

# 35<sup>TH</sup> INTERNATIONAL GEOLOGICAL CONGRESS

27 AUGUST - 4 SEPTEMBER 2016 | CAPE TOWN, SOUTH AFRICA



## THIRD CIRCULAR

OCTOBER 2015

[www.35igc.org](http://www.35igc.org)





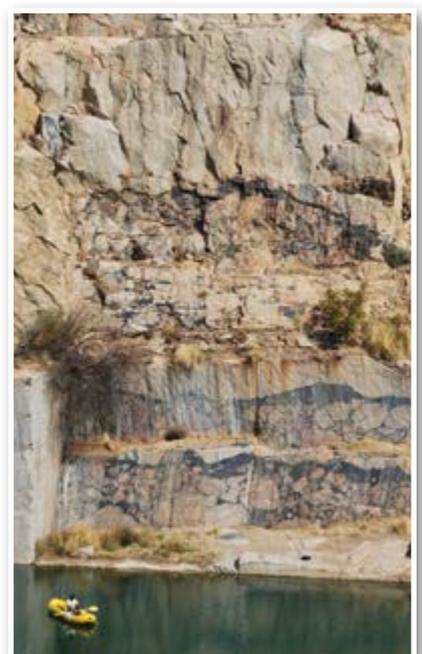
## MESSAGE FROM THE CO PRESIDENTS AND SECRETARY GENERAL

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As 35<sup>TH</sup> IGC fast approaches we are stepping up our efforts on all fronts to ensure that the conference will be a memorable one for every delegate. We are particularly pleased with the way the scientific programme is taking shape, interesting short courses and workshops are being planned and the spectrum of field trips on offer is generating some excitement.

Cost is always a major consideration for a large conference such as this and we have endeavoured to address this issue wherever possible. We urge you to benefit from the Super Early Bird registration rate. Our GeoHost programme will support young and deserving delegates but you should also investigate the alternative ways of obtaining subvention which are outlined in this circular. The host city Cape Town offers an array of affordable accommodation which is also outlined in the circular.

We are committed to attracting as many students, academics and professional geologists to this once in a lifetime event as possible and look forward to welcoming you to Cape Town in 2016.





## TABLE OF CONTENTS

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Critical Dates	Page 04
Scientific Programme	Page 05
Scientific Programme Committee	Page 05
Deadlines	Page 06
Themes and Theme Champions	Page 07
Workshops	Page 15
Business Meetings	Page 15
Expression of Interest Competition	Page 15
Field Trips, with descriptions	Page 16
Call for Sponsorships	Page 23
Call for Exhibitors	Page 23
Social Media Programme	Page 24
GeoHost Programme update	Page 24
Welcome to South Africa and Cape Town	Page 27
Volunteer Programme update	Page 28

General distribution of this and subsequent circulars for the 35<sup>TH</sup> IGC will be via email. Please feel free to forward it to others who may be interested. If necessary, hard copies will be supplied in limited numbers on request through the website, at

<http://www.35igc.org>, or by contacting:

The Secretariat | Danie Barnardo | [barnardo@geoscience.org.za](mailto:barnardo@geoscience.org.za)

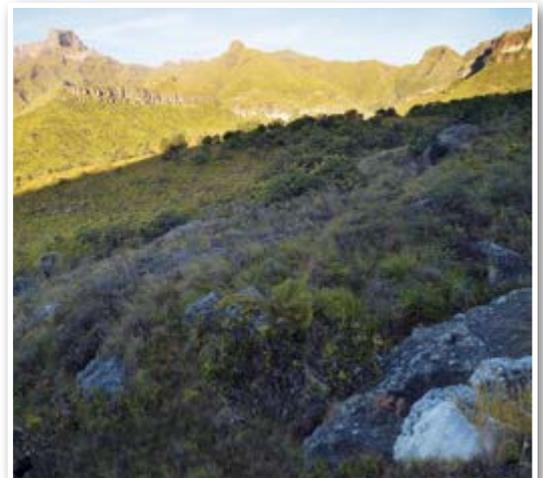
or by mail at 35<sup>TH</sup> IGC Foundation | Postnet Suite A11 | Private Bag 592 | Silverton 0127 | South Africa





## IGC ORGANISING COMMITTEE

CO Presidents (* = acting)	<b>Richard Viljoen</b>	Emeritus Professor, University of the Witwatersrand (Wits)
	<b>Jeannette E. McGill *</b>	CGS Board Member and Chairperson Technical Committee of CGS
Secretary-General	<b>Greg Botha</b>	Council for Geoscience (CGS)
Financial Chair	<b>Craig Smith</b>	Geological Society of South Africa (GSSA)
Sponsorship Chair	<b>Mike Wuth</b>	Consultant
Scientific Chair	<b>Laurence Robb</b>	University of Oxford
Field Trip Chair	<b>Chris Hatton</b>	Council for Geoscience
GeoHost Chair	<b>Jeanette E. McGill</b>	AngloAmerican Platinum
GeoHeritage Chair	<b>Genevieve Pearson</b>	Phoenix Geoconsulting
Volunteer Program Chair	<b>Elna van Niekerk</b>	University of South Africa
Secretariat	<b>Danie Barnardo</b>	CGS
	<b>Juanita van Wyk</b>	CGS
Professional Congress Organisers	<b>Lesley Ferreira</b>	Cebisa Conferences
	<b>Crystal Kasselmann</b>	Centeq Events



## CRITICAL DATES

<b>1 October 2015</b>	Third Circular released
<b>2 November 2015</b>	'Early-bird' registration opens
<b>31 December 2015</b>	Workshop and Short Course proposals close
<b>31 January 2016</b>	Abstract submissions close
<b>1 March 2016</b>	Fourth Circular released
<b>30 March 2016</b>	GeoHost support scheme applications close
<b>31 March 2016</b>	Formal notifications to authors on their abstracts
<b>7 April 2016</b>	Successful GeoHost applicants to be notified
<b>22 April 2016</b>	Volunteer applications close
<b>1 May 2016</b>	Accommodation bookings close
<b>9 May 2016</b>	Successful volunteers notified
<b>31 May 2016</b>	Presenters' registration deadline and Field Trip bookings close
<b>1 June 2016</b>	Standard registrations open and 'Early-bird' registrations close
<b>1 July 2016</b>	Fifth Circular released — preliminary programme
<b>27 August 2016</b>	On-site registration



## OVERALL PROGRAM FOR 35<sup>TH</sup> IGC

### PROVISIONAL PROGRAMME AT A GLANCE

<b>Pre-congress Field Trips</b>	Thursday 18 to Saturday 27 August 2016
<b>Workshops, Short Courses</b>	Saturday 27 and Sunday 28 August 2016
<b>Registration opens, Exhibition setup and Opening</b>	Sunday 28 August 2016
<b>35<sup>TH</sup> IGC welcome reception</b>	Sunday Evening, 28 August 2016
<b>Opening Ceremony and first symposium</b>	Monday 29 August 2016
<b>Scientific Programme</b>	Monday 29 August to Friday 2 September 2016
<b>Business meetings</b>	Evenings of Monday 29 August to Thursday 1 September 2016
<b>Congress dinner</b>	Thursday 1 September 2016
<b>Closing Ceremony and last symposium</b>	Friday 2 September 2016
<b>Post-congress Field Trips</b>	Saturday 3 to Tuesday 13 September 2016

# RECENT DEVELOPMENTS

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## NEW REQUIREMENTS FOR SOUTH AFRICAN VISAS

South Africa has introduced new regulations requiring travelers to the country who need to obtain a visa to submit in-person biometric data, at an approved South African visa centre in their country of origin, to support the application. Collection of processed applications will be from where the application was submitted. Original passport will be required as applicant's proof of identity and handing over of the visa label or refusal letter to applicants. Representative must provide an original Photo ID, an Authority Letter as well as the applicants original passport if collecting the decision on behalf of the applicant/s.

[http://www.vfsglobal.com/dha/southafrica/Biometric\\_Data\\_Collection.html](http://www.vfsglobal.com/dha/southafrica/Biometric_Data_Collection.html)

In addition regulations were introduced to prevent child trafficking and thus all minors require the consent of their parents when traveling into or out of the Republic. Parents must provide an unabridged birth certificate (or equivalent document) for all travelling children under 18, and both South Africans and foreign visitors to South Africa will have to provide details of the child's father and mother.

This requirement also applies to minors who are foreign nationals and who are visa exempt when travelling through a port of entry of the Republic.

<http://www.dha.gov.za/index.php/statements-speeches/621-advisory-new-requirements-for-children-travelling-through-south-african-ports-of-entry-effective-1-june-2015>

Visitors' visas are required from some international travellers permanently resident outside South Africa who wish to visit the country on a temporary basis for tourism or business purposes for a period of 90 days or less for a specific purpose.

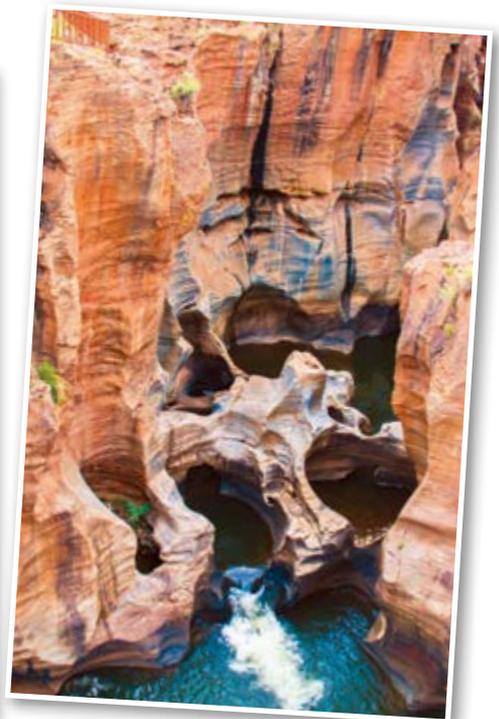
<http://www.dha.gov.za/index.php/immigration-services/apply-for-a-south-african-visa>

- There is a fee charged for issuing a visa, and you should check the cost as this is updated annually. The fee is payable in different currencies in different countries.
- Visas are not issued at South African ports of entry, and airline officials are obliged to insist on visas before allowing passengers to board. If you arrive without a visa, immigration officials are obliged to put you onto a flight back to your home country.

A list of countries where the residents do not require a visa to enter South Africa or where visitors will be subject to specific conditions concerning the duration of their visit can be found here:

<http://www.dha.gov.za/index.php/immigration-services/exempt-countries>

**The 35<sup>TH</sup> IGC will provide delegates with an official invitation letter to meet the requirements of a visitor's visa application only after registration and payment.**





## CONGRESS REGISTRATION FEES

Super Early Bird registration for the 35<sup>TH</sup> IGC is now open. Delegates may register online and make payment via Visa or Mastercard, or EFT/Swift transfer after requesting an invoice.

### HOW TO REGISTER?

Registration for the congress should be done using the [online registration](#) system. No manual registrations will be available.

To qualify for the current Super Early Bird registration rates, registration with payment must be made by 1 November 2015. Should payment not be received, your registration category will automatically change to the later Early Bird category, and the registration fee will be adjusted accordingly.

CATEGORY	SUPER EARLY-BIRD 1 SEPT - 1 NOV	EARLY-BIRD 2 NOV - 31 MAY	STANDARD 01-JUN	LATE / WALK IN 27-AUG
Registered Student Young Earth Scientist (YES) member Pensioners >65	R 5 500.00	R 6 500.00	R 8 000.00	R 9 000.00
Delegate	R 8 500.00	R 10 000.00	R 11 000.00	R 13 500.00
Exhibitor staff	R 5 000.00	R 5 000.00	R 5 000.00	R 5 000.00
Accompanying person	R 2 500.00	R 2 500.00	R 2 500.00	R 2 500.00
Welcome reception guest ticket	R500.00	R500.00	R500.00	R500.00

- All registration fees shown are in South African Rands (ZAR) and are inclusive of 14% Value Added Tax (VAT). Note that VAT is payable on all goods and services within South Africa.

#### DELEGATE REGISTRATION FEES INCLUDE:

- Congress attendance
- Morning & afternoon refreshments
- Lunch during the congress
- Attendance at the Welcome Reception
- Delegate bag including the congress materials
- Programme & abstract access

#### ACCOMPANYING PERSON REGISTRATION INCLUDES:

- Orientation and Welcome
- Orientation Pack including Small Gift
- Access to Spouses Lounge with Water, Tea/Coffee
- 1 x Tour (details to follow)
- Attendance at the Welcome Reception
- Excludes access to the Congress sessions and exhibition
- Excludes access to the Theme Dinner

#### EXHIBITOR STAFF REGISTRATION INCLUDES:

##### Morning & afternoon refreshments

- Lunch during the congress
- Access to the Exhibition area
- Attendance to the Welcome Reception
- Excludes access to the Congress sessions
- Excludes access to the Theme Dinner





## ACCOMMODATION IN CAPE TOWN

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Accommodation bookings and payment will open in **November 2015**.  
Accommodation bookings and payment will close in **August 2016**.

We have negotiated preferential rates for conference delegates/exhibitors - all bookings have to be done via the conference secretariat to qualify for these reduced rates.

Please visit <http://www.35igc.org/Verso/47/Accommodation> regularly for information updates on:

- List of accommodation establishments, with rates
- Accommodation map
- FAQs
- Terms and conditions

## ACCOMPANYING PERSONS PROGRAM

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As one of the top travel destinations in the world today, the 35<sup>TH</sup> IGC extends a special welcome to Accompanying persons to Cape Town. The Organizing Committee expects that many international delegates will be accompanied by their spouses to take advantage of the opportunity to visit one of the world's most beautiful cities. There is much to do and see in Cape Town and surrounds, and information on the destination is available at <http://tourismcapetown.co.za/home>.

Cape Town is tourist friendly, and it is easy to organize tours and activities, including visits to the iconic Table Mountain, designated as one of the world's ten natural wonders. In good weather there is access to the top of Table Mountain via cable car – the easy way up.

Accompanying persons will have access to information desks at the conference centre where tours and activities may be booked.

As part of the accompanying persons registration package, a half day tour is included, namely the Gold-Diamond-Tanzanite Tour. Africa is famous for its gemstones, and so a visit to see diamond, gold and tanzanite jewellery whilst visiting the specialist jewellers is a must and is offered with our compliments.

Several other optional day package tours will be offered at reasonable prices by the conference which will allow visitors to see some of the highlights of the city and the region. Cape Town and the Western Cape region are famous for its wines and no visit to the region would be complete without seeing the winelands. Full day and half day tours are planned, with stops at famous wine estates for tastings.

In addition, the coastal town of Hermanus is famous for its abundance of Southern Right Wales, as well as wine production. Whale season gets underway at this time of year, and while there is no certainty as to how many sightings 'season' will bring, near shore sightings are definitely possible. A full-day trip to sight whales and wine tasting is planned.

The conference is in early spring in the Western Cape and the annual display of wild flowers along the West Coast is spectacular. A day trip up the coast to the best displays will be arranged.





## ORGANIZED TOURS OFFERED THROUGH THE CONFERENCE INCLUDE:

**DIAMONDS, GOLD AND TANZANITE** – half day tour to Cape Town’s Diamond Museum and then onto the Gold Museum. A selection of jewelers and cutters specializing in and marketing diamonds, gold and tanzanite will be visited. Purchases may be arranged in these establishments! **Cost – included in accompanying persons package**

**VICTORIA AND ALFRED WATERFRONT AND ROBBEN ISLAND** – Half-day tour of the Victoria and Alfred Waterfront then to Robben Island, weather permitting, where Nelson Mandela was incarcerated. **Cost – R850 per person**

**CAPE WINELANDS** – full day tour of a number of wine estates and surrounds in the Cape Town and Stellenbosch areas. **Cost – R1400 per person**

**CAPE WINELANDS** – half day tour of the Constantia Valley in Cape Town, home of a number of famous wine estates. **Cost – R800 per person**

**HERMANUS WINES AND WHALES** – full day tour to the coastal village of Hermanus, famous for whale sightings as well as vineyards and wine estates. **Cost – R1700 per person**

**WEST COAST WILD FLOWERS** – full day tour to a number of rural regions along the West Coast of South Africa are famous for late winter – early spring displays of fantastic wildflowers. The exact destination of the tours may vary, depending on where the best displays may be at any given time. **Cost – R2050 per person**

*Detailed itineraries and schedules will be developed from early 2016. All tours will depart from and return to the Conference Centre.*





## SCIENTIFIC PROGRAMME

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Excellent progress continues to be made with the definition and composition of the Scientific Programme for 35<sup>TH</sup> IGC. Fifty broad THEMES define the framework of the programme ([www.35igc.org/themes](http://www.35igc.org/themes)) and to date some 220 symposia have been proposed within these themes (see below).

## SCIENTIFIC PROGRAMME COMMITTEE (SPC)

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### CHAIR

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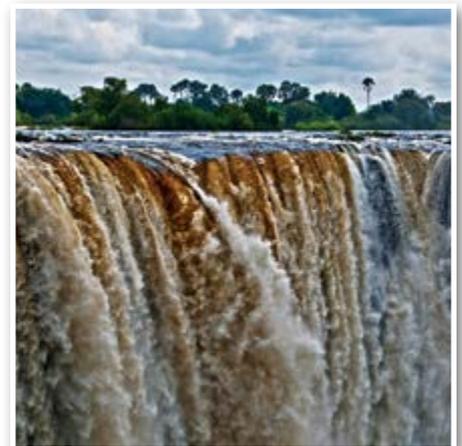
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**Gert-Jan Reichart:** CHAIR Scientific Programme Committee, EGU 2014, Vienna, and Head of the Marine Geology Department, Royal Netherlands Institute for Sea Research/Professor, Department of Earth Sciences – Geochemistry, Faculty of Geosciences, Utrecht University, P.O. Box 80.021, 3508 TA Utrecht, The Netherlands.  
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**Carol Finn:** President, American Geophysical Union and Senior Research Geophysicist, United States Geological Survey, Denver, Colorado.  
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## COMMITTEE

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Tel: +27-(0)11-7176563 • Cell: +27-(0)84-3595225 • Email: [paul.nex@wits.ac.za](mailto:paul.nex@wits.ac.za)

### FUNDAMENTAL GEOSCIENCE

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### YES (YOUNG EARTH SCIENTISTS NETWORK) REPRESENTATIVES

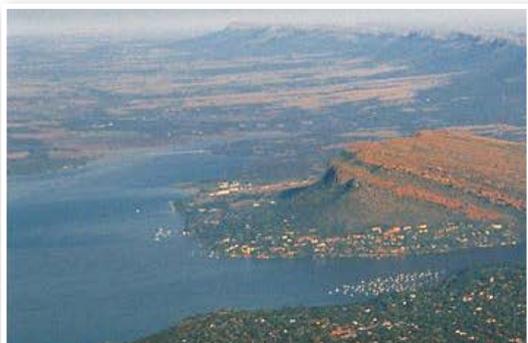
**Tanvi Arora:** Secretary General, YES Network, and Scientist, National Geophysical Research Institute, Hyderabad, India.  
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# ABSTRACTS

The online submission of abstracts **opened on 1 July 2015** and will **close on 31 January 2016**.

Details for submission and the abstract template are available at [www.35igc.org/abstracts](http://www.35igc.org/abstracts).



