountain range between Barberton and Sheba Siding. Along the Barberton Geotrail high up in the mountains near the Swazi border, Paul Mason (Utrecht University, Netherlands) explained the significance of banded iron formation rocks and the dense barite crystals of the Fig Tree Group with reference to the composition of the Archean oceans and the atmosphere. The group was impressed by a unit that formed when melt droplets rained down from the atmosphere and covered the Archean seafloor, evidence that a large meteorite had hit the Earth at an unknown but distant location. Intricate sedimentary structures in the Moodies Group revealed previously unknown evidence for dry, desert-like conditions and microbial mats that were apparently widespread along this Archean coastline. The catering support by Astrid Christianson of Barberton Community Tourism was much appreciated by all.



On the 150th anniversary of the discovery of diamonds near Kimberley, this excursion led by Mike de Wit, Gary Dorkin and Dave Morris explored the alluvial deposits of the Lichtenburg–Ventersdorp area, the Lower Vaal River and Middle Orange River systems, and the kimberlite hosting the Big Hole in Kimberley. The sites visited expose the unique secondary diamond deposits preserved on the karstified terrain of the Transvaal Dolomites that are now considered to be residua left by the Carboniferous–Permian de-glacial event that concentrated diamonds eroded from 500 Ma kimberlites. Diamond bearing Cenozoic Vaal River palaeo-channels and terraces, still being mined today, were visited. Alluvial terraces that preserve diamonds eroded from the cluster of Cretaceous kimberlite pipes in Lesotho by the Orange River drainage have been mined for decades.



Exploring the Lower Orange River canyon in the Richtersveld along the Namibia border by canoe should be on the 'bucket list' of every geologist. The field trip led by Dave Reid departed Cape Town and drove ~600 km north to Springbok, stopping en route to inspect Pan-African (750 – 500 Ma) metasediments and intrusive granites, Namaquan (1200 – 1000 Ma) metamorphic and igneous rocks and aspects of the historic Okiep copper district. En route to the Orange River the route crossed the major terrane boundary between the Namaqua gneisses and the 2 Ga Orange River orogeny. The river trip left from the Felix Unite Adventures, Provenance river resort and participants paddled some 80 km in 2-person canoes, spending four nights sleeping under the stars. The canoe trip followed the Orange River canyon incised through the desert mountains of the Richtersveld, a combination of a World Heritage Site and Trans-Frontier National Park wilderness region. The geological history of the canyon spans 2 Ga from early Proterozoic island arcs and active continental margins, through three orogenic belts, including the Pan-African Gariep Belt and its foreland basin (Nama Group). The basement terranes exposures also preserve striated pavements created by the Dwyka Formation glacial event. Tertiary gravel terraces exposed along the river are renowned for their alluvial diamond deposits.



This ambitious 11 day field trip was the longest offered by the 35<sup>TH</sup> IGC. Led by Herman van Niekerk, the 2400 km route extended from Johannesburg, through spectacular scenery in the Orange River region to the Atlantic coast and then to Cape Town. Exposures and mines that reveal the structural evolution of the western part of South Africa were visited and the traverse from the Neoarchaen to the Early Mesozoic was mostly covered in geochronological order. At the Khumani Iron Ore Mine near Hotazel the group inspected a Sishen-type iron ore deposit. The spectacular exposures of the Upington region reveal the complex history of collision tectonics associated with accretion of the Kaapvaal-Zimbabwe-Kgalagadi Craton. After traversing the complex Bushmanland terrane with its Cu, Pb, Zn deposits, the group visited the De Beers alluvial and marine diamond operations. The dramatic scenery of the Cape Supergroup mountains and Tankwa Karoo along the Western Cape Atlantic coast hinterland were crossed en route to Cape Town.