## PROGRAMME FORMAT

The details of the programme and its scheduling will not be finalized until much closer to the time. However a preliminary outline of the Congress structure is provided below, with the proviso that this may change substantially once delegate numbers have been finalized.

The Cape Town International Conference Centre (CTICC) offers some 45 venues (all easily accessible) and we plan to hold 17 sessions during the course of the Congress, for a total of over 750 individual sessions. This means that we can accommodate more than 3500 oral presentations during the 5 days of the Congress, in addition to the opening and closing ceremonies and plenary talks. Some 700 posters will also be displayed per day for a total of 4 days, with a dedicated poster session designed to coincide with the late afternoon ‘Happy Hour’.

We aim to regulate the programme so that talks in all parallel sessions start at the same time – we are planning to have 3 talks an hour, each of 15 minute duration with 5 minutes for questions and change-over. Talks will all start on the hour, at hour+20 and hour+40. Keynote presentations will be afforded a double slot.

All presentations by members of the Young Earth Scientists (YES) Network will be recognized by a special logo to emphasize the significant contributions made by early career geoscientists the World over.

The new IUGS flagship project “Resourcing Future Generations” will also be afforded special recognition in order to promote the important goals of this global initiative.

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
08.20 - 10.00	OPENING	SESSION + 5 min. talk			
10.00 - 10.20		TEA			
10.20 - 12.00		SESSION + 5 min. talk			
12.00 - 13.00	PLENARIES				
13.00 - 14.00	LUNCH				POSTERS
14.00 - 15.40	SESSION + 5 min. talk				
15.40 - 16.00	TEA				POSTERS
16.00 - 17.40	SESSION + 5 min. talk	CLOSING			
17.40 - 19.00	POSTERS & HAPPY HOUR				



## SCIENTIFIC SYMPOSIA

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All the Themes have not been allocated symposia and we welcome additional submissions for those without.

## GEOSCIENCE FOR SOCIETY

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### GEOHERITAGE AND CONSERVATION

- Peter Bobrowsky, Patrick de Wever and Wolfgang Eder – *GeoHeritage: global case studies and success stories*
- Siham Belhaj – *Géosciéntifique dans la société/Heritage and Conservation*
- Jose Brilha, Lars Erikstad and Enrique Diaz Martinez – *Heritage, conservation and management*
- John Anderson, Maarten de Wit, Peter Nielsén, Tracey Phillips and Colin Garland – *Africa Alive Corridors*
- Yuanyuan Zheng and Jianping Zhang – *Geoheritage and Geoparks*
- Margaret Brocx & Vic Semeniuk – *Geodiversity underpins biodiversity*

### GEOSCIENCE EDUCATION AND PUBLIC COMMUNICATION

- Jesús Martínez-Frias and Gary Lewis – *Geoscience education: partnership, public awareness and GEO-ERA*
- Paul Denton and John Taber – *Educational Seismology in Secondary Schools*
- Iain Stewart and Cathy Manduca – *Sustainable Geoscience: embedding Earth stewardship in geo-education*
- Mike Katz – *Social Responsibility for Geoscience Education Workshop*
- Daniel Kelley, Tanvi Arora and Ndivhuwo Cecilia Mukosi – *Field-Based Geoscience Education: A YES Network Comparison*
- Abdelouahed Lagnaoui – *Geoscience Education in Africa: Challenges & Perspectives*
- Iain Stewart – *Communicating Geoscience to the Public: Promises and Pitfalls*
- Bronte Nicholls, Sylke Hlawatsch and Chris King – *Geoscience Education at school level*
- Natalie Bursztyn – *Geoscience Education: technology & training the next generation of geoscientists*
- Alison Stokes and Christopher Atchison – *Increasing diversity in the geosciences through access and inclusion*
- Steven Semken – *Place-based and culturally informed geoscience education*

### PUBLIC SECTOR GEOSCIENCE AND GEOLOGICAL SURVEYS

- Hannu Mäkitie, Bob Thomas, Jean-Claude Guillaneau and Fredrik Karell – *Geological mapping of Africa, a key for sustainable use of earth resources*
- Diganta Barman – *National Geochemical Mapping-ways and possibilities in future*
- Abraham Thomas, Paul Macey and Gerrit de Kock – *Regional Geological Mapping*
- Raphael De Vicq – *Geochemistry Mapping*
- Christopher Keane and Carolyn Wilson – *Global Geoscience Human Capacity Building - Trends, Challenges, and Innovative Approaches*
- Brian Marker – *Geoscience for environmental management*
- Joel Gill – *Skills for Sustainability – Effective Application of Geology to International Development*
- David Smith, Xueqiu Wang, Alecos Demetriades, Laurel Woodruff and Patrice de Caritat – *Mapping the geochemistry of the Earth's surface at global to local scales (3rd Arthur Darnley Symposium)*
- Zakaria Hamimi – *Geologic Mapping Techniques*
- Philippe Rossi and Manuel Pubellier – *CGMW: one century of continent scale geological syntheses through international projects*



## CLIMATE CHANGE STUDIES

- **Vinod Tewari, Snigdha Ghatak, Kathleen Histon and Jooly Jaiswal** – *Past Global Climate Change In The Himalaya and Future Implications*
- **Vinod Tewari and Jooly Jaiswal** – *Speleothem and Speleogenesis: Past Climate Change, Monsoon and Geomicrobiological Process*
- **Mohammed Sayyed and Alexander Makeev** – *Palaeosols, palaeoweathering profiles and polygenetic soils indicators of climate change*
- **Valentina Yanko-Hombach, Tamara Yanina and Olena Smytyna** – *From the Caspian to the Mediterranean: Environmental change and human response during the Quaternary: IGCP610*
- **Shijie Wang, Junhua Yan, Zaihua Liu and Jian Ni** – *Biogeochemical processes, climate and land use changes in karst critical zones*
- **Neloy Khare, K.J. Ramesh, Shilpa Pande, Kirtiman Awasthi and Pankaj Baghel** – *Understanding Tropical Climate Change from geological perspectives through multi-dimensional approach*
- **Tanvi Arora (YES Network)** – *Climate Change Impact on Global Water Resources*
- **Mriganka Ghatak** – *Geoscientific tools in integrating Climate Change Adaptation-Disaster Risk Reduction*

## GROUNDWATER AND HYDROGEOLOGY

- **Igor Zektser** – *Fresh Groundwater as Strategic Resource for Water Supply of Population in Emergency Situations*
- **Russell Harmon, Paul Shand, Tom Paces, Ashton Maherry and Philippe Negrel** – *Hydrogeology and Hydrochemistry of Arid and Semi-Arid Africa: A Tribute to W. M. Edmunds*
- **Fred Ogden, Dani Or, Mike Sukop, Nebo Jovanovic and Russell Harmon** – *Non-Darcian flows in soil and geological porous media*
- **Cheng Zhang, Chris Groves, Zhongcheng Jiang, Martin Knez and Yongjun Jiang** – *Hydrochemistry of streams in karst area: biogeochemical processes and watershed input*
- **Sreemati Gupta** – *Integrated geohydrological approach to secure ground water resources*
- **Tanvi Arora, Faisal Kamal Zaidi, Pu Junbing and Massoud Morsali** – *Hydrological Insights of Groundwater along Silk Road: a YES Network initiative to understand the impact and strengthen the adaptability*
- **Tanvi Arora and Xiaogang (Marshall) Ma** – *Big Data, Big Sustainability: Climate Change Impact on Global Water Resources*

## SOIL SCIENCE

- **Dani Or, Teamrat Ghezzehei and Michael Young** – *Life in the Subsurface*
- **Simone Priori, Marc Van Meirvenne, Bo Stenberg and Kristin Piikki** – *Progresses in proximal soil sensing techniques for mapping and monitoring*

## GEOSCIENCE DATA AND INFORMATION SYSTEMS

- **Hermanus Brynard** – *Application of Geo-information in the Earth Sciences*
- **ChristienThiart and B. S. Daya Sagar** – *Mathematical Morphology in Geosciences and Geoinformatics*
- **Kristine Asch** – *Geoscience Information Super-Symposium*
- **Renguang Zuo and John Carranza** – *GIS-based geochemical data analysis and mineral prospectivity mapping*

## GEOHAZARDS

- **Peter Bobrowsky, Brian Marker, Jasper Knight, Catherine Chague-Goff and John Clague** – *Geohazards and societal benefits: coping with reality*
- **Liber Galban Rodríguez** – *Risk evaluation and management in the 21st Century*
- **Anshu Kumar Sinha** – *Himalayan Mountain Building and Fragile Ecosystem vis-a-vis Natural Disaster Management*
- **Peter Bobrowsky and Vern Singhroy** – *Managing Geohazards and Risks from space*
- **Yujiro Ogawa, Nalin Ratnayake, Yildirim Dilek, Kazuhisa Goto and Yasukuni Okubo** – *Geohazards: Prevention, risk reduction, early warning and preparedness*
- **Aaron Micallef, Claudio Lo Iacono, Stefan Grab and Mauro Soldati** – *Subaerial and submarine landslide processes and hazards*
- **Mustapha Meghraoui** – *Crustal deformation and seismotectonics in Africa: Active faulting and earthquake hazard assessment*
- **Kathryn Hanson, Johann Neveling and Ryan Coppersmith** – *Challenges in Identifying and Characterising Seismogenic Faults in Non-Plate Boundary Settings*



## PROXIMAL AND REMOTE SENSING TECHNOLOGIES

- **Tsehaie Woldai** – *Geological Mapping & Mineral Exploration: Case studies from Africa*
- **Vern Singhroy** – *New Remote Sensing Sensors: Technological Developments, Analytical Methods/Algorithms and Programs in Geological Remote Sensing*
- **Carlos Roberto de Souza Filho** – *Spectral Geology in Exploration (minerals, hydrocarbon, geothermal) and Production*
- **Raymond Kokaly** – *Global Remote Sensing of Surface Minerals: Challenges and Opportunities*
- **Marc Goossens** – *Role of Unmanned Aircraft and Sensor Miniaturization in Geology*
- **Vern Singhroy** – *Analyzing Geohazards and Risk Using Remotely Sensed Derived Datasets*
- **Tsehaie Woldai** – *Integration of Multi-Sources Data, 2D,3D and 4D (temporal) Mapping and Geoscience Information Delivery Systems*
- **Mark van der Meijde** – *Capacity building in Geosciences in Africa: adding sensors to the skill pool*
- **Brigitte Leblon, Jeanine Engelbrecht and Armand LaRocque** – *Use of radar remote sensing in geological applications*



## HISTORY OF THE GEOSCIENCES

- **Barry Cooper** – *General contributions on the history of geology*
- **Barry Cooper** – *Historical Studies of Gondwana*
- **Barry Cooper** – *Indigenous understanding of geology*
- **Barry Cooper** – *History of fossil man investigations*
- **Barry Cooper** – *History of geology over the past 50 years*

## MEDICAL GEOLOGY

- None

## GLOBAL GEOSCIENCE PROFESSIONALISM AND GEOETHICS

- **Theme Champions (for TG-GGP/5IPGC organising committee)** – *Professional competencies in geoscience (key issues: teaching of professional skills at university; employers' needs; fostering better understanding between universities and employers; graduate needs for career progression and advancement and/or for registration and licensure). Intended as a session of 5IPGC incorporated in 35<sup>TH</sup> IGC.*
- **Theme Champions (for TG-GGP/5IPGC organising committee)** – *Ethical practice in geoscience (key issues: codes, guidelines, compliance, publishing and plagiarism, pitfalls, discipline, risks, relevance of principles to both academics and applied geoscientists). Intended as a session of 5IPGC incorporated in 35<sup>TH</sup> IGC.*
- **Theme Champions (for TG-GGP/5IPGC organising committee)** – *Inconvenient truths: ethical dilemmas for geoscientists in protecting and informing the public (key issues-effectiveness, integrity and ethics of communicating expertise - through public reports, the media, academic papers, expert testimony, development of laws/regulations, teaching etc). Intended as a session of 5IPGC incorporated in 35<sup>TH</sup> IGC.*
- **Giuseppe Di Capua, P. Bobrowsky, M. Bohle, J. Geissman, S. Peppoloni. IAPG** – *Geoethics: general aspects and case-studies - Geoethics develops ethical and social perspectives on challenges arising from human interaction with Earth systems, complements technical approaches and solutions, and defines ethical frameworks for geoscientists' activities. Abstracts are invited that illustrate this at the local and global scale*
- **Jesus Martinez-Frias (Spain), N. Nikitina (Russia), N. Nishiwaki (Japan), L. Vasconcelos (Mozambique). IAGETH** – *Geoethical problems & dilemmas through the prism of new challenges of time: Concepts, methods, principles, standards & rates; exploration, subsoil & mineral resources, wastes, groundwater, geoethics on Earth/other planets; social welfare, geoethics & natural hazards & disasters; cultural situations*
- **Vaclav Nemeč and Niichi Nishiwaki** – *Geoethics From The Source*
- **Vaclav Nemeč, Niichi Nishiwaki and Nataliya Nikitina** – *Theoretical Foundations Of Geoethics*
- **Tamas Hamor** – *Geology, the regulated discipline - embedding into society and economy by legislation. Aims are to discuss the importance of regulating professional geoscience activities with financial, environmental, or public safety implications and the effectiveness of regulatory frameworks in operation internationally and in key geoscience practice sectors.*

## GEOSCIENCES FOR BENEFITTING LOW-INCOME COUNTRIES

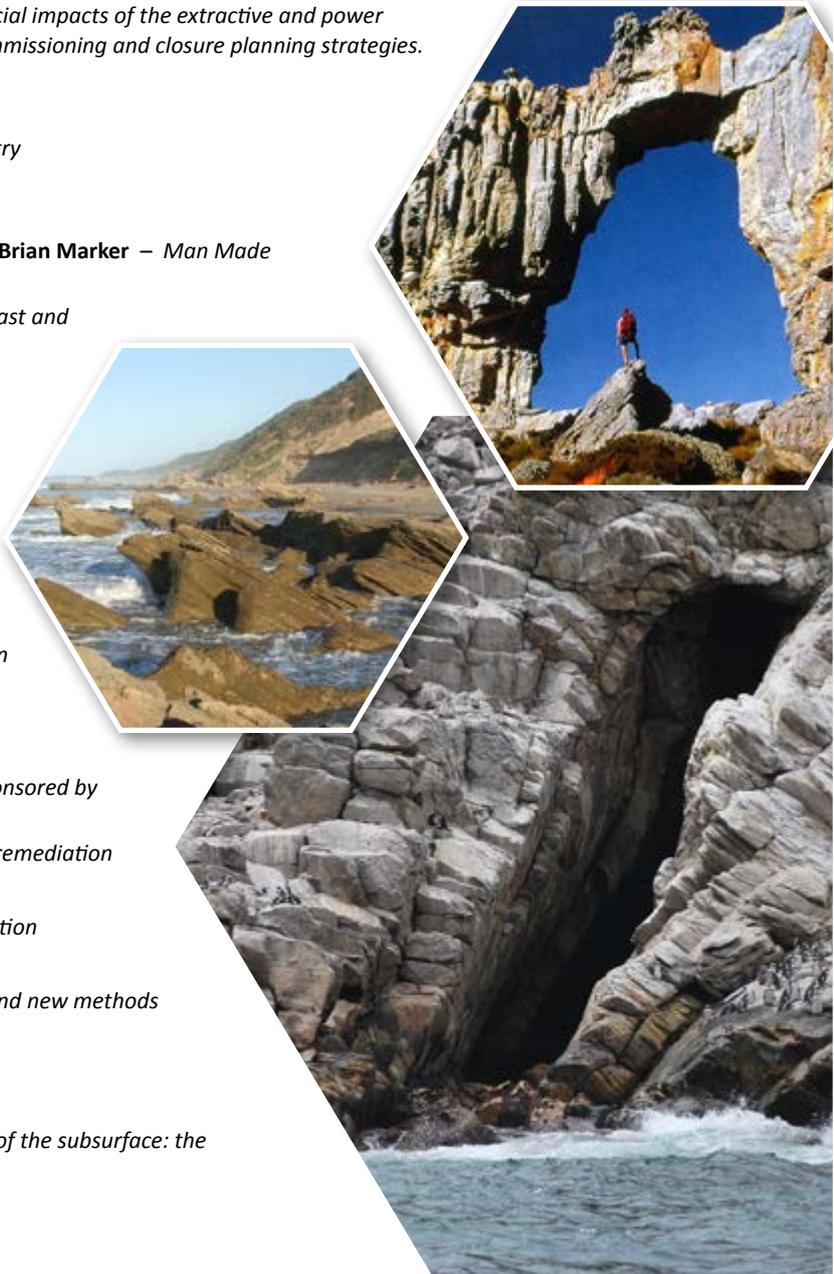
- **Shrikant Limaye, Afia Akhtar, Silvia Peppoloni Madhumita Das and Bhavana Umrikar** – *AGID Sub Theme 1: Ground Water Development for Food Security & Rural Health*
- **Afia Akhtar, Viqar Husain and Madhumita Das** – *AGID Sub Theme 2: Mining for Economic Progress of Low-Income Countries*
- **Afia Akhtar, Shrikant Limaye and Sari Bhagiarti Kusumayudha** – *AGID Sub Theme 3: Geo Parks, Geo Heritage & Geo Tourism: Role of Women Geoscientists*
- **Shrikant Daji Limaye, Antony Reedman and Shaheena Tariq** – *AGID Sub Theme 4: Geo-hazards: Creating Social Awareness, Preparedness and Capacity Building for mitigating Geohazards*
- **Antony Reedman, Shahina Tariq, Gbenga Okunlola and Afia Akhtar** – *AGID Sub Theme 5: Geoscientists and Environmental Protection*

## ENVIRONMENTAL GEOSCIENCES

- **Kevin Leahy** – *Water resources management, including water pricing, for major industrial projects including mining and petroleum sites; ensuring availability and minimising contamination*
- **Kevin Leahy** – *Remediation in difficult environments; to include desert, swamp, cold-climates; for major industrial projects including mining and petroleum sites*
- **Kevin Leahy** – *Geological controls on the quantitative risk assessment of contaminants in shallow soils and groundwater (human health and eco-toxicology); the importance of a good conceptual site model prior to remediation*
- **Vojtech Ettler** – *Isotopic tracing of environmental contamination*
- **Kevin Leahy** – *Geoscience at the nexus of industry, water and social impacts of the extractive and power industries: 1. The assessment and mitigation of impacts. 2. Decommissioning and closure planning strategies. 3. Managing resettlement and reducing social impacts*
- **Rhandu Mahlaule** – *Mining rehabilitation: a long term liability*
- **Sadiki Lotha Laiser** – *Environmental Aspects in the Mining Industry*
- **Brian Marker, Ben Mapani, Qingcheng He, Hisashi Nirei and Adriana Niz** – *Geoscience for environmental management*
- **Jonas Satkunas, Hisashi Nirei, Kunio Furuno, Hassina Mouri and Brian Marker** – *Man Made Strata and Geopollution*
- **Jan Harff, Christien Thiart, Tarmo Soomere and Hua Zhang** – *Coast and Society*

## ENGINEERING GEOLOGY AND GEOMECHANICS

- **Rajendra Kumar Dubey, Javid Ahmad Dar and Ravi Shankar** – *Geological Engineering and Energy Facets*
- **Nathalie Touze-Foltz, Kent von Maubeuge and Boyd Ramsey** – *Multicomponent geosynthetic clay liners*
- **Nathalie Touze-Foltz, Kent von Maubeuge and Boyd Ramsey** – *Durability testing of barrier materials*
- **Kent Von Maubeuge** – *The use of Geosynthetic Barrier Systems in Geotechnical Applications*
- **Philip Paige-Green** – *Dimension stone and building materials (sponsored by IAEG C-10, HSTG and IGCP 637)*
- **Philip Paige-Green** – *Aggregates and construction materials (sponsored by IAEG C-14)*
- **Philip Paige-Green** – *Slope stability - analysis, investigation and remediation*
- **Philip Paige-Green** – *Young Engineering Geologists Session*
- **Philip Paige-Green** – *Karst problems - identification and remediation*
- **Philip Paige-Green** – *Engineering Geology for large structures*
- **Philip Paige-Green** – *Laboratory and field testing - innovations and new methods of interpretation*
- **Philip Paige-Green** – *Soil and rock mechanics*
- **Philip Paige-Green** – *Marine geotechnics*
- **Helen Reeves, Ian Jefferson and Keith Turner** – *Sustainable use of the subsurface: the geology, engineering and environment of our underground asset*



# GEOSCIENCE IN THE ECONOMY

## MINERAL RESOURCES EVALUATION, GEOSTATISTICS AND MATHEMATICAL GEOSCIENCE

- **J. Antonio Vargas-Guzman** – *Advanced Quantitative Studies and Non Linear Methods in Geosciences*
- **Christien Thiart, Jef Cears and Julian Ortiz** – *Geostatistics for Geological Resources Modeling*
- **Allan Trench** – *Mineral Economics for Geologists*
- **Björn Schouenborg, Barry Cooper, Dolores Pereira, Brian Marker and Sabina Kramar** – *Building stones & ornamental rocks - resource evaluation, technical assessment, heritage designation*
- **Christien Thiart, Giovanni Vezzoli and Alberto Resentini** – *Statistical analysis of compositional data. Theory and applications to Earth Sciences*
- **Christien Thiart, Oktay Erten and Erkan Topal** – *Mining Geostatistics and Operations Research in Mine Planning*
- **Christien Thiart, Wenlei Wang, Meng Wang and Jie Zhao** – *Contributions of young Earth scientists to mathematical geoscience for resource strategic issues (jointly-organized by IAMG and YES network)*

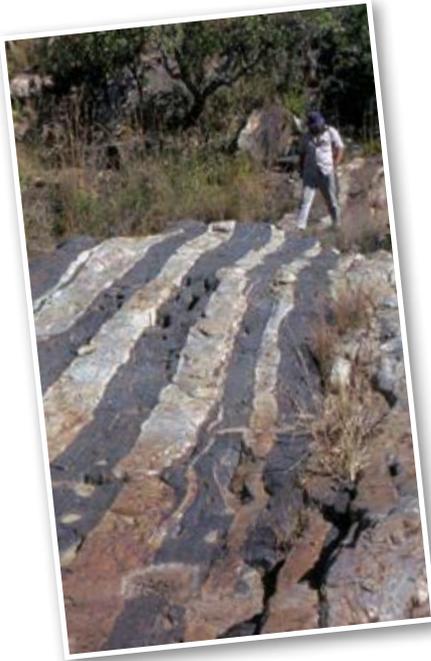


## MINERAL EXPLORATION

- **Christien Thiart, Katsuki Koike, Ryoichi Kouda and Jorge K. Yamamoto** – *New theories and methods in resources exploration*
- **Arianne Ford and Alok Porwal** – *Quantitative geoscience data analysis for mineral exploration targeting*
- **Igor Rokityansky, Abdulkhai Zhamaletdinov and Valeriya Hallbauer-Zadorozhnaya** – *Geoelectrics (geoelectromagnetic methods) for geotectonics*
- **Philip Harris** – *Infrared core imaging: an emerging technology for geological and mining applications*
- **Zié Ouattara** – *Mineral deposit footprints*
- **Aaron Micallef** – *Seafloor exploration and surveying techniques for the Earth Sciences*
- **Ignacio Gonzalez-Alvarez, Ravi Anand, Tim Munday and Claudio Porto** – *Greenfields exploration in regolith-dominated terrains*
- **Alok Porwal and Ignacio Gonzalez-Alvarez** – *The Mineral system approach: the paradigm and future trends*
- **Noriyoshi Tsuchiya** – *New Theories and Methods in Resources Exploration*
- **Jingwen Mao, Franco Pirajno, Reimar Seltmann, Zhaoshan Chang and Richard J. Goldfarb** – *From Ore Deposits to Global Metallogeny: implications for exploration success (Sponsored by IAGOD)*

## MINERAL DEPOSITS AND ORE FORMING PROCESSES

- **David Holwell and Rais Latypov** – *Processes governing ore formation in the Bushveld Complex and other mafic and ultramafic magmatic systems (IAGOD-CODMUR sponsored)*
- **Albertus Smith and Harilaos Tsikos** – *Sediment-hosted ore deposits*
- **Nigel Cook** – *Trace element analysis of minerals: applications in ore geology (Sponsored by IAGOD)*
- **David Lentz, Fernando Tornos, Brian Rusk, Khin Zaw and Jian-Wei Li** – *Ore-forming processes associated with hypabyssal magmatic and related volcanic systems (Sponsored by IAGOD)*
- **Nicholas Gardiner** – *Crustal Evolution, Geodynamics and Mineral Systems*
- **Bede Evans** – *Major Mineral Deposits of Africa (sponsored by Vale)*



## COAL

- **Rosemary Falcon** – *Characterisation of Gondwana coals: Advances in Applied Petrography*
- **Rosemary Falcon** – *Characterisation of Gondwana coals: Impact of coal geology on coal beneficiation and product utilisation*
- **Christien Thiar, Ricardo A. Olea and Özgen Karacan** – *Quantitative characterization of coal resources and hazards*
- **Allan Kolker** – *Trace Constituents in Coal: Occurrence, Emissions, and Environmental Impact*

## PETROLEUM SYSTEMS AND EXPLORATION

- **Angus McCoss & Keryn Simpson** – *Petroleum systems of the On-shore basins of Africa (convened by Tullow Oil Ltd)*
- **Luca Bertelli & Jonathan Craig** – *Off-shore petroleum systems of eastern Africa (convened by ENI S.p.A.)*
- **Jasper Peijs** – *Petroleum systems of the Atlantic margin of Africa (convened by BP Plc)*

## UNCONVENTIONAL HYDROCARBONS AND EMERGING FUELS

- **Kewame Rollyken Gwandu** – *Unconventional Petroleum Resources in the Karoo Basin*
- **Kalachand Sain, Richard Coffin and Ingo Pecher** – *Gas hydrates - a major unconventional energy resource: when will they be produced*
- **Annette Goetz and Doug Cole** – *Karoo Research - From Basin-Fill to Resource Potential*
- **Annette Goetz and Romeo Flores** – *Coal and Coalbed Gas: Understanding Greenhouse Gas Sources*

## ENERGY IN A CARBON CONSTRAINED WORLD

- **Nigel Hicks, Brendan Beck, Sallie Greenberg and Andrew Green** – *Carbon capture and storage: From reservoir through the full value chain*
- **Matthias Raab** – *Natural Gas Storage*
- **Annette Goetz, Ákos Török and Ingo Sass** – *Geothermal Energy*
- **Matthias Raab** – *Reservoir Management: engineering pore space for storage and production for multiple resource utilisation*

## APPLIED MINERALOGY AND GEOMETALLURGY

- None

## MINING GEOLOGY AND EARTH RESOURCE ENGINEERING

- None

## THE URBAN MINE

- None

## CRITICAL METALS - A GLOBAL PERSPECTIVE

- **Kathryn Goodenough and Hannah Hughes** – *Critical Metals in Intracontinental Geodynamic Settings*

## RESOURCING FUTURE GENERATIONS

- **Vitor Correia** – *Developing Europe's International Observatory for Raw Materials*
- **Sylvia Peppoloni, Nic Bilham, Vitor Correia and Luca Demicheli** – *Geoethical perspectives on meeting the resource needs of future generations*
- **Willem Van Der Schyff and Henk Lingenfelder** – *Protect Mineral Assets to benefit Future Generations*
- **Edmund Nickless, Pat Leahy, Brian Skinner and Neil Williams** – *Resourcing Future Generations: Securing the future supply of raw materials for the planet: a multifaceted approach*

## GOLD MINERALIZING SYSTEMS (JOINTLY SPONSORED BY SEG AND SGA)

- **Hartwig Frimmel and Lynnette Greyling** – *The Crustal Gold Cycle*

# FUNDAMENTAL GEOSCIENCE

## SEDIMENTARY PROCESSES - ANCIENT TO MODERN

- **Milovan Fustic and Kyungsik Choi** – *Tidal Processes and Products: From Tides to Rock Record*
- **El Hassane Chellai and Ian Jarvis** – *Phosphorus, phosphorites and marine authigenesis -sedimentology, geochemistry and environments of formation*
- **Wlady Altermann, Malcolm Walter and Kenichiro Sugitani** – *Archean Stromatolites and their Depositional Environments*
- **Jasper Knight** – *Climatic controls on sedimentary systems and processes*
- **Ken Eriksson and Amy Weislogel** – *Detrital Zircons in Basin Analysis: Provenance Reconstruction, Chronostratigraphy, Sediment Routing*
- **Paul Carling and Marc De Batist (IAS), Vitor Abreu and Mike Blum (SEPM)** – *Transatlantic Sedimentology (sponsored by IAS and SEPM)*

## BASIN FORMATION AND CONTINENTAL MARGINS

- **Andrew Green, Andrew Cooper and Burghard Flemming** – *Stratigraphic and morphologic signatures of continental shelves*
- **Said Maouche, Christophe Morhange and Stathis Stiros** – *Coastal tectonics and sea level change*
- **Marta Perez-Gussinye** – *Observations and modelling of the architecture and dynamics of rifts and passive margins*
- **Webster Mohriak, Sylvia dos Anjos and Monica Heilbron** – *Basin analysis and petroleum exploration offshore Brazil and the conjugate margins in Angola, Namibia and South Africa*
- **James Pindell and Rod Graham** – *Rift to drift transitions at passive margins*
- **Bastien Linol, John Armitage and Susanne Buiter** – *Unravelling the history of cratonic sedimentary basins*
- **Stewart Fishwick, Kate Selway, Derek Keir, Judith Sippel and Tesfaye Kidane** – *New insights into the evolution of the East African and Arabian rift systems from multidisciplinary data and numerical models*



## A DYNAMIC EARTH

- **Anshu Kumar Sinha and Jean-Pierre Burg** – *Geology and Tectonics Of the Himalayan Orogenic Belt*
- **Hengmao Tong** – *Rift basins in south-east Asia-faulting, sedimentation and mineralization*
- **Guochun Zhao, Yuejun Wang, Baochun Huang, Yunpeng Dong and Sanzhong Li** – *Reconstruction of East Asian Blocks in Pangea*
- **Christopher Spencer, Michael Brown, Blair Schoene, and Elis Hoffmann** – *Secular change in Earth evolution*
- **Nicolas Flament, Bilal Haq and Clint Conrad** – *The geodynamics of Phanerozoic sea level change*
- **Tao Wang, Isokov Maksud, Reimar Seltmann, Zuoheng Zhang and Zhongping Ma** – *Geodynamic and metallogenic processes in the Tianshan orogen and adjacent areas, Central Asia*
- **Zheng-Xiang Li, David Evans, Shijie Zhong and Bruce Eglington** – *Supercontinent Cycles and Global Geodynamics (convened by IGCP 648)*
- **Sebastian Tappe, William Griffin, Phil Janney, Nicholas Arndt and John Gurney** – *The dynamic Earth and its Kimberlite, Cratonic Mantle and Diamond record through time*
- **Hans-Peter Bunge, Andrew Nyblade, Peter Japsen, Paul F. Green and Francois Guillocheau** – *Dynamic Africa: integrating constraints on the post-Gondwana topographic evolution of Africa and adjacent continents from the core mantle boundary*
- **Tim Kusky, A.M. Celal Sengor and Ali Faghieh** – *Tectonics of Tethys with an Emphasis on the Geology of Turkey and Iran, and Comparison with Other Tethyan Domains*
- **Kerstin Saalman and Jeremie Lehmann** – *Mechanisms and timescale of West Gondwana amalgamation*
- **Yildirim Dilek and Harald Furnes** – *Ophiolite Record of Oceanic Lithosphere Formation Through Time*
- **O P Mishra and R K Mall** – *Geo-hazards and Sustainable Development under climate change scenario*
- **Hui Cao, Ioan V. Sanislav, Afroz Ahmad Shah, Asghar Ali and Wang Meng** – *Interrelationship between Deformation and Metamorphism during Orogenesis*

- **Talat Ahmad** – *Evolutionary history of the Indus-Shyok Suture Zone, Ladakh, Western Himalaya*
- **Renata Schmitt and Alan Collins** – *The Tectonic Evolution of Gondwana (convened by IGCP 628)*
- **Talat Ahmad, Shakil Ramshoo and Meraj Alam** – *Evolutionary history of the Indus-Shyok Suture Zone, Ladakh, Western Himalaya*
- **Damien Delvaux and Thierry De Putter** – *Geodynamics and mineral resources in the Central African Shield and Congo Basin*

### THE DEEP EARTH

- **Irina Artemieva** – *Compositional and rheological layering in cratonic lithosphere*
- **Alan Woodland and Glenn A. Gaetani** – *Redox reactions as controls on geochemical processes in the crust and mantle*
- **Jingsui Yang, Yildirim Dilek, Julian Pearce, Hans-Peter Schertl and Cong Zhang** – *Diamonds and Crustal Recycling into Deep Mantle*
- **Baochang Liu, Thomas Wiersberg, Gilbert Camoin and Pavel Talalay** – *Scientific Drilling on Continents and Oceans*
- **Larry Brown** – *Imaging the Crust with Large N Arrays*

### THE HADEAN AND ARCHAEOAN EARTH

- **A. Kroener, Duni Liu, Mike Brown, Axel Hofmann and Walter Mooney** – *Crust formation and recycling from the Hadean to the late Archaean: The transition to plate tectonics*
- **Andrey Bekker, Kurt Konhauser and Benjamin Eickmann** – *Redox texture of the Archean atmosphere and ocean*
- **Axel Hofmann, Marco Fiorentini and Andrea Agangi** – *Early Earth Mineral Systems*
- **Zhai Mingguo, Geoffrey Clarke, Chris Yakymchuk, Chunjing Wei and Shoujie Liu** – *Crustal metamorphic regimes in the ancient Earth*
- **Mingguo Zhai and Chunjing Wei** – *Early Precambrian metamorphism and crustal heat regimes*
- **Alfred Kroener** – *Field workshop on the evolution of early Archaean granitoid-greenstone terranes*

### THE PROTEROZOIC EARTH

- **Valiveti Venkata Sesha Sai** – *Proterozoic magmatic processes; insights into the crustal growth and accretionary events in diverse tectonic settings*
- **Talat Ahmad and Meraj Alam** – *Crustal Evolution in the Indian Peninsula: Special Reference to Central Indian Craton*

### GEOCHRONOLOGY

- None

### ISOTOPE GEOSCIENCE

- **Philippe Négrel, Emmanuelle Petelet-Giraud, Rich Wanty, Andreas Hartmann and François Chabaux** – *Isotope proxies in the critical zone: Deciphering time-dependent processes in weathering profile, natural and anthropogenic fingerprinting of surface and groundwater and residence time assessment*

### MAGMATISM - SETTINGS, COMPOSITIONS AND PROCESSES

- None

### MINERALOGY

- **Jean-Frank Wagner and Barbosa Alves Daisy** – *Clays and Clay Minerals*
- **Ian Graham, Lee Groat and Gaston Giuliani** – *Gems: bringing the World together*
- **Pei Ni, Ronald Bakker and Fanus Viljoen** – *Fluid and melt inclusion in Minerals*



## METAMORPHIC PROCESSES

- **Michael Brown, Mark Caddick, Chris Clark and Johann Diener** – *Challenges in ultrahigh-temperature (UHT) granulite metamorphism and crustal melting*
- **Silvio Ferrero, Matthias Konrad-Schmolke and Hafiz Rehman** – *Microscale is the key: microstructural and microchemical studies of metamorphic processes to unravel compositional and geodynamic evolution of the Earth*
- **Eugene Grosch, Tim Johnson and Martin Whitehouse** – *Metamorphic processes in early Earth evolution*
- **Tamer Abu-Alam and Eugene G. Grosch** – *Tectono-thermal evolution of Gondwana: suturing of a supercontinent*

## EVOLUTION OF THE BIOSPHERE AND BIOGEOSCIENCE

- **Nicola McLoughlin, Vicky Petryshyn and Russell Shapiro** – *Stromatolites through time: archives of microbe-sediment interaction*

## MARINE GEOSCIENCES AND OCEANOGRAPHY

- **David Van Rooij and F. Javier Hernandez-Molina** – *Deep-water circulation: processes & products*
- **F. Javier Hernandez-Molina** – *Criteria for identifying contourite deposits*
- **Alan Stevenson, Koen Verbruggen, Aarno Kotilainen and Vladimir Kostylev** – *Uncovering the great unknown, mapping the Earth's ocean floor*
- **Andrew Green** – *Stratigraphic and morphologic signatures of continental shelves*
- **Gilbert Camoin, James Austin, Keir Becker and Yoshi Tatsumi** – *Achievements and perspectives in scientific ocean drilling*

## ARCTIC AND ANTARCTIC GEOSCIENCE

- **Nikolay Alexeev** – *Precambrian geology of Antarctica*
- **Morten Smelror and Oleg V. Petrov** – *Geological History and Mineral Resources of the Circumpolar Arctic*
- **Geoffrey Grantham and Ian Meicklejohn** – *Antarctic Earth Science*