The Pre 16 field trip; Geology of the Barberton Greenstone Belt: Processes of the early earth, focused on the geology of the Barberton Mountain Land. The field trip was led by Profs. Don Lowe (Stanford University, USA), Christoph Heubeck (Jena University, Germany), and Gary Byerly (Louisiana State University, USA). Eighteen participants from China, Japan, Italy, Brazil, Belgium, the UK, and the US learned about early life, the growth of continents, ultramafic magmatism, historical and active gold mining and the many unusual factors that shaped the surface conditions of the early Earth.

Day-to-day organization of the trip lay in the capable hands of Astrid Christianson of Barberton Community Tourism who had assembled a fleet of seven vehicles, driven by experienced local, all of them active members of the community and involved either in the tourism industry or in mining / geology. The international guests, all of them newcomers to greenstone belt geology, not only learned about geology from the three field trip leaders but also about local history, botany, wildlife and culture from their drivers. In turn, the locals experienced first-hand what attracts worldwide scientific attention to their region and also improved their own understanding of their home mountain range.



The post congress field trip (Ex SA-Post 6) in south western Angola covered the Humpata Plateau to the Namib Desert, a remote area that is difficult to reach. The trip organisers, led by Isabel Duarte, António Pinho (Universidade de Évora) and Antonio Olímpio Gonçalves (University of Agostinho Neto - UAN, Angola), were able to secure considerable logisitcal support from the Angolan government agencies and other sponsors. From the base in Lubango the group visited the spectacular Tundavala Gap, a 1,000 m high escarpment and the Katchillwa waterfall. The Mesozoic carbonatite complexes of Tchivira and Bonga and the Lubango-Cunene Anorthosite Complex, one of the largest anorthosite bodies in the world, were also visited. The hairpin bends of Leba Pass that descend the spectacular Serra da Chela escarpment provides access to the volcanic basic rocks of the Namibe area, paleontological site in Bentiaba and the northern extension of the Namib Desert and the beautiful bay of Tombwa.



Despite being young and fit, it was evident that the three separate hikes up the steep ~900m high slopes of Platteklip Gorge on Table Mountain, took their toll on trip leader Taufeeq Dhansay. The prominent mountain above Cape Town is part of a World Heritage Site and was voted one of the Seven Wonders of Nature. The mountain is famous for the diverse Cape fynbos flora and the Early Proterozoic Table Mountain Group sedimentary succession that was deformed around 250 Ma during the Cape Orogeny.

## WORKSHOPS

The Saturday and Sunday before the conference saw numerous workshops take place at the CTICC.

- Bits of Maths and Stats for Prospectively Modelling
  - Criteria for Identifying Contourite DepositsGlobal-scale Geochemical Mapping
  - Geoscience Information for Teachers (GIFT)
  - Geochemical Reaction Modelling
    Use of Ground Truth Data to Develop and Enhance Regional Earth Models (CTBTO)
  - Gold Deposits: Their Geology, Geochemistry and Genesis (SEG Workshop)
  - Hyperspectral Core Imaging: An Emerging Technology for Geological and Mining Applications
  - Social Responsibility and Sustainability: Education and PracticeDrilling Short Course
  - Economic Geology 101 Short Course
  - Understanding the Role of Groundwater in the 21st CenturyPorphyry and IOCG Deposits: Genesis Links and Differences
  - Remote Sensing for Mineral Exploration
  - Working with Interoperable Geoscience Data
  - Vectoring to mineralisation using exploration geochemistry
    Development and Implementation of Collaborative e-Infrastructures and Data Management for Global Change Research



### **BUSINESS MEETINGS**

Many people came together to conduct meetings in various formats, some more formal others while passing in the gallery.