## SURFICIAL PROCESSES AND LANDSCAPE EVOLUTION

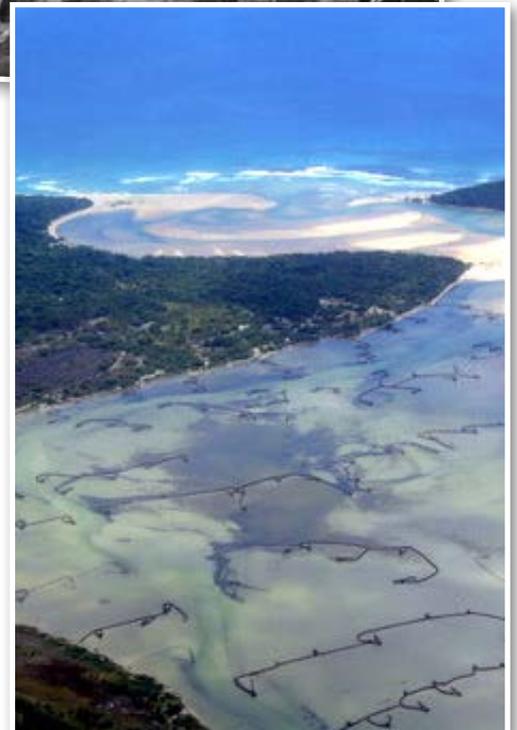
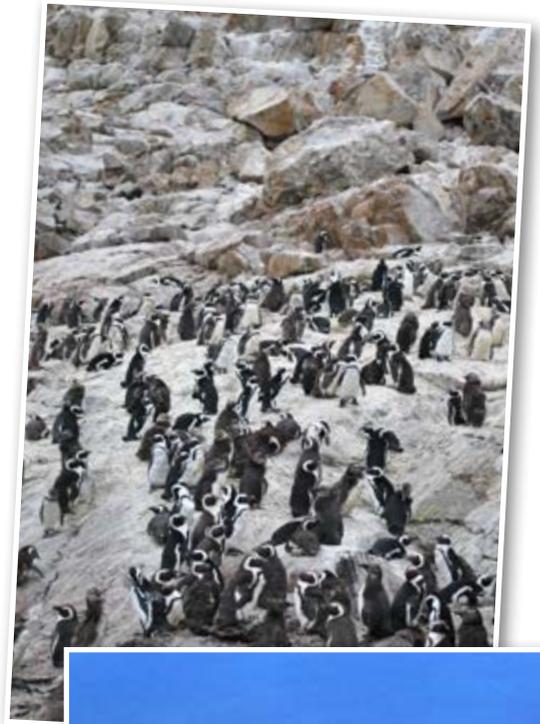
- **David Thomas and Charlie Bristow** – *Evolution of sand seas: past, present...and future?*
- **Jasper Knight** – *Earth Systems in the Anthropocene*
- **Rajiv Sinha and Snigdha Ghatak** – *Decoding authigenic and allogenic forcings on tropical fluvial landscape development during Quaternary*
- **Dominique Chardon** – *Regolith, paleoweathering and continental surface dynamics: from landscape to the global perspective*
- **Fenton Cotterill, Dirk Bellstedt and Andrew Gottscho** – *Earth's Genomic Record and Geoecodynamics: Evolving Landscapes and Paleoenvironments of the Critical Zone*

## ROCK DEFORMATION AND STRUCTURAL GEOLOGY

- **Damien Delvaux** – *Use of the Win-Tensor program for tectonic stress reconstructions*

## PALAEONTOLOGY AND PALAEO-ANTHROPOLOGY

- **Robyn Pickering and Andy Herries** – *Palaeoanthro-geology: age and palaeoenvironment of our human ancestors in Africa*
- **Elena Volynets** – *Palaeontology*
- **Jonah Choiniere, Michael Day, Bruce Rubidge, Natasha Barbolini and Pia Viglietti** – *Palaeozoic-Mesozoic Ecosystems of Gondwana*
- **Douglas Erwin, Rachel Wood, Marc Laflamme and Shuhai Xiao** – *The Dawn of Animals: Cryogenian to Cambrian*
- **Paul Strother and Rose Prevec** – *Non-marine Environments as drivers of major evolutionary events*
- **Emmanuelle Javaux and Nick J. Butterfield** – *Origin and diversification of Precambrian eukaryotes*
- **Vivi Vajda, Jingeng Sha and Emma Msaky** – *IGCP 632 Continental Crises of the Jurassic: Major extinction events and environmental changes*



## INSTRUMENTAL, EXPERIMENTAL AND LABORATORY-BASED DEVELOPMENTS IN THE GEOSCIENCES

- **Sergey Cherkasov and Marina Diaz Michelena** – *Unmanned aerial vehicles (UAV)-based technologies for geology and Earth sciences*
- **Patric Jacobs, Dominique Bernard, Veerle Cnudde, Pierre Francus and Bernard Long** – *Applications of X-ray computed tomography in the Earth Sciences*
- **Russell Harmon, Alessandro De Giacomo, Anton Du Plessis Richard E. Russo and Mohamed A. Harith** – *Laser-induced breakdown spectroscopy (LIBS) for the Geosciences*

## VOLCANOLOGY

- **Nils Lenhardt, Clive Oppenheimer, Karen Fontijn, Gezahegn Yirgu and Emmanuel Cheo Suh** – *Cenozoic to Recent Volcanism in Africa*
- **Karen Fontijn** – *Tephrochronology and its Applications in East Africa*

## PHANEROZOIC EARTH HISTORY, STRATIGRAPHY AND THE GEOLOGIC TIME SCALE

- **Martin Head** – *The Quaternary System: precision and reliability in global correlation*
- **Buthaina Al-jibouri** – *Stratigraphy, Sequence Stratigraphy and Basin Analyses*
- **Cedric Griffiths** – *Stratigraphic Forward Modelling*
- **Alcides Sial, Eric Font, Vinod C. Tewari, M. Ramkumar and Valderez P. Ferreira** – *Elemental and isotopic chemostratigraphy across major chronostratigraphical boundaries*
- **Werner Piller and Jochen Erbacher** – *The indispensable need for stratigraphy in Earth Sciences – new perspectives of a traditional science*
- **Shuzhong Shen and Guang R. Shi** – *Permian global events and correlations*
- **Aisha Al Suwaidi, Stephen Hesselbo and Micha Ruhl** – *The Jurassic System: Timing and causes of major transitions in climate, ecology and biogeochemical cycles on land and in the oceans*
- **Dermeval Do Carmo, Hong Hua, Paulo Cesar Boggian, Bernd Erdtmann and Claudio Gaucher** – *Cloudinids and allied Metazoans*
- **Barry Richards** – *The Carboniferous World: Assembly of Pangaea and Onset of Late Paleozoic Glaciations*
- **Felix Gradstein, James Ogg and Laurence Robb** – *Recent Developments in the Geological Time Scale*
- **Zhong-Qiang Chen and Michael J. Benton** – *IGCP 630: Permian and Triassic integrated Stratigraphy and Climatic, Environmental and Biotic Extremes*
- **Tim Kusky and Zhong-Qiang Chen** – *Tethys birth to demise: Stratigraphy, Palaeontology and Tectonic evolution*

## PLANETARY SCIENCES AND METEORITE IMPACTS

- **Jesús Martínez-Frías and Danie Barnardo** – *Planetary Geoscience*
- **John G. Spray** – *Remote Sensing in Planetary Geology*





## CALL FOR ABSTRACTS

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All abstracts will be reviewed by the appropriate Theme or Symposium/Session convenors. Abstracts must be prepared and submitted in the prescribed format.

**STEP 1** Choose the appropriate link, namely, [Delegate abstract submission](#), [GeoHost Stream A](#) or [GeoHost Stream B](#) and log in.

**DELEGATE ABSTRACT SUBMISSION** (*Authors not applying for GeoHost programme*)

Please do not apply to the GeoHost programme unless you are eligible and fulfil all the additional required criteria.

### **GEOHOST PROGRAMME – STREAM A OR STREAM B**

GeoHost is a support scheme that aims to provide financial support to selected **early career earth scientists (Stream A)**, or **eligible geoscientists who live and work in low-income countries (Stream B)**. Financial support obtained by the 35<sup>TH</sup> IGC through sponsorship or funding mechanisms will be utilised to assist early career geoscientists (inclusive of YES participants) and deserving geoscientists from low-income countries. Financial assistance will be considered only for those applicants eligible in terms of the conditions outlined in the website. Financial assistance will be at the discretion of the IGC Organizing Committee and subject to available funds. For more information on qualifying criteria, please visit the GeoHost webpage.

**STEP 2** As a new user, you will first need to “**create an account**” with an email address and a password.

**STEP 3** Add your full contact details to create your profile.

**STEP 4** [Download the abstract template](#) and save it to your workstation to ensure you are able to work on it in your own time.

**STEP 5** Submit your abstract details via “**Abstract submission procedure**”. You need not complete all this information at one time and may **Save to draft** in the interim.

**STEP 6** Only once your abstract is final and you are completely satisfied with the content should you consider submitting to the database. At this point you will also be required to upload all the information required for your profile. Once the abstract and profile have formally been submitted, you will no longer be able to edit the abstract. You may still update your profile information if required once your abstract has been submitted.

## PUBLICATIONS

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### **TWO PUBLICATIONS WILL BE RELEASED DURING THE 35<sup>TH</sup> IGC:**

- A publication on the 50 most impressive Geoheritage sites on the African Continent. This promises to be a most impressive publication. It will focus attention on the top Geoheritage sites on the African Continent; the huge tourism potential offered by these magnificent Geosites and the need for future preservation.
- A set of two publications on the major Mineral Deposits on the African Continent. These promise to be very useful information sources whilst renewing interest in the tremendous mineral potential of Africa.
  - One will be a Special Issue of the IUGS’s Journal, Episodes.
  - The second will be a Special Issue of the South African Journal of Geology.



# STAMPS

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A special issue of ten stamps and two first-day covers will be released by the South African Philatelic Bureau for the 35<sup>TH</sup> IGC. These stamps will feature the ten some of the most impressive geological superlatives in South Africa and will commemorate the third International Geological Congress to be held on the African Continent.



## PROFESSIONAL DEVELOPMENT WORKSHOPS & SHORT COURSES

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Workshop and short course registration will **open in mid-January 2016**.

Proposal submission for workshops and short courses will **close on 31 December 2015**.

Attendees not registered for the 35<sup>TH</sup> IGC will be charged a higher workshop registration fee.

35<sup>TH</sup> IGC will host a number of cutting-edge workshops and short courses over two days, immediately prior to the start of the main Congress (27-28 August 2016). Topics for these 2-, 1- or half-day offerings can include, but are not limited to, subject matter spanning any of the scientific themes of the conference. This year, in addition to the traditional workshop and seminar format, the Scientific Planning Committee introduces Field Forum Workshops where participants meet in a particular field area and where lectures and discussion can take place adjacent to relevant field exposures. By conducting these forums with access to a particular field area (e.g. the Barberton Greenstone Belt), facilitators and participants will be able to extend debate and discussion to actual outcrops. The Committee envisages that these Field Forums could also be held at sites where comprehensive drill core collections are stored.

### HIGHLIGHTS OF THE CURRENT WORKSHOP AND SHORT COURSE PROGRAM INCLUDE:

#### **UNDERSTANDING THE ROLE OF GROUNDWATER IN 21<sup>ST</sup> CENTURY**

The role of groundwater as a global resource is increasing dramatically as a result of rapid population increase and development. This is particularly true in Africa where water infrastructure is limited to a few urbanized areas and groundwater is a vital resource for vast rural populations.

Groundwater is also the sole source of water supply for arid and semi-arid areas. However, due to the lack of understanding of these resources, the risks of exploitation, misuse and pollution are increasing from the municipal, agricultural, industrial and mining sectors. In this workshop, participants will deliberate, discuss and debate various issues currently at the forefront of hydrogeological research and policy-making, both globally and on the African continent. A diverse selection of debates and discussions will be scheduled for this two-day workshop.

#### **THE SEG GOLD WORKSHOP: GOLD DEPOSITS – THEIR GEOLOGY, GEOCHEMISTRY AND GENESIS**

This workshop is for geologists from academia and industry who want to improve their understanding about the geology and genesis of gold deposits. The course will provide a comprehensive overview of all aspects of the geology of gold ores in both arc environments and metamorphic terranes. Aspects of the geology, geochemistry, mineralogy, alteration, structure, tectonics, and exploration approaches will be covered for the main gold deposit types of interest to explorationists.

## ECONOMIC GEOLOGY 101

This is a one-day course designed to introduce geologists to the discipline of economic geology, in terms of opportunities for career paths and for academic research. The delivery would comprise a series of short modules on a range of ore deposit topics, from the scale of global metallogeny to deposit characteristics. A range of experts around the world will prepare the module content.

## FIELD FORUM – THE EVOLUTION OF EARLY ARCHAEOAN GRANITOID-GREENSTONE TERRANES

There are currently major controversies surrounding the evolution of early Archaean granitoid-greenstone terrains that relate to a basic understanding of ancient tectonic regimes and the style of mantle convection driving these regimes. A 5-day field workshop centered in Badplaas, in the southern Barberton Mountain Land, South Africa, is an ideal venue to explore these issues, because this area exposes some of the most important parts of Earth's oldest geological record. This workshop will be organized jointly by the 35<sup>TH</sup> IGC and the German Priority Project SPP1833 entitled "Building a Habitable Earth". Organizers and principal field guides will be Axel Hofmann, Alfred Kröner and Martin Van Kranendonk.

**Major issues that will be addressed in this Field Forum through site visits and workshop discussions include:**

- Generation of Archaean TTGs in general and in the Barberton-Swaziland terrain in particular.
- Origin of bimodal sequences in Archaean greenstone belts, with particular reference to the Barberton Theespruit/Sandspruit sequence.
- Tectonic setting of early Archaean volcano-sedimentary successions and deformation mechanisms.
- Record of Archaean surface processes.

Widespread metamorphic events at 3.2 Ga in the Barberton-Swaziland terrain and assessment of PT conditions during metamorphism. Please see a detailed outline for this Field Forum on the 35<sup>TH</sup> IGC website.



## GEOSCIENCE INFORMATION FOR TEACHERS (GIFT)

The GIFT workshop, aimed principally at High School Teachers, will be held over two days and will be run Prof. Carlo Laj from the Committee on Education of the European Geosciences Union. The first day will be devoted to discussions around Natural Hazards, potential threats to humans that begin within and are transmitted through the Earth's natural environment, including the lithosphere, hydrosphere, atmosphere and biosphere. The second day will be devoted to Mineral Resources, which is a theme particularly important for African countries.

A full listing of the currently accepted professional development workshops and short courses appears below and a content summary for each workshop is provided here. It will be necessary to register in advance for all workshops and fees apply. Workshop fees and information on how to register will be released in early November 2015.

1. Infrared core imaging: an emerging technology for geological and mining applications.
2. Trace Constituents in Coal: Occurrence, Emissions, and Environmental Impact
3. Skills for Sustainability – Effective Application of Geology to International Development
4. Field workshop on the evolution of early Archaean granitoid-greenstone terranes
5. Developing Europe's International Observatory for Raw Materials
6. Geologic Mapping Techniques
7. Social Responsibility for Geoscience Education
8. Single-polarized, Multi-polarized and Polarimetric Radar Images: Theory and Applications
9. GIS-based mineral prospectivity modelling
10. Gold Deposits: Their Geology, Geochemistry, and Genesis
11. Geoscience Information for Teachers (GIFT)
12. Economic Geology 101
13. Drilling Methods Short Course

We welcome additional suggestions. If you, as an individual or an organization, wish to present a relevant workshop or short course please click [here](#) to submit your motivation. Workshop and Short Course proposals close on **31 December 2015**.

For any queries, please contact Grant Bybee at [grant.bybee@wits.ac.za](mailto:grant.bybee@wits.ac.za)

# BUSINESS MEETINGS

A large part of the 35<sup>TH</sup> IGC programme will be devoted to Business Meetings of the different Associated- and Affiliated Organization of the IUGS. However, in order to successfully organize this part of the programme, we need you to book such a meeting through the 35<sup>TH</sup> IGC website, at the following link: [https://www.allevents.co.za/ei/getdemo.ei?id=222&s=\\_3F00SOJZ9](https://www.allevents.co.za/ei/getdemo.ei?id=222&s=_3F00SOJZ9)

Meetings held at venues within the CTICC after 5pm will attract rental charges.

Any queries in this regard can be directed to: Danie Barnardo ([barnardo@geoscience.org.za](mailto:barnardo@geoscience.org.za)) or Juanita van Wyk ([juanitaw@geoscience.org.za](mailto:juanitaw@geoscience.org.za)).

## PROVISIONAL TIMETABLE FOR IUGS EVENTS DURING THE 35<sup>TH</sup> IGC

No.	DATE	TIME	IUGS
1	24 August (Wednesday)	TBA	Bureau Meeting
2	25 August (Thursday)	TBA	Executive Committee Meeting
3	26 August (Friday)	TBA	Executive Committee Meeting
4	29 August (Monday)	Evening	Reception party for IUGS bodies, LOC and other invitees
5	02 September (Friday)	Afternoon	IUGS Executive Committee Handover Meeting
6	02 September (Friday)	Afternoon	Closing ceremony and last symposium





## FIELD TRIPS

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The provisional selection of field trips offered on the web site (as at 23 September 2015) and outlined in the 2nd Announcement has been reviewed after considering logistics and costs. Support from mining companies has facilitated excursions that will allow exclusive access to mines and exploration sites in Ghana, Mali and Zambia.

Logistical requirements have determined the allocation of field trips in the week either preceding or following the 35<sup>TH</sup> IGC event.

### INNOVATIVE “FLAGSHIP” EXCURSIONS

- **The Great Southern African Train Geosafari** – a 10 day train trip from Cape Town to Victoria Falls (Zimbabwe) on the Shongololo Express Heritage Train with daily excursions to sites of geological interest.
- **The Geological Summits of Africa: The deepest and highest points on the African continent** –The adventure starts with a descent down the Mponeng Gold Mine (-4 200 m) in the heart of the Witwatersrand gold deposit, to the deepest point on the African continent. Participants will then travel to Tanzania to ascend to the very highest point on the African continent, Mount Kilimanjaro (5 895 m), situated at the edge of the African Rift Valley. Completing this ‘greater than Everest ascent’ will afford participants membership to a very select group of people: those who have been to both the highest and the lowest point on the African continent.

### TRIPS WITHIN SOUTH AFRICA

- Nineteen pre-congress field trips
- Eight post-congress field trips.

### TRIPS ELSEWHERE IN AFRICA

- Thirteen field trips covering parts of Namibia, Zambia, Zimbabwe, Botswana, Angola, Tanzania, Mali and Ghana.

### ONE-DAY EXCURSIONS

- Three day trips in the Gauteng area
- At least nine day trips in the Cape Town area
- A diverse selection of half- and one-day excursions in the Western Cape area for accompanying persons.

*\*All tours will operate subject to a required minimum number of registrants and on designated dates only.*

*\*It will assist the congress organizing committee and field trip leaders if we could obtain an early accurate indication of which field trips you are likely to support. Please fill in the Expression of Interest survey and let us know where your interests lie;*

<https://www.surveymonkey.com/r/?sm=6ronTaxtR45YLrKKezqfMw%3d%3d>

- All Field Trip fees shown are in South African Rands (ZAR) or USD and are inclusive of 14% Value Added Tax (VAT). Note that VAT is payable on all goods and services within South Africa.
- Current prices are indicative and Final costs will only be published once a particular field trip is confirmed.
- Final costing will be influenced by numbers of vehicles; registered attendees, single supplements and entry fees.
- Full pre-payment is required in advance.
- As the availability and schedule of the suppliers cannot be guaranteed, the organisers reserve the right to change the proposed field trip list and costs without prior notice.
- Some field trips will require delegates to ensure they have the appropriate visas and inoculations for entry/exit to the countries traversed by the selected field trips.
- These field trips will require delegates ensure they have the appropriate visas and inoculations for entry/exit to the countries traversed by the selected field trips.