- Business Meeting of IUGS Commission on Geoscience For Environmental Management
- International Commission on the History of Geological Sciences (INHIGEO)
  IAMG General Assembly
- IUGS Task Group on Global Geoscience Professionalism Business Meeting
   Meeting with British Geological Survey (BGS) Natural Resources Canada (NRCan) and Geoscience
- Meeting with British Geological Survey (BGS), Natural Resources Canada (NRCan) and Geoscience Australia (GA) on existing collaborations and scope of future collaborations
   CGMW Bureau Meeting 1
- CGMW Bureau Meeting 1
   Sub commission of Ediaca
- Sub-commission of Ediacaran Stratigraphy Business Meeting
  Business Meeting of Indian Geological Congress Members
- IAEG Richard Wolters Prize Adjudication
- Business Meeting of the International Sub-commission on Jurassic Stratigraphy (ISJS)
- Business Meeting of the ICS Sub-commission on Stratigraphic Classification
- Business Meeting of the International Union of Geological Sciences (IUGS)/International Association of Geochemistry (IAGC) Task Group on Global Geochemical Baselines
  IUGS Commission on Geoscience Education, Training & Technology Transfer Business Meeting
- CGI Council Meeting 2016
- CGMW Bureau Meeting 2AGID General Assembly
- Geological Society of Africa Council Meeting
- IAEG Aggregate Commission Meeting (C17)
- Business meeting of the International Sub-commission on Cretaceous Stratigraphy
- YES AGMOrganisational Meeting of the Geological Society of America
- Heritage Stone Task Group (HSTG)/IGCP Project 637/IAEG Commission (C10 Building Stones and Ornamental Rocks)
- Business Meeting of the International Association for Geoethics (IAGETH)
- International Geoscience Education Organisation (IGEO) Council Meeting
  Business Meeting of International Commission on Stratigraphy (ICS)
- CGMW General Assembly
- Business Meeting of the International Sub-commission on Devonian Stratigraphy
  General Assembly of the International Association for Promoting Geoethics (IAPG)
- IGC P632 Business Meeting
- IAEG General Assembly
- German National Committee for IUGS Business Meeting
  Business Meeting of the ICS Sub-commission on Quaternary Stratigraphy

## SOCIAL PROGRAMME

WELCOME FUNCTION/ICE BREAKER

Ice Breaker Function was held on Sunday 28th August at the Cape Town Convention Centre in the Exhibition Halls, at 17h45.



#### THEME DINNER

The Theme Dinner was held on Thursday, 1st September, at Zip Zap Circus Tent, at 20h00.



#### **HAPPY HOUR**

Happy Hour was held on Monday 29th August to 1st September at the Cape Town Convention Centre in the Poster & Exhibition Halls, at 17h45 and was designed to provide a forum for poster viewing, browsing the exhibitions and general networking.



### STUDENT GEOQUIZ

The Student GeoQuiz was held on Wednesday, 31st August at the Cape Town Convention Centre, at 18h00.

The Movie Nights will be held on Monday 29th and Thursday 1st September at the Cape Town Convention Centre, at 18h00.

## WINE TASTING & SALES INCLUDING DIAMOND & TANZANITE CUTTING WORKSHOP & SALES

Wine tasting and diamond & tanzanite workshop tour was held daily, at The Diamond Works Institute daily.

# PARTNERS

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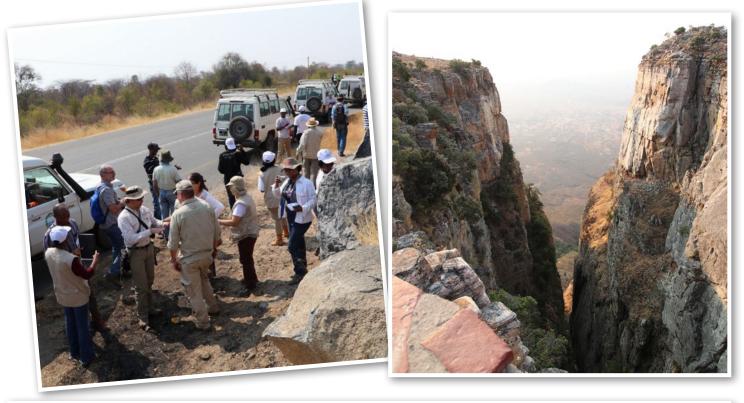
# EXHIBITORS

| ORGANISATION  | ORGANISATION  |
|---|---|
| International Association For Mathematical<br>Geosciences | Royal Society Publishing                                  |
| Sandvik (Pty) Ltd.  | Gemstones   |
| United Spectrometer Technologies CC                       | Wirsam Scientific   |
| Taylor and Francis Group Limited                          | SEPM Society for Sedimentary Geology                      |
| New Resolution Geophysics                                 | CAMECA  |
| SEG   | International Association Of Sedimentologists (IAS)       |
| GIGSA   | SACNASP   |
| Geological Society of Africa                              | Qotho Laboratory Services                                 |
| EAGE  | Commission For The Geological Map Of The World            |
| African Mineral Standards (AMIS)                          | Mine Health and Safety Council                            |
| Projects in Kyrgyzstan and Tajikistan                     | Mintek  |
| Elsevier  | Geological Society Of America                             |
| Jeannette Unite Art Studio                                | Geological Survey of Japan, AIST                          |
| African Gems And Minerals                                 | The Geological Society Of London                          |
| leannette Unite Art Studio                                | Geovariances SAS  |
| Beijing Deyan Technology Co., Ltd.                        | Beak Consultants GmbH                                     |
| Jcp Africa (Pty) Ltd                                      | TerraCore   |
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| Set Point Laboratories                                    | Assegai Geophysics  |
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| ntertek   | Korea Institute of Geoscience and Mineral Resources       |
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| Leica Microsystems  | U.S. Geological Survey                                    |
| Bureau Veritas Minerals                                   | BRGM - French Geological Survey                           |
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| University of Pretoria                                    | TECT Geological Consulting                                |
| Council for Geoscience                                    | XPotential Geoscientific Consulting                       |
| Universidad Nacional De Colombia                          | Beta Analytic   |
| China University of Geosciences                           | Acacia Mining   |
| University Of Johannesburg                                | AAPG  |
| North West University                                     | Bruker  |
| CSU Regional Office For Africa                            | WESTERNEX   |
| Advanced Geosciences Europe SI                            | Digital Surveying   |
| Maxwell Geoservices                                       | International Union of Geological Sciences (IUGS)         |
| OLYMPUS   | International Union of Geological Sciences (IUGS)         |
| Geo-Explore Store (Pty) Ltd.                              | Council for Geoscience                                    |
| Activation Laboratories Ltd. (Actlabs)                    | Geological Society Of China                               |
| Spectral Evolution  | Geological Society Of China                               |
| Geotech Airborne Limited                                  | SciAps Inc.   |
| Southern Mapping  | REFLEX  |
| Phoenix Geophysics Ltd.                                   | National Research Foundation                              |
| General Directorate Of Mineral Research And Exploration   | National Research Foundation                              |
| of Turkey   |   |
| The Geological Society Of South Africa                    | Corescan  |
| EuroGeoSurveys  | DST-NRF CIMERA and DST-NRF CoE In<br>PALAEOSCIENCES       |
| ,<br>Exxaro Resources Limited                             | China University Of Geosciences (Beijing)                 |
| Springer Nature   | Gifts Of Africa   |
| Aranz Geo SA (Pty) Ltd.                                   | GIA (Gemological Institute of America)                    |
| Afri Core   | American Geosciences Institute                            |
| United Scientific   | China University of Geosciences (Wuhan)                   |
| Bartington Instruments Ltd.                               | Behre Dolbear   |
| Spectral Geophysics                                       | Xcalibur Airborne Geophysics Pty Ltd.                     |
| Ministry of Mineral Resources Greenland                   | Godwana Map   |
| Government of Canada                                      | •   |
|   | Godwana Map<br>Hot Ink                                    |
| Resources for Future Generations 2018 (RFG)               | Bundesanstalt Für Geowissenschaften Und Rohstoffe         |
| Spatial Dimension   |   |
| Geoscan Ltd.  | GFZ German Research Centre For Geosciences                |
| Cambridge University Press                                | GFZ German Research Centre For Geosciences                |
| Geosense  | GFZ German Research Centre For Geosciences                |
| Micro-G LaCoste - Scintrex                                | 36th IGC Secreteriat C/o Geological Survey Of India       |
| Kazakhstan Geological Society, Republic of Kazakhstan     | Geological Survey Of Norway                               |
| Russian Geological Research Institute (VSEGEI)            | Petroleum Agency SA                                       |