## FIELD TRIPS SUMMARY

### • FLAGSHIP FIELD TRIPS

- POST 1** The Great Southern African Train Geo-Safari
- PRE 1** Africa's Geological Summits: Deepest and Highest points of the African continent

### • PRE-CONGRESS FIELD TRIPS

- PRE 2** Cape granites
- PRE 3** The Permo-Triassic Boundary in the Karoo
- PRE 4** Karoo transect
- PRE 5** Vredefort impact structure
- PRE 6** Diamonds
- PRE 7** Eastern Limb of the Bushveld Complex
- PRE 8** Craton traverse: A transect through ~2.7Ga of South African history
- PRE 9** Early Cretaceous Basins along the southern Cape coast.
- PRE 10** Namaqualand Metamorphic Province
- PRE 11** Cape Fold Belt
- PRE 12** Seismotectonics and hydrology of faults systems in the western and southern Cape
- PRE 13** Western Kaapvaal craton
- PRE 14** Orange River geology by canoe
- PRE 15** 1 Ga of crustal reworking, northern margin Kaapvaal craton: Murchison belt to Limpopo Central zone
- PRE 16** Geology of the Barberton Greenstone Belt: Processes of the early Earth
- PRE 17** Africa Rising on the African Superplume
- PRE 18** Karoo magmatism & Continental breakup
- PRE 19** Natal Metamorphic Province

### • POST-CONGRESS FIELD TRIPS

- POST 2** Eastern Bushveld, Mpumalanga Drakensberg Escarpment and Kruger National Park
- POST 3** Big 5 & Big 5: mineral commodities and animals
- POST 4** Eastern Bushveld and Nkomati
- POST 5** Mountain Geomorphology of the Drakensberg
- POST 6** Archean Stromatolites and their Depositional Environments
- POST 7** Barberton
- POST 8** The Pongola Supergroup: Earth's earliest stable continental margin.
- POST 9** Western Cape Wine Tour

### • ONE DAY FIELD TRIPS – JOHANNESBURG, GAUTENG

- OD PRE 2** Witwatersrand; geology, historical mining and environment
- OD PRE 3** Magaliesberg cable car
- OD PRE 4** Cradle of Humankind hominin sites

### • ONE DAY FIELD TRIPS – CAPE TOWN

- OD PRE 1** Cape West Coast: Langebaan and Fossil Park
- OD PRE 5** Geological Walking Tour of Robben Island
- OD PRE 6** Cape peninsula
- OD PRE 7** Cape Town geology
- OD PRE 8 POST 1** Building Stones of Cape Town
- OD PRE 9+10 POST 2** Table Mountain hike; Maclears Beacon-Platteklip Gorge cable car
- OD POST 3** Tulbagh-Ceres and SW Cape seismicity
- OD POST 4** Zevenwacht Wine Farm and Tin Mine

### • FIELD TRIPS TO OTHER AFRICAN COUNTRIES

- EX SA PRE 2** NAMIBIA: Nama Group geology and Ediacaran fossils
- EX SA PRE 3** NAMIBIA: Otavi Mountainland
- EX SA PRE 4** NAMIBIA: Mineral Deposits
- EX SA PRE 5** NAMIBIA: Namib Desert
- EX SA PRE 6** NAMIBIA: Copper Belt
- EX SA PRE 7** ZAMBIA: Irumide Belt regional traverse.
- EX SA PRE 8** BOTSWANA: Okavango Delta
- EX SA POST 2** TANZANIA: Rift Valley in Northern Tanzania
- EX SA POST 3** NAMIBIA: Damara Orogen traverse and 'Snowball Earth'
- EX SA POST 4** NAMIBIA: Diamonds
- EX SA POST 5** NAMIBIA: Granites and Uranium Deposits
- EX SA POST 6** ANGOLA: Southern Angola - From the Humpata Plateau to the Namib Desert
- EX SA POST 7** GHANA: Tectonic and metamorphic evolution of the Paleoproterozoic Eburnean orogeny, West African Craton in North-West Ghana.
- EX SA POST 8** GHANA: Gold in southwestern Ghana
- EX SA** MALI: Gold deposits of Loulo-Gounkoto, Mali





## — FLAGSHIP FIELD TRIPS —

### POST 1 The Great Southern African Train Geo-Safari

Directly after the congress the luxury Shongololo Express train will depart from Cape Town (South Africa) and will arrive at Victoria Falls (Zimbabwe) 7 days later. En route there will be geological and general interest day excursions to a variety of sites in South Africa, including Swartberg Pass, Kimberley’s Big Hole, Cradle of Humankind World Heritage Site and Mapungubwe. The train crosses into Zimbabwe where visitors will be taken to the Great Zimbabwe monument and Matopas near Bulawayo. You will also see the Victoria Falls, visit Livingstone (Zambia) and go on a river cruise in Chobe Game Reserve (Botswana).

Day excursions will depart from the train each day to tourist destinations of general interest or sites of geological interest where local experts will share their knowledge. An overview of the daily, geologically-focussed excursions is provided on the website:

<http://www.35igc.org/Page/106/The-Great-Southern-African-Train-Geo-Safari>

More details will become available closer to the field trip and a comprehensive guidebook will be provided on departure. This is a geological safari of a life-time but only 70 passengers can be accommodated. See [www.jbtours.co.za](http://www.jbtours.co.za) for full details or go to this [website](#) to express your interest in the Geo-Safari.

TRIP LEADER	START	END
TBA	Cape Town	Victoria Falls
DAYS	PRICE	
10 days, Sunday 4th to Tuesday 13th September 2016	From R36,000 per person sharing	

### PRE 1 Africa’s Geological Summits: Deepest and Highest points of the African continent

The 35<sup>TH</sup> IGC together with AngloGold Ashanti, the Geological Society of South Africa and Adventure Dynamics International, present the geological excursion for the adventure seeker!

The trip starts by descending to the deepest point on the African continent: the Mponeng Gold Mine (-4200m) in the heart of the Witwatersrand Basin gold deposit, then transfer to Moshi, Tanzania where we ascend, via the highly successful Rongai route, to the very highest point of the African continent: Kilimanjaro (5895m) at the edge of the African Rift Valley. By completing this “greater than Everest ascent” you will become part of a very select group having been to the highest and lowest points on the African continent: each a geological superlative in their own right.

The group will raise awareness of the importance of geology as a natural heritage on the continent. We will record a special summit message to be used during the opening ceremony of the 35<sup>TH</sup> IGC. Each participant will receive a special edition plaque and branded sweatshirt in recognition of this unique adventure and double geological summit!

TRIP LEADER	START	END
Jeannette McGill	Johannesburg	Johannesburg
DAYS	PRICE	
10 days, Monday 15th to Wednesday 24th August 2016	TBA	



## PRE-CONGRESS FIELD TRIPS

### PRE 2 Cape granites

Many of the spectacular landscapes around Cape Town involve outcrops of the ca. 540 to 510 Ma Cape Granite Suite. These rocks are not only extremely picturesque but they also contain a wealth of information about the recycling of the continental crust during the Saldanian Orogeny, how large granitic plutons and volcanic complexes are constructed and the source processes that spawned the magmas. The field trip will visit key localities, including the Peninsula pluton at Llandudno, the Darling batholith south of the town Darling and the newly identified Saldanha Bay Cauldron Complex on the coasts around the Langebaan lagoon. At each locality, information derived from the outcrops relevant to the genesis of the granitic and felsic volcanic rocks, as well as the geodynamic processes that shaped the Saldanian orogeny will be presented. The excursion will travel through much of the beautiful Swartland wine region and will also take the opportunity to sample local wines and delicacies. As an added attraction the trip will also take place during the renowned West Coast wildflower season, and there will be lots of opportunities to see and photograph beautiful flower-blanketed landscapes.

TRIP LEADER	START	END
Gary Stevens & John Clemens of Stellenbosch University	Cape Town	Cape Town
DAYS	PRICE	
2 days, Friday 26th to Saturday 27th August 2016	TBA	

### PRE 3 The Permo-Triassic Boundary in the Karoo: A straightforward or complex change?

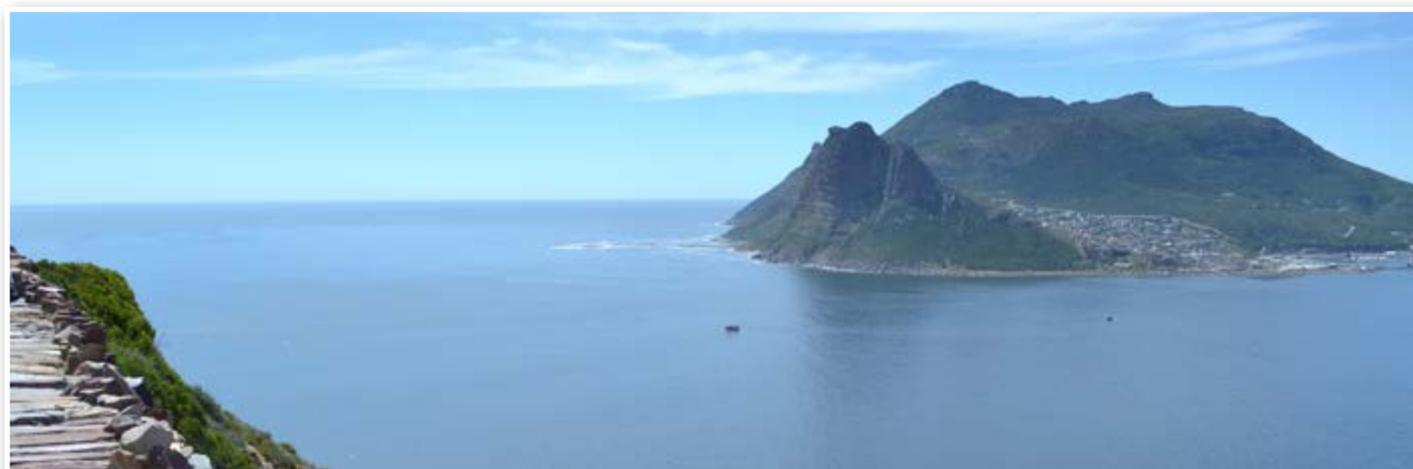
The Karoo Basin in South Africa is one of only a small number of continental sequences that records the terrestrial expression of the end-Permian mass-extinction, generally considered to represent the largest ecological catastrophe to have befallen life on earth. The majority of Permo-Triassic Boundary sections in the Karoo occur in inaccessible locations and as a result very few scientists have been able to visit and scrutinize these localities. This trip offers a unique opportunity to interested scientists to visit at least six of the main Permo-Triassic Boundary localities reported in the literature. Delegates will have the opportunity to assess currently published models for the response of terrestrial ecosystems to the crisis, as well as recently acquired stratigraphic, sedimentological, geochronometric, palaeomagnetic, and palaeontological data used to test these hypotheses.

TRIP LEADER	START	END
Johann Neveling and Robert Gastaldo	Cape Town	Cape Town
DAYS	PRICE	
6 days, Monday 22nd to Saturday 27th August 2016	TBA	

### PRE 4 Karoo transect

Basin development, palaeolandscapes and depositional sedimentary environments along a 100 My transect through the Karoo Supergroup with superb three-dimensional exposures containing tetrapod and plant fossil assemblages, therapsid and dinosaur trackways, and the End-Permian and End-Triassic mass extinction events. Return journey to Cape Town is along the scenic Garden Route.

TRIP LEADER	START	END
Roger Smith and Bruce Rubidge	Cape Town	Cape Town
DAYS	PRICE	
9 days, Friday 19th to Saturday 27th August 2016	TBA	



## PRE 5 Vredefort impact structure

This two-day excursion through the world's largest and oldest known impact structure located southwest of Johannesburg showcases both the impact-related structural and thermal features generated by the 2.02 Ga impact and a transect through Archaean and Palaeoproterozoic rocks of the Kaapvaal craton spanning more than a billion years. The 90-km-wide Vredefort Dome at the centre of the impact structure exposes a 25 km deep crustal profile through polymetamorphic rocks that range from greenschist to granulite facies. Impact-related features include shatter cones, voluminous pseudotachylitic breccias, impact melt dykes and granofelses produced by ultra-high-temperature shock heating. Aspects of the rich archaeological heritage of the Natural World Heritage Site will also be covered.

TRIP LEADER	START	END
Roger Gibson	Johannesburg	Johannesburg
DAYS	PRICE	
2 days, Friday 26th to Saturday 27th August 2016	TBA	



## PRE 6 Diamonds

On the 150th anniversary of the discovery of diamonds near Kimberley, this excursion covers the alluvial deposits of Lichtenburg and Bloemhof to the Big Hole in Kimberley. The diamond trail begins on the Limpopo/Vaal River watershed west of Johannesburg where unique secondary diamond deposits have been preserved on the karstified terrain of the Transvaal Dolomites. These can be traced southwards to the Vaal River where diamond bearing palaeo-channels and terraces are still mined today. Mining of these diamonds, from unknown source(s), has been particularly intense around Windsorton, just north of Kimberley. Input of large quantities of diamonds derived from the local Cretaceous kimberlites are added to the Vaal River mix at Barkley West and these different diamond populations are taken further downstream to the confluence of the Vaal and Orange Rivers. Here these are joined by the Lesotho diamonds brought down by the Orange River. On the way to the West Coast some of these diamonds have been trapped in a series of river terraces that have been mined along the middle Orange River between Douglas and Prieska and have provided some of the largest, high quality alluvial diamonds in recent times.

TRIP LEADER	START	END
Mike de Wit	Bloemfontein	Bloemfontein
DAYS	PRICE	
5 days, Tuesday 23rd to Saturday 27th August 2016	TBA	

## PRE 7 Eastern Limb of the Bushveld Complex

The 2.055 Ga-old Bushveld Complex is situated in the north-eastern part of South Africa. Three distinct groups of rocks make up the Complex but this excursion is directed primarily at the layered ultramafic-mafic rocks. We will, however, briefly examine the roof rocks, the older felsite and younger granite and granophyre, as well as the floor rocks, metasediments of the Transvaal Supergroup and Bushveld sills. The eastern limb reveals spectacular outcrops which are ascribed to the uplift and subsequent erosion of the interior plateau of southern Africa.

The excursion will encompass the five zones into which the layered sequence is subdivided. The Critical Zone is emphasized as this is where layering is most intricate and where many of the mineralized reefs occur. Underground and surface visits to chromite and platinum mines are envisaged, as well as historical declines on the Merensky Reef close to the discovery site. Field traverses of the chromitite layers are a highlight, as is Dwarsrivier where layers of chromitite and anorthosite are superbly exposed. The uniquely zoned Driekop and Onverwacht pipes and a discordant body of iron-rich ultramafic pegmatite complete some of the unusual features of the Critical Zone.

Traverses of the Lower Zone to examine layers of dunite, harzburgite and bronzitites, as well as of layers of Ti-magnetite, anorthosite, and ferrogabbro in the Upper Zone are also included, as is an opportunity to examine some of the more discrete layering of the Main Zone.

TRIP LEADER	START	END
Roger Scoon	Johannesburg	Johannesburg
DAYS	PRICE	
6 days, Monday 22nd to Saturday 27th August 2016	TBA	

**PRE 8 Craton traverse: A transect through ~2.7Ga of South African history**

This field trip is a great traverse that covers a large part of the geology of South Africa, all the way from the Neoproterozoic Witwatersrand Supergroup to the Paleozoic to Early Mesozoic Cape- and Karoo Supergroups. It will take the participant through some of the spectacular scenery of South Africa, which includes Bushmanland, the Richtersveld, Namaqualand and the Western Cape. The structural evolution of the geology of South Africa and the geological successions that make up the geology, as we see it today, is explored and slowly pieced together, mostly in geochronological order. Other aspects that will be investigated and explored include the various tectonic models for the assembly of the geology of southern Africa as well as the landscape evolution that affected this part of the African continent since the breakup of Gondwana (~180Ma ago) and how this affects and controls the distribution of iron, manganese and alluvial diamond deposits in South Africa. Some of the important mineral deposits in South Africa, as well as their origin, will also be explored.

TRIP LEADER	START	END
Herman van Niekerk	Johannesburg	Cape Town
DAYS	PRICE	
11 days, Wednesday 17th to Saturday 27th August 2016	TBA	

**PRE 9 Early Cretaceous Basins along the southern Cape coast**

This field trip will showcase several lower Cretaceous basins that are preserved along the southern coastline of South Africa from Port Elizabeth in the east to Robertson in the Western Cape. After the final volcanic eruptive phase of the Karoo Basin, 180 million years ago, South Africa experienced a long period of geological stability. Because no sediments were deposited during this time, there is a 50 million year gap in our geological history. About 150 million years ago minor volcanic activity began again along east-west faults in the Earth's crust, heralding the beginning of the break-up of the Gondwana. As Antarctica started to move away from Africa, the resulting tensional forces created a number of east west basins along the southern Cape coastal belt. With Africa rising steadily, south-draining rivers began to flow more strongly, resulting in huge volumes of new sediment being deposited into the newly formed basins. Remnants of these mid-Mesozoic sediments can today be seen in the Algoa, Gamtoos and Oudtshoorn Basins. The largest of these is the Algoa Basin, which contains the most representative sequence of sedimentary rocks of terrestrial and estuarine origin, collectively known as the Uitenhage Group, lower Cretaceous in age (135 million years old). Deposition of the river-borne sediments started with coarse fan conglomerates of the Enon Formation, followed by sandstones and mudstones of the Kirkwood Formation and ending with the shallow marine and estuarine sediments of the Sundays River Formation. Today, large areas of the Uitenhage Group rocks are covered by a thin layer of much younger marine sediments that were deposited during several marine transgressions during Cenozoic times. The Kirkwood and Sundays River Formation rocks are best exposed along the steep river banks of the Sundays and Bushmans Rivers.



Vertebrate and invertebrate fossils have been recovered from the Kirkwood and Sunday's river Formations. Most of the vertebrate fossil bone is fragmentary and this is a result of the high-energy depositional environment. Nevertheless significant dinosaur finds have been made and new material is constantly being identified to enhance the faunal list for this time.

TRIP LEADER	START	END
Billy de Klerk and Jonah Choiniere	Port Elizabeth	Cape Town
DAYS	PRICE	
5 days, Wednesday 24th to Sunday 28th August 2016	TBA	

**PRE 10 Namaqualand Metamorphic Province**

This seven day "Overlander" camping field trip takes a north-south cross-section through the spectacularly exposed Mesoproterozoic low P, high T Namaqua mobile belt. We will present newly developed ideas on the geological history of the belt based on recent and current mapping and research projects and highlight a variety of tectonic, magmatic and mineralisation processes specific to this belt. The trip starts in the high grade granulite core of the belt where classic dehydration melting textures, igneous and metamorphic charnockites and the principal deformation episodes will be discussed. Day 2 will take us through the historic copper district looking at copper-bearing norite bodies hosted in steep structures in addition to other more regional aspects of the belt. By Day 3 we will have reached the low grade Paleoproterozoic Richtersveld Subprovince and will investigate early tectonics and mineralisation associated with the volcanic arc rocks. Days 4 to 6 focus on Namaqua collision zone tectonics and mineralisation (Ta-Nb and U pegmatites) along the Lower Fish River-Onseepkans Thrust and the Pofadder mega-Shear Zone. Long days of classic geology will be interspersed with nights camping along the Orange River accompanied by cold beer, fine wines and braai vleis (barbeques). \*passport/visa requirements for visiting Namibia\*

TRIP LEADER	START	END
Alex Kisters and Paul Macey	Cape Town	Cape Town
DAYS	PRICE	
7 days, Sunday 21st to Saturday 27th August 2016	TBA	



### PRE 11 Cape Fold Belt

The field trip will cover the Permo-Triassic CFB, with stops along the lesser deformed western branch on the first day, across the syntaxis and then along the stronger deformed, northerly overturned southern branch. On the first day, we will initially follow the N7 and turn towards the east into the Cederberg Mountains between Citrusdal and Clanwilliam, then drive south to overnight at Mount Cedar. The second day will be spent to view the relationships between folds of the western branch and the southern branch in the syntaxis between Ceres and Montagu. Stops are scheduled to discuss flexural slip fold interference and syntaxial structure, the Mesozoic Worcester fault, seismicity and hot springs. We then travel into the southern branch via R62 from Montagu to Oudtshoorn to see northward overturning, kink folds, cleavage, Miocene geomorphology, and the hot spring at Warmwaterberg, the Mesozoic rift fill sequence and the Kango fault. The third day will be spent travelling to Willowmore, stopping to view Holocene fault reactivation along the Kango fault system, Cretaceous rocks of the Oudtshoorn Basin, the inlier of basement rocks (Kango Group). Folding is spectacularly displayed in sections at Meiringspoort, whereas low angle faulting will be viewed at Uniondale. On the fourth day we travel via Steytlerville to overnight in Port Elizabeth. Folded and thrust-faulted rocks of the upper Cape Supergroup will be examined and we cross the Algoa Basin (Cretaceous) at Uitenhage on the way. On the final day of the excursion we will drive back from Port Elizabeth to Cape Town and experience the spectacular scenery along the Garden Route.

TRIP LEADER	START	END
Coenie de Beer, Gideon Brunson	Cape Town	Cape Town
DAYS		PRICE
5 days, Monday 22nd to Friday 26th August 2016		TBA

### PRE 12 Seismotectonics and hydrology of faults systems in the western and southern Cape

The scope of this excursion includes palaeoseismological studies on the Late Pleistocene-reactivated segment of the Cango Fault and seismicity along the Tulbagh-Ceres (Groenhof) Fault. The route is through Stellenbosch, Franshoek, Villiersdorp, Tulbach and Montagu and on to Calitzdorp, Oudtshoorn and Knysna before returning to Cape Town. Includes visits to artesian wells and thermal springs with some accommodation at spa resorts. This field trip will be linked to IGC sessions on the Seismotectonic Map of Africa and on active faulting and recent earthquake activity in Africa.

TRIP LEADER	START	END
Chris Hartnady	Cape Town	Cape Town
DAYS		PRICE
7 days, Sunday 21st to Saturday 27th August 2016		TBA



### PRE 13 Western Kaapvaal craton

Griqualand West: A classic carbonate platform with iron mines, the world's largest manganese deposits and a record of early Neoproterozoic Snowball Earth. Included are visits to the world famous Kimberly Big Hole Diamond Mine and Museum, the spectacular Kgalagadi (Kalahari) National Park and Augrabies Falls on the Orange River, one of world's largest waterfalls.

This field trip covers the Neoproterozoic to Proterozoic sedimentary transition, volcanism, structural geology, stromatolites, BIFs, world's largest Fe and Mn deposits and glacial deposits in the context of the Western Kaapvaal Craton between 2.75 and 2.2 Ga.

Starting at the crystalline basement, the unconformity below the Ventersdorp Supergroup, conglomerates and tuffaceous sandstones with Earth's oldest raindrop imprints and 2.7 Ga stromatolites will be visited. The unconformity above the Ventersdorp Supergroup, with basal conglomerates of the Transvaal Supergroup, will be demonstrated, including the world's largest stromatolitic carbonate platform succession, transgressed by economically important banded iron-formations with some of the world's largest iron and blue asbestos deposits. Succeeding sedimentary and volcanic units host the glacial Makganyene deposits. Overlying this succession are the world's largest manganese deposits. The "Great Oxidation Event", the "Snow Ball Earth" and the metallogenesis of Fe, Mn, Pb/Zn (world's oldest MVT) deposits will be discussed in outcrops.

TRIP LEADER	START	END
Wlady Altermann	Kimberley	Kimberley
DAYS		PRICE
9 days, Thursday 18th to Friday 26th August 2016		TBA

## PRE 14 Orange River geology by canoe

The first day will be a ~600 km highway geology trip from Cape Town to Springbok, along a route that stretches north towards the Namibia border. Several stops are scheduled to examine the geology en route, and will include mainly Pan-African (750 – 500 Ma) metasediments and intrusive granites, as well as Namaquan (1200 – 1000 Ma) metamorphic and igneous rocks. The highway follows the Great Escarpment for much its length, so the terrain is quite rugged and diverse, largely arid to semi-arid, and quite likely to be mantled with spring wild flowers. Springbok is located in the historic Okiep copper district and several worked out mines and mineral deposits will be examined.

The second day will take us further north for ~100 km during which a major terrane boundary between the Namaqua gneisses and the 2 Ga Orange River orogen will be crossed, revealing an ancient subduction related volcano-plutonic complex of batholithic proportions. Namaquan reworking of this terrane produced abundant swarms of anatectic pegmatites, with several rare element types that are actively mined. We will cross the Orange River at the border to Namibia, so participants will need their passports and valid visas. Overnight will be at the Felix Unite Adventures Provenance river resort, and you will enjoy your first opportunity to camp out under the stars.



This outdoor experience will continue for another four nights, during which the excursion will involve paddling some 80 km in 2-person canoes, attended by a team of experienced river guides supplied by Felix Unite Adventures who will prepare all meals en route. Expect camp fires, singalongs and general revelry, punctuated with substantive discussion on many topics. The canoe trip will follow the Orange River canyon as it cuts through the desert mountainlands of the Richtersveld, a combination of a World Heritage Site and Trans-Frontier National Park wilderness region. Spectacular outcrops devoid of vegetation build the high walls of the canyon, as well as create numerous rapids and waterfalls, all of which will be negotiated while examining the varied geology. The geological history 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). These basement terranes are partly mantled by Palaeozoic – Mesozoic Karoo strata, particularly the glacial Dwyka Formation, with its striated pavements, impressive tillites and laminated shales. Finally, there are Tertiary gravel terraces renowned for their alluvial diamond deposits preserved along the Orange River canyon route.

The final night will be back in the Provenance resort, prior to travelling back to Cape Town the next day.

TRIP LEADER	START	END
Dave Reid	Cape Town	Cape Town
DAYS	PRICE	
7 days, Sunday 21st to Saturday 27th August 2016	TBA	

## PRE 15 1 Ga of crustal reworking on the northern margin of the Kaapvaal craton: Murchison belt to Limpopo Central zone

The Northern margin of the Kaapvaal craton is a classical example of Archaean (to lower Proterozoic) high-grade terrane. In this region, crust was formed and/or recycled for ca. 1 Ga by a range of processes: in-situ partial melting of early TTG compositions, erosion/sedimentation/melting, or intrusion of mantle-derived magmas with an important crustal input (sanukitoids and related). All these processes have been documented based on petrology and geochemistry.

This trip will proceed from the Murchison belt in the South (a classical Archaean greenstone belt), to the gneisses and late-Archaean granitic intrusions of the Northern Kaapvaal Craton, to the heavily reworked Limpopo Belt with beautiful occurrences of anatectic metasediments.

Outcrops in this region are relatively uncommon, but typically form huge (100's of meters), fresh platforms in inselbergs and river beds; most localities offer spectacular outcrops. Key localities should include (depending on final logistic arrangements) the ca. 2.95 Ga Rooiwater mafic layered intrusion; several example of high-grade gneisses and migmatites of the Northern Kaapvaal; a range of late-Archaean granites, including the Matok pluton; complex interactions between orthogneisses and peraluminous leucogranites in the Limpopo Southern Marginal Zone; Anatectic metapelites of the SMZ; and the iconic Three Sisters (large inselberg of porphyritic granite) and Sand River (huge platform of anatectic orthogneisses and metapelites) localities in the Central Zone.

As a bonus, the trip will start in Phalaborwa, allowing participants to spend some time in the Kruger National Park before the excursion.

TRIP LEADER	START	END
J-F Moyon	Phalaborwa	Polokwane
DAYS	PRICE	
6 days, Monday 22nd to Saturday 27th August 2016	TBA	

### PRE 16 Geology of the Barberton Greenstone Belt: Processes of the early Earth

Due to its excellent exposure, low-grade metamorphic overprint and considerable extent the Barberton Greenstone Belt, straddling the South Africa - Swaziland border, offers profound insights on Archean processes and events that shaped the evolution of the crust of our planet. These processes include, among others, growth of the early continental crust; the relative roles of horizontal vs. vertical tectonics; controls on the origin, locations, metabolism, and ecology of early life; the nature of magmatism on the early Earth; surface conditions of early Earth, including the composition and physical/chemical state of oceans and atmosphere; nonuniformitarian depositional environments and sediments, early weathering conditions, the early Earth-Moon system, and the role of meteorite impacts in early crustal development and biological evolution.

This trip will introduce participants to many of the principal outcrops, lithologies and styles of deformation of the Onverwacht, Fig Tree and Moodies Groups (3.57-3.21 Ga) and to key lines of evidence on which much of our knowledge of early Earth processes is based. Participants will be based in Barberton and use 4-WD vehicles to access outcrops in the Makhonjwa Mountains. Moderate hiking is required at several stops. The trip begins and ends in Nelspruit from where participants will be shuttled to and from Barberton. The beginning of this trip is set to coincide with the end of the Badplaas Workshop.

TRIP LEADER	START	END
Gary Byerly, Christoph Heubeck, Don Lowe	Nelspruit	Nelspruit
DAYS		PRICE
6 days, Monday 22nd to Saturday 27th August 2016		TBA

### PRE 17 Africa Rising on the African Superplume

This traverse through KwaZulu-Natal and into the eastern Free State province crosses the Cenozoic planation surfaces of the eastern margin of South Africa and includes a unique opportunity for delegates to ascend up the Ukhahlamba-Drakensberg "Great Escarpment" via Sani Pass to the the Kingdom of Lesotho, the "Roof of Africa".

TRIP LEADER	START	END
Rodney Maud	Durban	Durban
DAYS		PRICE
3 days, Thursday 25th to Saturday 27th August 2016		TBA

### PRE 18 Karoo magmatism & Continental breakup

The record of sedimentation, volcanism and continental breakup in the Lebombo Mountains and the Kruger National Park where Karoo sediments and volcanics are beautifully exposed in river sections. These provide evidence of the earliest break up of the Gondwana continent in the form of dyke swarms and faults. This field trip will require short walks to choice geosites in the company of an armed ranger and expert guides. The inextricable link between the abiotic and biotic (earth /life link) is better revealed in Kruger than perhaps anywhere else in South Africa.

TRIP LEADER	START	END
Mike Watkeys	Durban	Johannesburg
DAYS		PRICE
8 days, Sunday 20th to Saturday 27th August 2016		TBA

### PRE 19 Natal Metamorphic Province

It has been over 25 years since the Council for Geoscience published its complete coverage of the Natal Metamorphic Province in four 1:250 000 scale geological maps. Since then, research has continued, a new model for the evolution of the belt has been postulated and new geochronological data has become available. It represents a classic Mesoproterozoic juvenile arc-accretion belt, with arc and ophiolite (?) terranes and evidence of protracted lateral escape tectonics.

This excursion will provide a complete 300 km long north-south traverse across the belt from the southernmost granulites of the Margate terrane, across the Melville Thrust into the upper amphibolite Mzombe terrane and further north across a major sinistral strike slip zone into the nappes of the Tugela Terrane, abutting the Archaean Kaapvaal Craton.

The excursion will be led by one of the old guard mappers (Bob Thomas) and one of the new guard isotope geochemists (Chris Spencer) so that a series of traditional geological outcrop stops will be enriched with new data (and thinking) generated by modern techniques. These new data are leading to incremental changes in previously-held views which it is hoped will form the basis of wide-ranging discussion amongst the participants.

TRIP LEADER	START	END
Bob Thomas and Chris Spencer	Durban	Durban
DAYS		PRICE
TBA		TBA



## POST-CONGRESS FIELD TRIPS

### **POST 2** Eastern Bushveld, Mpumalanga Drakensberg Escarpment and Kruger National Park

The first part of the excursion is focussed on the well exposed northeastern limb of the Bushveld Complex with its spectacular layered igneous rock assemblage which includes pyroxenite, norite, anorthosite and gabbro. These rocks host layers of chromitite, platinumiferous pyroxenite and vanadiferous titanomagnetites. The layers are traceable for hundreds of kilometres around the Bushveld Complex and contain the world's largest reserves of chromium, platinum and vanadium. Exposures of all of the above together with an exposure of one of the famous hortonolite dunite pipes on which the first platinum mining took place in the late nineteen twenties, will be viewed.

The second part of the excursion traverses the eastern highlands and eastern escarpment edge. Quartzite and shale horizons of the Pretoria group, intruded by numerous diabase sills, form the highlands, while resistant, quartzite-dominated formations of the Wolkberg and Black Reef formations form the scenic escarpment edge. These formations are overlain by dolomite with well developed stromatolite structures in many places. Several tourist caves with dripstone formations, calcareous tuffa deposits, both active and extinct, are characteristic of the dolomite terrain. Headward erosion of several rivers including, from south to north the Crocodile, Sabie and Blyde rivers and their tributaries have incised the escarpment region by the process of headward erosion. This has given rise to a range of scenic waterfalls at nick points on harder rock formations. Potholes are spectacularly developed and have clearly been a major force in the incision of hard rock formations to initiate gorge formation as in the case of Bourke's Luck potholes and the spectacular Blyde River Canyon.

The third part of this trip visits the central and southern portions of the world famous Kruger National Park which will be traversed and the major rock formations and geomorphological features examined at a number of localities. Rock types in the Archaean basement granitic terrain range from granite inselbergs in southern Kruger, granitic migmatites, diabase dykes and the Timbavati gabbro intrusion. Karoo basaltic lava plains underlie much of eastern Kruger and are overlain by rhyolite, the latter forming the Lebombo range along the Mozambique border. As part of the drive through Kruger the distinctive soil types and ecozones developed on different rock types will be highlighted. As part of the above the chances of seeing the "Big Five" comprising elephant, rhino, lion, buffalo and leopard, together with a large range of other animals in this unique national park, are excellent. A feature of the excursion will be the opportunity to do short geological traverses from the vehicles.

TRIP LEADER	START	END
Morris Viljoen	Johannesburg	Johannesburg
DAYS		PRICE
7 days, Monday 5th to Sunday 11th September 2016		TBA

### **POST 3** Big 5 & Big 5: mineral commodities and animals

This eight day excursion includes visits to South Africa's "Big 5" mineral deposits at Cullinan diamond mine, South Deeps gold mine, Thabazmbi iron ore mine, Mogalakwena platinum mine and the Phalaborwa copper mine. The trip includes nights in Kruger National Park at the Satara and Letaba hunted camps and game drives where it will be possible to see the "Big Five"; elephant, rhino, lion, buffalo and leopard. From the Lowveld region the tour returns via Graskop on the Drakensberg escarpment.

TRIP LEADER	START	END
Johan Krynauw	Johannesburg	Johannesburg
DAYS		PRICE
8 days, Monday 5th to Monday 12th September 2016		TBA



#### POST 4 Eastern Bushveld and Nkomati

The excursion will pass through Transvaal Sequence floor rocks into the Bushveld Complex granites around Vergenoeg Fluorite Mine. Passing the town of Chuniespoort and the Mohlopitse Fold Belt, we enter the northeastern limb of the Bushveld Complex looking at Lower and Lower Critical Zone rocks in the Olifants River Trough and along the 'Cameron Section'. The famous Pt-orebody of the 'Merensky Reef' will be inspected at the Maandagshoek type locality close to Burgersfort. Furthermore, exposures of the middle and upper group chromitite layers will be visited at Tweefontein Mine and the national geological monument of the Dwars River gorge, south of Steelpoort, as well as discordant ultramafic pipes. The Main Magnetite Layer and related Fe-V-Ti mineralizations of Upper Zone of the Bushveld Complex will be attended in Sekuhuneland.

It is planned to visit the Two Rivers Platinum Mine nearby, looking at underground exposure of the UG-2 chromitite workings; the excursion continues via the Mpumalanga Drakensberg Range, looking at Black Reef conglomerate in the eastern escarpment at 'Gods Window' and the stromatolitic 'Mega domes' of the Malmani Subgroup dolomites near Sudwala Caves. Passing by marginal sills in the foot wall of the eastern Bushveld Complex, a visit to the open-pit Nkomati Nickel-Copper-Platinum (-Cr-Co) Mine is planned, which constitutes a satellite intrusion of the Bushveld. Drive back to Johannesburg via Middleburg and Emalaheni.

TRIP LEADER	START	END
Christoph Gauert	Johannesburg	Johannesburg
DAYS		PRICE
5 days, Monday 5th to Friday 9th September 2016		TBA

#### POST 5 Mountain Geomorphology of the Drakensberg

This field trip will focus on the basalt geology and geomorphology of the Drakensberg mountains of eastern Lesotho, part of the Great Escarpment. This is a post-conference trip that will start and end at Durban's King Shaka International Airport. Accommodation will be at Sanji Top Backpackers, which is basic but comfortable. All food will be provided. Sleeping bags are not needed but warm clothes and mountain walking gear are necessary.

TRIP LEADER	START	END
Jasper Knight & Stefan Grab (Wits University)	Durban	Durban
DAYS		PRICE
3 days, Monday 5th to Wednesday 7th September 2016		TBA



#### POST 6 Archean Stromatolites and their Depositional Environments

The excursion will start from Johannesburg ORT Airport and will drive to the Wit Mfolozi, Pongola Supergroup (3.2-2.9 Ga) carbonate deposits with stromatolites, returning to Johannesburg for an onward flight to Kimberley. From Kimberley the trip will visit Neoproterozoic stromatolites in the Griqualand West region, including the Ventersdorp and Transvaal Supergroup stromatolites, returning to Kimberley airport where the excursion will end.

Archean stromatolites are archives of the earliest life on Earth. South Africa possesses the best examples of Archean stromatolites. These examples include the world's oldest carbonate platform of the world, the Wit Mfolozi carbonate platform of the Pongola Supergroup and the spectacular, world's largest Neoproterozoic giant stromatolite platform of the Transvaal Supergroup, including the superlative outcrops of the Boetsap waterfalls. These famous outcrops will be visited during this excursion.

A visit to the world famous Kimberly Big Hole Diamond Mine and Museum will be possible on a private basis, as well as visits to the spectacular Kgalagadi (Kalahari) National Park, Augrabies Falls at Orange River, one of world's largest waterfall, when in flood season.

Difficulty grade: moderate walking of no more than 5 km in an easy bush terrain but occasional farm fence climbing is required. Overnight accommodation in simple guesthouses, farms and hotels.

TRIP LEADER	START	END
Wlady Altermann	Johannesburg	Kimberley
DAYS		PRICE
8 days, Sunday 4th to Sunday 11th September 2016		TBA

## POST 7 Barberton

This 6-night / 5-day trip will provide participants with an overview of BGB geology and its context within the Kaapvaal Craton. Participants will examine the principal outcrops, lithologies, style of preservation and deformation of the Onverwacht, Fig Tree and Moodies Groups (3.57-3.21 Ga) and discuss key lines of evidence on which much of our knowledge of early Earth processes is based. (See pre-conference BGB excursion for a summary of these topics).