## TOURS

Various Day and overnight tours were enjoyed by delegates and accompanying persons alike.







## GEOHOST

The GeoHost programme provided 81 applicants with full conference attendance support and a further 66 applicants with registration fee support. In addition, the programme provided 18 applicants with additional support through associated sponsorships.

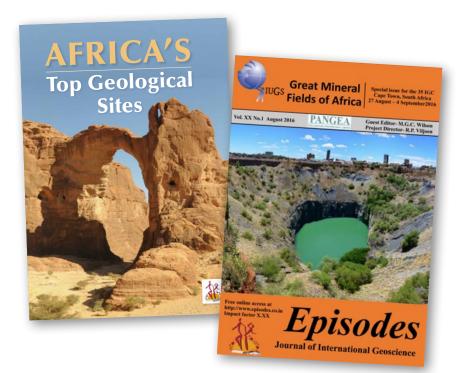
- The GeoHost Committee would like extend a special thank you to all the funders of the GeoHost programme:
  The Department of Science and Technology provided full conference attendance support to 35 young
- scientists and 28 delegates from low-income countries.
  Pangea Exploration (Pty) Ltd provided registration fee support to 33 South African-based young scientists.
  The Geological Society of South Africa's REI fund provided full conference support to 3 young scientists and 3 delegates from low-income countries. In addition, the Society provided registration fee support to 11 young
- scientists with GSSA membership.
  Royal Bafokeng provided registration fee support to 12 post-graduate students from the University of Johannesburg.
- Royal Haskoning DHV provided registration fee support to 13 South African-based young scientists.
  The National Science and Technology Forum ProSET fund provided full conference attendance support to 4 young scientists from South Africa.
- young scientists from South Africa.
  The Harmony Gold Mining Company Limited provided registration fee support to 6 South African-based young scientists.
- The African Minerals Development Centre provided full conference attendance support to 3 delegates from African countries.
- Shango Solutions provided full conference attendance support to 3 young scientists from South Africa.
  The Society of Economic Geologists and the Timothy Nutt Fund provided full conference attendance support to 1 young scientist from South Africa.
- to 1 young scientist from South Africa.
  The International Council for Science's Regional Office for Africa provided flight tickets for 3 scientists from African countries.

## VOLUNTEER PROGRAMME

We would like to thank our Volunteers for their support and assistance and hope that they enjoyed the experience. We had 35 dedicated volunteers who were able to participate in the programme as well as help the committee with conference duties during their week with us.

## PUBLICATIONS

We still have stocks of the Congress books, The Great Mineral Fields of Africa (Episodes V39, no 2) and Africa's Top *Geological Sites*, and these are offered at special prices until the end of November, 2016. You can order The Great Mineral Fields of Africa for R150 plus postage, and Africa's Top Geological Sites for R200 plus postage at info@gssa.org.za. In addition to these volumes, limited numbers of the Congress field excursion guides will be published in the coming months and will be made available. Additional papers on African mineral deposits are planned for a 2017 issue of the South African Journal of Geology. Please check www.35igc.org for information and updates.