Compared to the pre-conference excursion (Pre16), this field trip will spend more time studying the lower stratigraphic members of the greenstone belt, including their type sections, and on the igneous rocks surrounding the BGB. Participants will be based in Badplaas and Barberton (3 nights each) and use minibuses to access outcrops in the Makhonjwa Mountains, mostly using tarred roads. All meals are included in the trip fees. The trip begins and ends by shuttling participants to/from Nelspruit.

TRIP LEADER	START	END
Eugene Grosch, Christoph Heubeck	Nelspruit	Nelspruit
DAYS	PRICE	
7 days, Sunday 4th to Saturday 10th September 2016	TBA	

## POST 8 The Pongola Supergroup: Earth's earliest stable continental margin.

The Mesoarchaean Pongola Supergroup is an exceptionally well-preserved succession of volcanic and sedimentary rocks that extends for 270 km close to the eastern margin of the Kaapvaal Craton in South Africa and Swaziland. It represents a volcano-sedimentary continental or epicontinental deposit that is one of the most extensive coherent Archaean terrains in the world, and the oldest of this extent. Its characteristics are unique amongst supracrustal terrains of this age and are unlike those of other Archaean greenstone belts. Its unique nature is that it marks the transition in southern African crustal development from preceding early greenstone belts, such as observed in the Barberton and Nondweni greenstone belts, to late Archaean basin formation on stable continental crust.

TRIP LEADER	START	END
Allan Wilson	Durban	Johannesburg
DAYS	PRICE	
7 days, Sunday 4th to Saturday 10th September 2016	TBA	

## POST 9 Western Cape Wine Tour

An introduction to some of the region's winelands and their geological influence. This tour will be led by an exploration geologist who is currently completing the Level 4 Diploma through the UK-based Wine & Spirits Education Trust (WSET). This 3-day tour will be structured to introduce tour-goers to the variety of geological settings of the Cape Fold Belt which are the foundation of the Cape's own 'terroir'. The geological setting is predominantly made up of sandstones and shales with granite basement which is manifested in numerous mountain ranges which in turn influence the soils, micro-climate, soils and viticulture. The tour will take us to the famous established wine areas of Constantia, Paarl and Stellenbosch with forays to the Cedarberg with South Africa's highest vineyards as well as to Elim, home to South Africa's southernmost vineyards situated in limestone, offering tour-goers an introduction into the great variety of wines in the region and how they are influenced by the local geology.

TRIP LEADER	START	END
Genevieve Pearson	Cape Town, CTICC	Cape Town, CTICC
DAYS	PRICE	
3 days, Saturday 3rd to Monday 5th September 2016	TBA	

## POST 10 Natal Metamorphic Province

It has been over 25 years since the Council for Geoscience published its complete coverage of the Natal Metamorphic Province in four 1: 250 000 scale geological maps. Since then, research has continued, a new model for the evolution of the belt has been postulated and new geochronological data has become available. It represents a classic Mesoproterozoic juvenile arc-accretion belt, with arc and ophiolite (?) terranes and evidence of protracted lateral escape tectonics.

This excursion will provide a complete 300 km long north-south traverse across the belt from the southernmost granulites of the Margate terrane, across the Mellville Thrust into the upper amphibolite Mzambe terrane and further north across a major sinistral strike slip zone into the nappes of the Tugela Terrane, abutting the Archaean Kaapvaal Craton.

The excursion will be led by one of the old guard mappers (Bob Thomas) and one of the new guard isotope geochemists (Chris Spencer) so that a series of traditional geological outcrop stops will be enriched with new data (and thinking) generated by modern techniques. These new data are leading to incremental changes in previously-held views which it is hoped will form the basis of wide-ranging discussion amongst the participants.

TRIP LEADERS
Bob Thomas and Chris Spencer





## ONE DAY FIELD TRIPS – JOHANNESBURG, GAUTENG

### OD PRE 2 Witwatersrand; geology, historical mining and environment

This surface tour is designed to introduce delegates to some of the important geological features of the unique Witwatersrand plateau of the Johannesburg area on which the world's greatest goldfield and city of Johannesburg was established. The tour includes an introduction to the early gold mining history of the gold reefs and incorporates aspects of the history of early Johannesburg and the Randlords who developed the huge gold mining industry of South Africa. The banded, magnetic iron formation of the lower Witwatersrand strata known as the Contorted Bed, used to trace the Witwatersrand sediments including gold reefs below younger cover, will be examined followed by a stop at the outcrop of the iconic auriferous conglomerate reef horizons of the Main Reef and Main Reef Leader conglomerates at the Langlaagte discovery site SW of Johannesburg. The historic Ferreira stope on the Main Reef Leader, site of the first gold mining camp-(Ferreiras camp) will also be visited. The uppermost (Elsburg) conglomerates and quartzites forming the southern edge of the Witwatersrand Plateau will then be examined, followed by a visit to the Ventersdorp lava which overlies the Witwatersrand sediments and which builds the Klipriversberg range south of Johannesburg.

Re-processing of the tailings dams will be viewed at the historic Robinson Deep mine and the origins and consequences of environmental impacts after 130 years of mining on the Witwatersrand will be examined. The effects of dust and water pollution will be discussed as well as research and remedial actions which have been taken.

TRIP LEADER	START	END
Morris Viljoen	Sandton, Johannesburg	Sandton, Johannesburg
DAYS		PRICE
1 day, Saturday 27th August 2016		TBA

### OD PRE 3 Magaliesberg cable car

The excursion showcases a number of South Africa's geological superlatives and geoheritage sites as viewed from the summit of the Magaliesberg range. The excursion commences with a traverse across the ancient Basement granite terrain and overlying Transvaal Supergroup rocks. The shales and quartzite's of the latter give rise to the distinctive Bankeveld (Cuesta) topography which characterises the Hartbeespoort Dam region.

After ascending the summit of the Magaliesberg by Cable car, the iconic geological features to be seen from the top are described. These include the Witwatersrand plateau to the south, forming the northern edge of the world's greatest goldfield. The lower lying mainly black turf covered terrain of the western limb of the world famous Bushveld Complex lies to the north. Layered rock sequences of this complex host the world's greatest platinum, chromium and vanadium reserves and some of the mining and processing infrastructure can be seen. The Cradle of Humankind World Heritage Site with its wealth of spectacular hominid fossils in dolomite cave deposits lies to the SW. Other features in the broader region include the Vredefort and Tswaing meteorite craters, and the Pilanesberg alkaline volcano, now a game park and in which the popular Sun City resort has been established. The Premier Diamond Mine, from which the world's largest diamond, the Cullinan, was recovered, lies to the east. Lunch is at leisure at the Cableway restaurant followed by a visit to the Walter Sisulu Botanical Garden which features a geological (rock) garden with representative specimens of many of South Africa's important rock formations.

TRIP LEADER	START	END
Morris Viljoen	Sandton, Johannesburg	Sandton, Johannesburg
DAYS		PRICE
1 day, Friday 26th August 2016		TBA

**OD PRE 4** Cradle of Humankind hominin sites

This tour will visit the Cradle of Humankind World Heritage Site where the tour visits the Sterkfontein Caves museum and takes an underground tour through the site where Mrs Ples (*Australopithecus africanus*) was discovered. The excavated site can be viewed from the safety of the observing platform, and along the public route. This tour will be accompanied by a palaeoanthropologist. At the Wonder Cave take a trip into the underground dolomitic solution cavity accompanied by a geologist.

TRIP LEADER	START	END
Francis Thackeray	Sandton, Johannesburg	Sandton, Johannesburg
DAYS	PRICE	
1 day, 27th August 2016	TBA	



**ONE DAY FIELD TRIPS – CAPE TOWN**

**OD PRE 1** Cape West Coast: Langebaan and Fossil Park

On the Cape West Coast about 130 km north of Cape Town is the West Coast National Park (WCNP). The Langebaan Lagoon is bounded in the west by a Pleistocene dune succession (tombolo) and at Kraal Bay a Late Pleistocene (120 ka) hominid footprint site was discovered in aeolianite. Casts of the prints (left-right) representing an early modern human are on display and a set of hyena tracks can be seen in situ. The dunes built out into the lagoon during the Last Interglacial, and reflect the high sea levels of this era.

The West Coast Fossil Park palaeontological site of Langebaanweg (LBW) is internationally renowned for its prolific, diverse and exceptionally well preserved Mio-Pliocene vertebrate faunas. At the 'dig site' in an old phosphate quarry, a spectacular exhibit reveals partially excavated bones of an extinct Mio-Pliocene fauna, including numerous remains of the civathere or short necked giraffid. The giant hunting bear *Agriotherium* was the first ursid found in Sub-Saharan Africa. The site also reflects the glacio-eustatic sea level history of the Early Pliocene.

TRIP LEADER	START	END
TBA	Cape Town	Cape Town
DAYS	PRICE	
1 day, Saturday 27th August 2016	TBA	

**OD PRE 5** Geological Walking Tour of Robben Island

The tour starts at the Political Prison which is built of deep-marine siltstone from the Malmesbury Group, the 560 million year old bedrock of the island. To the south, on the rocky eastern shoreline, tight folding of the bedrock is exposed. Walking southwards through 'The Village' to Alpha on the SE corner of the island, modern shingle beaches will be studied. This site provides a spectacular view of Table Mountain. The magnificent exposures of the Tygerberg Formation in the Jan van Riebeeck Quarry and a Late Pleistocene, lime-cemented, raised beach, on top of the bedrock are explored next. Beside the SW coastline, just inland of the perimeter road, is the geologically younger, uncemented Latest Pleistocene raised beach of wave-rounded cobbles. A picnic lunch will be beside Langbaai on the west coast, where an Early Cretaceous dolerite dyke will be examined. This magma intruded the bedrock as the supercontinent Gondwana split up, giving birth to the geologically young South Atlantic Ocean. Cross the island back to 'The Village', to head north to the Lime Quarry for a fine outcrop of calcrete-capped dune-rock, where Nelson Mandela performed hard labour for many years.

TRIP LEADER	START	END
John Rogers	Cape Town, V&A Waterfront	Cape Town, V&A Waterfront
DAYS	PRICE	
1 day, Saturday 27th August 2016	TBA	



**OD PRE 6** Cape peninsula

This traverse of the rocks and mountains of Cape Town takes you to the most scenic outlooks in the Cape Town area to give an overview of the landforms and geology, both of which are spectacularly on display.

First get an overview from Signal Hill of the city and its surrounding geology. Descend to the Atlantic seaboard to see the Sea Point Contact. At the Sea Point Contact you can see mixing of granite magma and the host shale of the Precambrian Malmesbury Group; long a key exposure to geology and made famous by Darwin's visit in 1836. Travel to Hout Bay Beach and Chapman's Peak Drive to see weathered granite, dolerite dykes and beautifully exposed mudstone and sandstone rocks of the lowermost Table Mountain Group (Cambrian/Ordovician).

Travel to the southernmost tip of the Cape Peninsula to the Cape of Good Hope and the Cape Point Lighthouse. Drive up the eastern edge of the Cape Peninsula to Boulders Beach to see the penguin colony.

In addition to the geology, the trip will include aspects of landscape evolution, plants of the unique and diverse fynbos floristic region and the history of geology.

TRIP LEADER	START	END
John Compton	Cape Town, CTICC	Cape Town, CTICC
DAYS	PRICE	
1 day, Saturday 27th August 2016	TBA	



**OD PRE 7** Cape Town geology

This excursion takes you to the most scenic outlooks in the Cape Town area to give an overview of the spectacular landforms and geology. Departs from CTICC to Signal Hill, Seapoint geological contact, Hout Bay, via Chapman's Peak Drive to Froggy Pond (Boulders Beach), Cape Point and back to the city via Kommetjie and Oukaapseweg.

An initial overview from Signal Hill contextualises the city and its surrounding geology. Descending to the Atlantic seaboard, the tour visits the Sea Point Contact where mixing of granite magma and the host shale of the Precambrian Malmesbury Group was made famous by Darwin's visit in 1836. Progressing towards Hout Bay Beach and Chapman's Peak Drive the route passes through weathered granite, dolerite dykes and beautifully exposed mudstone and sandstone rocks of the lowermost Table Mountain Group (Cambrian/Ordovician). Travelling to the southernmost tip of the Cape Peninsula, the Cape of Good Hope and Cape Point Lighthouse will be visited. From there the route heads up the eastern edge of the Cape Peninsula to Boulders Beach to see the penguin colony. In addition to the geology, the trip will include aspects of landscape evolution, plants of the unique and diverse fynbos floristic region and the history of geology.

TRIP LEADER	START	END
John Compton	Cape Town, CTICC	Cape Town, CTICC
DAYS	PRICE	
1 day, Sunday 28th August 2016	TBA	

**OD PRE 8 POST 1** Building Stones of Cape Town

Discover the building stones of Cape Town on the half-day walking tour. Depart CTICC and walk along Heerengracht Street as far as Cape Town Railway Station, stopping at several buildings and statues along the way. Proceed along Strand Street to Cape Town Castle, for an informative tour of this building – the reason why Cape Town was established, as half way station in the 17th Century.

Continue across the Parade and along Darling Street and Adderley Street to Cape Town Cathedral, observing several buildings and their stones. Cross Wale Street to the Bishop Gray Monument, one of the most interesting building structures in Cape Town, and walk the entire length of St George's Mall passing several interesting buildings. Cross Riebeeck Street into Thibault Square to the last stop at the Engen Building. Proceed back to the Cape Town Convention Centre along Long Street, a distance of 500 metres.

TRIP LEADER	START	END
Doug Cole	Cape Town, CTICC	Cape Town, CTICC
DAYS	PRICE	
OD Pre8: 1 day, Sunday 28th August 2016 OD Post1: 1 day, Saturday 3rd September 2016	TBA TBA	

**OD PRE 9 + 10 POST 2 Table Mountain hike; Maclears Beacon-Platteklip Gorge cable car**

Hike the route of the original explorers to the top of the Front Table. This trail offers spectacular views all the way to the top with Devil's Peak and Lion's Head flanking the mountain on either side. Take in the scents of the indigenous fynbos and the views of the beautiful gorge rock face. Continue on a circular walk to Maclear's Beacon, the highest point on Table Mountain (an additional 1.5 hour hike). At the top of the gorge a short 10 minute walk takes one to the cableway where plenty of time is allowed to take in the unrivalled panorama in all directions.

There are plenty of friendly dassies (rock hyrax) and an opportunity to have a light snack and refresh. Look down on the beaches of Clifton and Camps Bay and south over the Cape Peninsula and the majestic Twelve Apostles, Table Bay, Robben Island, Signal Hill and the City of Cape Town. Take the cable way down to your vehicle that will transfer you back to your hotel.

The route consists mainly of switch-backs (zig-zags) and has about 3000 rock steps to the top. Given that the northern side of Table Mountain is in the sun for most of the day, it is advisable to hike Platteklip Gorge either early in the morning or in the late afternoon when there is shade in the Gorge. Wear good walking shoes and bring a hat, sunglasses, sunscreen, a jersey or a jacket. In winter, warmer clothing is a must, including a rain jacket.

All walks are undertaken at participants own risk and are subject to weather conditions. Please note these walks are normally restricted to a maximum of eight. Transfer, pick up and drop off and decent Cable Car included.

TRIP LEADER	START	END
TBA	Cape Town, CTICC	Cape Town, CTICC
DAYS	PRICE	
OD Pre9: 1 day, Saturday 27th August 2016 OD Pre10: 1 day, Sunday 28th August 2016 OD Post2: 1 day, Saturday 3rd September 2016	TBA TBA TBA	

**OD POST 3 Tulbagh-Ceres and SW Cape seismicity**

This day trip will start in Milnerton near Cape Town, believed to be close to the epicentre of the 4th December 1809 event, which damaged buildings in Cape Town. We will then travel across the Swartland area, where the geological characteristics of this intraplate setting will be discussed with stops at several strategic points along the way. The route will take us past the impressive late Precambrian to Cambrian granite plutons and across major fault systems, some of which have been created in Neoproterozoic times, reactivated during Mesozoic breakup of Gondwana and continue to be seismically active. Uncertainties surrounding the location and magnitude of historic events will be discussed and reviewed. We will cross a major Mesozoic fault system, the Worcester Fault, near its northern termination. Our next stop will be at Tulbagh, where we will visit the local museum to view an exhibition of photographs and information on hitherto the largest known seismic event to hit the SW Cape, the 29th September 1969 earthquake and its series of aftershocks. We will return to Cape Town via the Slanghoek Wine Route and the Du Toits Kloof Pass. The excursion will strive to integrate the geology and seismicity of the area.

TRIP LEADER	START	END
Coenie de Beer, Nicky Flint	Cape Town, CTICC	Cape Town, CTICC
DAYS	PRICE	
1 day, Sunday 4th September 2016	TBA	

**OD POST 4 Zevenwacht Wine Farm and Tin Mine**

This half-day trip will start and end in Cape Town. Zevenwacht Wine Farm is situated about 35 km east of Cape Town and contains several granite-hosted, vein-type, tin deposits, which were mined during the early 1900s. On arrival at the farm, the participants will walk one kilometer through the vineyards to reach the area of abandoned mine adits and machinery. We will focus on an accessible adit named the "F shaft", where the nature and morphology of the tin-bearing lode can be examined. A filled-in shaft named the "B shaft" and another partially filled-in adit are also present and the boiler and winch that was used for hoisting the mine cage in the "B shaft" are still in place.

After the mine tour, the group will return to the farm to enjoy a wine tasting with the resident wine maker and light lunch, before returning to Cape Town.



TRIP LEADER	START	END
Doug Cole	Cape Town, CTICC	
DAYS	PRICE	
1 day, Sunday 4th September 2016	TBA	



## FIELD TRIPS TO OTHER AFRICAN COUNTRIES

### EXSA PRE2 NAMIBIA: Nama Group geology and Ediacaran fossils

Coinciding with the late stage of the orogenies that welded together the Gondwana supercontinent, a huge sedimentary basin developed in southern Namibia and accommodated the molasse derived from the uplifted orogenic areas. The shallow sea that formed would become the scene of early life growing up, as more complex creatures developed in a World that hitherto only knew single-celled life. As a result, the Nama Group hosts the fossil remains of some of the World's oldest known multi-cellular organisms, the metazoan communities of the so-called Ediacaran age. This field trip is specifically aimed at studying the environments of the life forms of the Ediacaran fauna in the Nama Group sediments of the terminal Proterozoic (terminal Ediacaran). The trip will concentrate on the south of Namibia, and the sedimentology of the Nama Group will be explained on the way from Windhoek. The terminal Ediacaran fossils at the national heritage site of farm Aar, other important outcrops, and will be shown. The excursion will also include a scenic visit to the Fish River Canyon.

TRIP LEADER	START	END
Pat Vickers-Rich, Guy Narbonne	Windhoek	Windhoek
DAYS	PRICE	
5 days, last week August 2016	TBA	

### EXSA PRE3 NAMIBIA: Otavi Mountainland

Nestled on the edge of the Kalahari in northern Namibia lie the rolling hills of the Otavi Mountainland. They harbour treasures such as rich mineral deposits, unique minerals and fossils, and an underground karst wonder-world. Indigenous people have mined copper here for centuries, and today the complex geological heritage of the Otavi Mountainland is an integral part of the national heritage of the Namibian people. This excursion will deal with the polymetallic mineralisation in the Otavi Mountainland, and day trips will be undertaken from the town of Tsumeb, which is world famous for the Tsumeb Mine and its outstanding mineralogy. The Excursion will also look at karst structures, as well as the most interesting palaeontology from Miocene to recent times. The first Miocene hominoid south of the equator, *Otavipithecus namibiensis*, has been found in the mined out structures of the Berg Aukas Mine here.