## LEGACY

#### COMMEMORATIVE BOOKS

Two books were specially prepared for 35IGC and were launched at the opening ceremony. The first, a colourful and profusely illustrated commemorative volume entitled "Africa's Top Geological Sites", is aimed at creating an awareness of the many outstanding geological features of the continent. It has been written for geoscientists and the general public alike and is aimed primarily at fostering an interest in geoheritage, geoconservation and geotourism in Africa.

The second publication, a special 35IGC issue of Episodes, (the IUGS journal of International geoscience) entitled **"The Great Mineral Fields of Africa"** highlights the importance of the mineral deposits of the African continent. Africa is destined to play a leading role in the supply of minerals, including oil and gas, in the future and the book reviews the geological setting of a number of the continents important mineral fields.

Both books proved to be very popular with delegates at the congress and are still available at a special price through the Geological Society of South Africa (email: info@gssa.org.za). We extend our thanks to Acacia Mining and Pangea exploration who were the generous sponsors of these publications. The considerable logistical support provided by VM Investments and Bushveld Minerals in the typing of manuscripts, drafting of maps and diagrams and preparation of photographs, in the production of both publications, is gratefully acknowledged' in my section on publications and legacy.

#### **COMMEMORATIVE STAMPS**

A series of ten stamps depicting some of the geological superlatives of South African geology and mineral deposits by way of stylised drawings were specially prepared for the congress. They are collectors items and are still available through the Geological Society of South Africa (email: <u>info@gssa.org.co.za</u>). Our thanks are extended to Mr. Pieter Bosch and the South African Postal Services for this initiative.

#### GEOHERITAGE, GEOTOURISM AND EDUCATION

Many of the pre and post congress field trips covered important geosites as well as geotrails or potential geotrails and these have been described in a series of excellent field guide books that have been specially prepared for the congress. They are an important legacy of 35IGC and will be made available to delegates and other interested parties in the near future.

The Barberton Makonjwa geotrail has already been established and similar projects have been initiated as a consequences of the congress. They include for example, tourist, educational and geoheritage geotrails highlighting the story of Witwatersrand gold, the Walter Sisulu Botanical Gardens and Magaliesberg, as well as the eastern Bushveld platinum trail. It is planned to post this and other information onto the Heritage Portal which can be accessed at <u>www.theheritageportal.co.za</u>.

It is hoped that some of these initiatives may ultimately lead to the establishment of Geoparks as part of an African Geoparks network.

#### **MUSEUMS AND UNIVERSITIES**

Most of the legacy products and projects of 35<sup>™</sup> IGC are of educational value and will be displayed or advertised at museums, Universities and schools throughout South Africa and other African countries, in due course. These include the two books and field guide books as well as a set of 10 magnificent educational posters depicting geological scenes at various geological time periods commencing with a scene from the archaean earth. The posters have been produced by geo artist, Maggie Newman. A photographic exhibition as well as a slide presentation of some of South Africa's top geological sites, which were shown at the congress, will also be displayed at museums and Universities.

A popular attraction at 35<sup>TH</sup> IGC was the Mantle room exhibit prepared by Dr. John Gurney and his team from the University of Cape Town and Scientific Services. This unique world class exhibit focuses on the magnificent collection of specially cut and polished mantle nodules, samples of the earths upper mantle which were transported, together with diamonds, by the Kimberlite magma to the surface or close to the surface and collected during the course of mining operations.

This exhibit, or versions of it, will be on display at museums, Universities and conferences and is an important legacy.

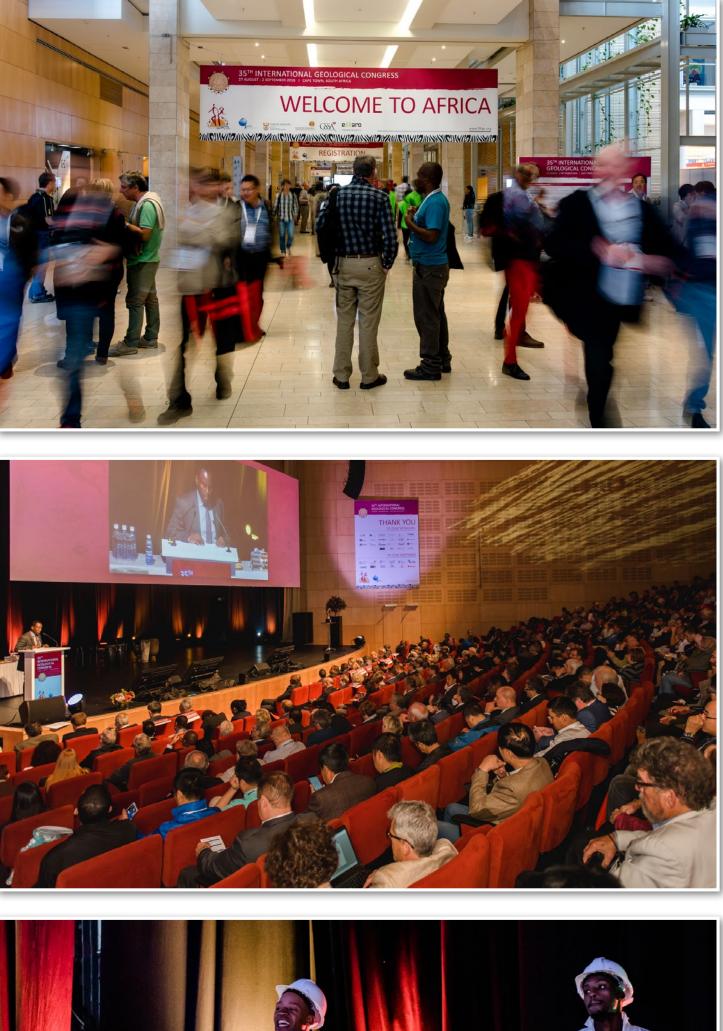
## SELFIE WINNERS



## CALL FOR FEEDBACK

A personalised communication referring delegates to the feedback portal will be sent shortly. However we welcome so if you would like please send us your thoughts on <u>lesley@cebisaconferences.co.za</u>.

# IMAGE GALLERY





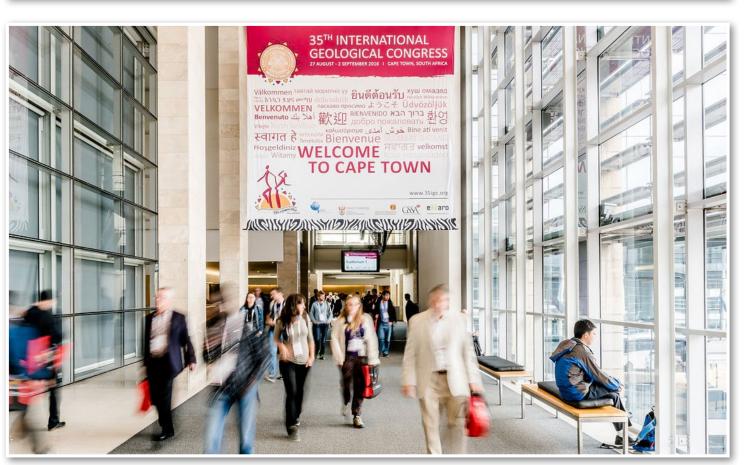






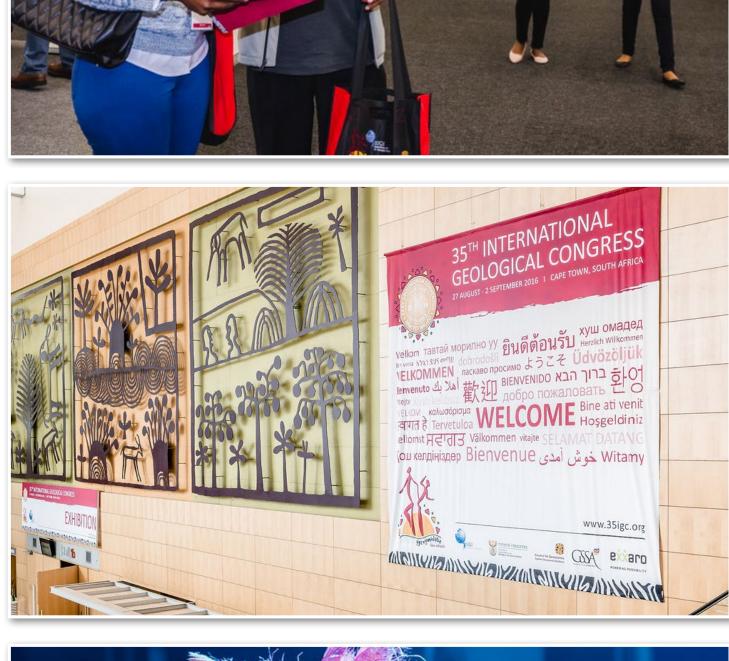
























# **INDIAN SUBCONTINENT** The Natural Choice for 36<sup>th</sup> IGC!

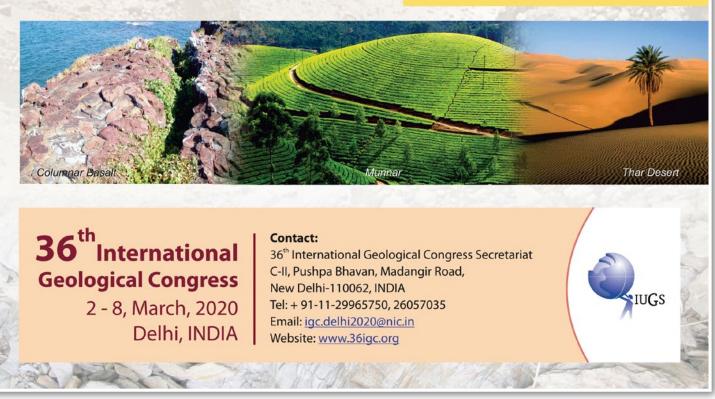
organized in India after a gap of 56 years. 36<sup>th</sup> IGC, a global platform to advance the cause of Earth Sciences is being hosted by the Ministry of Mines [MoM] and the Ministry of Earth Sciences [MoES], Government of India with active support from the Indian National Science Academy and science academies of co-host neighboring countries, viz. Bangladesh, Nepal, Pakistan and Sri Lanka. The Congress is being organized by an autonomous organization, the 36<sup>th</sup> International Geological Congress. The Geological Survey of India is the nodal organization for this event.

The country with mighty Himalayas and its glaciers, icy peaks, deep gorges and vast alluvial plains, cold and warm deserts, mangroves, rain forests and mersmerizing sun drenched beaches, each with its own unique enticing geology has attracted the world since ages. The sub-continent offers everything from Archaean crustal nuclei to present day volcanism which is a must see for geotourist bugs.

The Indian sub-continent with its unique diversity of terrain and people invites the world Geoscientific community to converge in India during the 36<sup>th</sup> session of IGC at Delhi in year 2020. The Congress with theme **GEOSCIENCE: The Basic Science for Sustainable Future** will be offering an opportunity to collaborate for developing Geoscience for a better tomorrow.

The 36<sup>th</sup> Session of IGC will typically cover the entire gamut of Geoscience with its themes and will have all geologically important sites packaged for Field Excursions. This Congress driven by dictum 'Science for all and not for Profit' aims to make it affordable and accessible for students, young researchers and geoscientists from underdeveloped countries through its unique Geohost Program and a special youth Geohost program for International Union of Geological Sciences (IUGS) member countries.

Make sure you are in India for 36<sup>th</sup> IGC to experience the Mystic Continent with all its flavor and above all its unique geology!



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