TRIP LEADER	START	END
Arno Günzel, Volker Petzel	Windhoek	Windhoek
DAYS	PRICE	
5 days, last week August 2016	TBA	

### EXSA PRE4 NAMIBIA: Mineral Deposits

Namibia has a range of mineral resources associated with the various stages of development of the Damara Orogen, as well as ore deposits hosted by younger strata, which will be examined in this field trip. This will deal with interesting mineral deposits, some of them not covered by the other excursions, such as the marble-hosted Navachab Gold Mine, one of the largest uranium mines in the world, the Rössing Mine, the solar evaporation pans along the coast which support the Swakopmund Salt Works, the pegmatite-hosted Uis Tin Mine – once the largest hard-rock tin mine in the world -, the newly developed Tschudi Copper Mine, and the carbonatite-related Okorusu Fluorspar deposit.

TRIP LEADER	START	END
Anna Nguno, Kombada Mhopjeni, Keith Webb	Windhoek	Windhoek
DAYS	PRICE	
6 days, last week August 2016	TBA	

**EX SA PRE 5 NAMIBIA: Namib Desert**

Along the western shores of southern Africa, most spectacular landscapes have developed in a hyper-arid zone, which nevertheless boasts a variety of adapted forms of life. Between the Carunjamba River in southern Angola in the north and the Olifants River of South Africa in the south, nature has created the forbidding, yet fascinating Namib Desert, cursed by shipwrecked people and early explorers for centuries and admired by more modern travelers for its magnificent landscapes, forever changing pastel colours and wide open spaces. The excursion will examine the sedimentology of the central Namib Sand Sea, Namibia’s latest addition to the World Heritage List. Places include the Sesriem Canyon, Sossus Vlei with its high dunes, the Conas Cliffs exposing a petrified desert that underlies the modern Namib Desert, the Gobabeb Desert Research Station, and Sandwich Harbour, where coastal sediment dynamics will be explained.

TRIP LEADER	START	END
Mary Seely, John Ward, Roger Swart	Windhoek	Windhoek
DAYS	PRICE	
6 days, last week August 2016	TBA	

**EX SA PRE 6 ZAMBIA: Copper Belt**

This 7 day trip will examine the stratigraphy, structure, and alteration/mineralization of the Central African Copperbelt. The itinerary of the trip is expected to include studying long stratigraphic drill cores at the Kalalushi core facility and mine visit to Ore Shale- and arenite-hosted Cu-Co deposits in the Zambian Copperbelt, the Kansanshi Cu-Au deposit in the Domes region and the Frontier Cu deposit in the DRC. The fieldtrip will include a number of evening discussions detailing recent research results on the genesis of this world-class salt-related sedimentary rock-hosted stratiform district. The trip will be based out of Ndola and Kitwe, Zambia.

TRIP LEADER	START	END
Murray Hitzman and Imasiku Nyambe	Ndola, Zambia	Ndola, Zambia
DAYS	PRICE	
7 days, Saturday 20th – Friday 26th August 2016	TBA	

**EX SA PRE 7 ZAMBIA: Irumide Belt regional traverse**

The Irumide field trip will develop a composite cross section across this fold and thrust belt that defines a part of the SE margin of the Congo craton. Commencing in Mansa, the trip starts with the volcanics and granites of the Bangweulu block, one of several components of the Paleoproterozoic Congo craton. It will then examine the stratigraphy and structure of the unconformably overlying sediments of the Muva Supergroup. It will trace these sediments into the Late Mesoproterozoic deformation seen in the foreland region of the dramatic, NW vergent, Shiwa Ngandu fold belt. Turning south, it will follow along strike the upright structures and huge late-tectonic granite massifs of the Irumide belt before viewing the SE vergent structures of the internal zones exposed east of Mkushi.

Several controversies bubble gently around this little studied orogenic belt. Notably the tectonic setting of the Bangweulu Block basement of volcanics and granites; the nature of the Muva cratonic basin, the depositional environment of its quartz rich sediments and its subsidence driving mechanism; the role and implications of the recycled late-orogenic Irumide granite bodies; the geodynamics of the Irumide deformation and metamorphism; and the nature of post-Irumide, cobble conglomerates, and epirogenic deformation. All of which provide room for new contributions to this little studied area.

The trip will involve long drives in 4x4 vehicles over the high plateau of Africa. The large distances between key outcrops will allow time for discussion of the evolution of this unique ‘rough plateau’ and its marginal rifts. Accommodation will be in lodges of variable quality and interest.

Historical highlights along the way are the memorial to Paul von Lettow-Vorbeck at the strategic Chambeshi Bridge and the “Africa House” at Shiwa Ngandu. The natural rock formations of the Mutinondo Wilderness camp will also be memorable. The timing of the trip coincides with the unique “early spring” russet colours of the Miombo woodland, characteristic of this high plateau region.



TRIP LEADER	START	END
Mike Daly, in collaboration with the Geological Survey Department of Zambia.	Lusaka, Zambia	Lusaka, Zambia
DAYS	PRICE	
7 days, Saturday 20th – Friday 26th August 2016	TBA	

**EXSA PRE 8** **BOTSWANA: Okavango Delta**

The Okavango Delta, a tectonically bound alluvial fan, supports a large freshwater wetland recognized as a World Heritage Site and one of the world's largest Ramsar sites. It is also a prime tourism destination, priding itself in large numbers of charismatic wildlife, unspoiled environment and exclusivity. The excursion will offer a glimpse into unique hydrological, geological, geomorphological, and ecological features of the southern part of that system, as well as ample opportunities for viewing famed Okavango wild- and bird-life.

During the excursion we will visit the Okavango Research Institute, dedicated to studying the Okavango, where we will learn about current knowledge, main research directions and challenges faced in understanding of this complex socio-ecological system. We will conduct field trips, during which we will visit and learn about the hydrological, ecological and socio-economic role of the main geomorphological features of the southern part of the system – such as the Thamalakane fault, Kunyere faultline basin, fossil dune system, and floodplain-island complex. We will witness the nature of sediment transport and deposition processes first hand during a trip by mokoros (dug-out canoes) or a boat through a system of floodplains, channels, and lagoons. Finally, we will visit Lake Ngami, which offers an opportunity to learn about the time scales of variability experienced by the geological and hydrological system of the Okavango, and their ecological and social implications. The participants in this 6-day (4-nights) excursion will stay in chalets and tents in Sitatunga and Kazikini Camps near Maun, and will be transported by open safari vehicles.

TRIP LEADER	START	END
Piotr Wolski	Maun, Botswana	Maun, Botswana
DAYS		PRICE
6 days, Monday 22 to Saturday 27th August 2016		TBA

**EXSA POST 2** **Tanzania: Rift Valley in Northern Tanzania**

The easterly (Gregory Rift) branch of the East African Rift System reveals spectacular landforms that include iconic escarpments and alkaline lakes. The area is further characterized by abundant, young volcanism, both within the rift and on the eastern platform. The geotourism of some of Africa's most famous parks and conservation areas - Arusha, Manyara, Ngorongoro, Serengeti and the wilderness area around Lake Natron - is unparalleled.

Mount Meru is a free-standing volcano where we will hike at over 8,000 feet in a giant, horseshoe-shaped caldera with its massive ash cone. Some of the largest known debris avalanche deposits occur on the eastern slopes of this volcano. The extinct peaks of the Ngorongoro Highlands, which occur within a sub-graben of the rift, include massive calderas and ignimbrites. An ascent of Oldoinyo Lengai the famous carbonatite reveals cm-thick lava flows within an active crater. The excursion will also include the Archaean rocks of the Tanzania Craton and Oldupai Gorge, the important hominid site, e.g., Homo habilis (1.9-1.6 Ma) and Paranthropus boisei (1.8-1.2 Ma), with sequences of volcanic ash (from the Ngorongoro volcanoes) and clay.

Note: The itinerary and costs are dependent on number of participants, so early booking will assist greatly. Costs are estimated at US\$6-8,000. There will be opportunities to add on private trips to visit, for example, primates (gorilla, chimpanzee) in Uganda and Rwanda, or the volcanic areas of southern Kenya.

TRIP LEADER	START	END
Roger Scoon	Johannesburg, OR Tambo Airport	Johannesburg, OR Tambo Airport
DAYS		PRICE
10 days, Monday 5th to Wednesday 14th September 2016		US\$6,000-8,000?



**EXSA POST 3** **NAMIBIA: Damara Orogen traverse and 'Snowball Earth'**

The Damara Orogen forms part of the network of Neoproterozoic orogenic belts that partial surround and dissect Africa. This classical traverse across the Damara Belt will look at all aspects of the sedimentology, stratigraphy, structure, metamorphism and igneous geology of this well studied and exposed orogenic belt. The excursion will take us across the Southern Margin Zone, the Nama Group and Naukluft Nappe Complex, the Southern, Central and Northern Zones along the Namibian escarpment, and the Okahandja Lineament Zone on the way back to Windhoek. We will investigate the depositional facies of this Supergroup in relation to Snowball Earth, its mineral deposits, the various phases of deformation during continental convergence and the related intrusive events. This will be the classical Roy Miller trip starting in the south and going through to the snowball Earth sites on the northern platform of the Damara Orogen. This will be a classic traditional Geological Society of Namibia field trip where we will camp out under the stars every night. Tented camps and sleeping gear are provided, and all meals, drinks and safe drinking water are included in the excursion fee.

TRIP LEADER	START	END
Roy Miller, assisted by E Freyer & G Symons	Windhoek	Windhoek
DAYS		PRICE
6 days, 4th – 9th September 2016		TBA

**EX SA POST 4 NAMIBIA: Diamonds**

Namibia is host to the world's largest diamond placer, a formidable mineral deposit indeed. Diamonds were first found here in 1908, and the areas are rich in mining history. Mineralisation occurs in the Succulent Karoo Biome, one of the largest biodiversity hotspots on earth. While the land-based operations are largely mined out, innovative technology is being developed to access resources in the near-shore area, and groundbreaking marine mining technology was developed in the adjacent ocean to support the marine mining operations that have been flourishing for 2 decades. The excursion will examine reworking of the displaced Orange River delta, Orange River terraces, alluvial diamonds in marine terraces, and aeolian diamond placers. A presentation will be given on the marine operations. NB: participants need police clearance certificates from their country of origin to be provided well before the excursion, so that restricted area permits can be arranged for them.

TRIP LEADER	START	END
Jürgen Jacobs, Gabi Schneider	Windhoek/Oranjemund	Windhoek
DAYS	PRICE	
5 days, 4th – 8th September 2016	TBA	

**EX SA POST 5 NAMIBIA: Granites and Uranium Deposits**

This excursion will examine granites and pegmatites of the Damara Supergroup as well as the associated uranium mineralisation, including secondary mineralisation, of the Namibian Uranium Province in the central western part of the country. Primary mineralisation in alaskitic granite at will be seen at Rössing, one of the largest uranium mines in the world, while supergene enrichments in calcretes will be shown at the Langer Heinrich and Trekkopje mines. Environmental aspects of uranium mining will form an integral part of the excursion, as Namibia has conducted the first Strategic Environmental Impact assessment for a mineral province worldwide here. A detailed Environmental Management Plan was developed from the Strategic Environmental Assessment, and is implemented by the Geological Survey of Namibia. The detailed geology of the granitic intrusions will be demonstrated at Goanikontes. The excursion will also include a visit to the second largest uranium mine in the World, the Husab Mine, currently being developed there.

TRIP LEADER	START	END
Judith Kinnaird, Paul Nex, Vicky Do Cabo	Windhoek	Windhoek
DAYS	PRICE	
5 days, 4th – 8th September 2016	TBA	

**EX SA POST 6 ANGOLA: Southern Angola - From the Humpata Plateau to the Namib Desert**

A six-day field trip through three provinces of southwestern Angola (Huila, Namibe and Cunene), starting and ending in the city of Lubango, with the purpose to observe some of the main sites of geological interest in this region of Angola, including "Fenda da Tundavala" (Tundavala Gap), Plateau of Lubango, waterfalls of Humpata, Serra da Leba (Mountain range of Leba), Iron Mines of Cassinga, volcanic rocks of Namibe and the Cunene Anorthosite Complex.

This field trip allows participants to visit the Tundavala Gap, a huge escarpment more than 1,000 m high and the Katchillwa Waterfall, on a quartzitic scarp at 2,200 m asl. On the second day, the destination is the carbonatites complexes of the Tchivira and Bonga Mesozoic alkaline massifs. On the third day, the visit will involve the Lubango-Cunene Anorthosite Complex, one of the world's largest anorthosites. Eco-construction of raw earth constitutes a real GeoHeritage of this region of Cunene. On the fourth day the destination is the iron mines of Cassinga, one of the five main iron mining zones of Angola. In the fifth day, the itinerary is through Leba passage, a spectacular part of the Serra da Chela, towards the volcanic basic rocks of Namibe and an interesting paleontological site in Bentiaba. In the sixth day, the field trip will continue to the Namib Desert (UNESCO World Heritage Site), home of the ancient plant *Welwitschia mirabilis*, finishing at mineral sand deposits in the beautiful bay of Tombwa.

TRIP LEADER	START	END
Isabel Duarte and Antonio Gonçalves	Lubango, Angola	Lubango, Angola
DAYS	PRICE	
6 days, September 2016	TBA	



**EXSA POST 7 GHANA: Tectonic and metamorphic evolution of the Paleoproterozoic Eburnean orogeny in North-West Ghana, West African Craton.**

This trip to north-western Ghana visits the poly-deformed metamorphic terranes of the Paleoproterozoic West African Craton and Eburnean orogeny.

The tour will visit outcrops of the Wa-Lawra greenstone belt and gold exploration projects, high-grade metamorphic rocks and migmatitic gneisses of the Bole-Bulenga domain and examine the high-strain zones at the transition between domains of contrasting geological histories and their significance in terms of lower-crust exhumation and craton architecture. This part of the craton is made of various metamorphic terranes that are intruded by successive generations of granitoid suites. High-grade gneisses and migmatites were exhumed during the Eburnean orogeny (2.14-2.10 Ga) and juxtaposed against low-grade greenstone belts and volcano-sedimentary basins. The various metamorphic domains are bounded by reverse, extensional and transcurrent shear zones, some of which host significant gold mineralisations.

During the field trip, we will recognise a large diversity of rock types, including lithological associations that are typical of the Paleoproterozoic West African Craton. We will also visit mineralised zones and gold exploration sites. In NW Ghana, high-quality outcrops in spectacular high-grade metamorphic rocks provide a window into the lower crust of the Eburnean orogeny. Our itinerary follows regional-scale cross-sections across contrasting tectonic and metamorphic domains. Airborne geophysical datasets are available to assist field observation and geological interpretation.

The West African Craton is a key locality to understand secular geodynamic changes after the Archean-Proterozoic transition. Our observations will provide us with some clues on the dominant orogenic processes back into the Paleoproterozoic.

TRIP LEADER	START	END
Sylvain Block	Accra, Ghana	Accra, Ghana
DAYS		PRICE
8 days, ~7-14 September 2016		TBA

**EXSA POST 8 GHANA: Gold mining in southwest Ghana**

West Africa is host to world-class gold deposits and is a premier mining destination. The 35<sup>TH</sup> IGC has support from AngloGold Ashanti and Gold Fields Limited which operate mines in southwestern Ghana. The excursion will visit mines around Tarkwa and Damang, near the southern end of the Tarkwa Basin, 300 kilometres by road west of Accra. [https://www.goldfields.co.za/gl\\_west\\_tarkwa.php](https://www.goldfields.co.za/gl_west_tarkwa.php)

The Gold Fields open pit surface operation exploits narrow, tabular auriferous conglomerates similar to those mined in the Witwatersrand Basin of South Africa. Development over a strike of 8km contiguous to the Damang pit provides upside potential with a further 15km of strike trending south-west toward Tarkwa reflecting a prospective corridor for ongoing near-mine exploration. Visits to other gold mines in the region are being confirmed.

TRIP LEADER	START	END
Gold Fields Limited and AngloGold Ashanti	Accra, Ghana	Accra, Ghana
DAYS		PRICE
~5 days, ~4-8 September 2016		TBA



**EXSA Mali: Gold deposits of Loulo-Gounkoto, Mali**

This excursion to some of the spectacular gold occurrences on the West African shield in western Mali is supported by Randgold Resources and focuses on their gold mining operations in the Loulo-Gounkoto area. <http://www.randgoldresources.com/loulo-gounkoto-mining-complex>

From Bamako, a chartered flight will take delegates to the Loulo-Gounkoto complex. The tourmatized greywacke with quartz carbonate orebody will be visited at the Gara underground operation. At the Yalea operation, reactivated mineralisation in typical orogenic shear zone hosted in greywackes will be inspected. At Gounkoto where the deposit with six million ounces at 5g/t discovered in 2009 was first mined in 2012, the sites exhibits a good exploration case history. The site visits will include geological descriptions, core inspection and visits to the opencast pits.

TRIP LEADER	START	END
Randgold Resources	Bamako, Mali	Bamako, Mali
DAYS		PRICE
4 days, TBA		TBA

# EXHIBITION AND SPONSORSHIP OPPORTUNITIES

## EXHIBITORS

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The Organising Committee of the 35<sup>TH</sup> International Geological Congress extends an invitation to organisations and companies to participate in the event by securing an exhibition stand.

Visit our [website](#) or contact Professional Congress Organiser, [Lesley Ferreira](#).

### HALF OF THE AVAILABLE STANDS HAVE BEEN SOLD!

Stand No.	Organisation
A1	International Association For Mathematical Geosciences
A10	Commission For The Geological Map Of The World
B02	GTK/Projects In Kyrgyzstan And Tajikistan
B10	Set Point Laboratories
C04	SciSys Pty Ltd
C05	CAMECA
C06	International Association Of Sedimentologists (IAS)
C12	Geological Society Of America
C14	The Geological Society Of London
C16	Beak Consultants GmbH
C17	BAUER Maschinen GmbH
C18	American Geophysical Union
C29	F.W. Breithaupt & Sohn GmbH & Co. KG
C30	DMT Kai Batla Pty Ltd
D3	Innov X Africa
D4	Geo-Explore Store (Pty) LTD
D5	Activation Laboratories Ltd. (Actlabs)
D6	Spectral Evolution
D7	SkyTEM
D9	Xcalibur Airborne Geophysics Pty Ltd
DD2	US Geological Survey
DD4	Exxaro Resources Ltd
DD6	Leapfrog
E8	United Scientific
E9	Bartington Instruments Ltd
E12	Natural Resources Canada
E13	Resources for Future Generations 2018 (RFG)
E14	Spatial Dimension

Stand No.	Organisation
EE1	Geosense
EE2	Micro-G LaCoste - Scintrex
EE3	The Kazakh Geological Society
EE4	Russian Geological Research Institute (VSEGEI)
EE5	Russian Geological Research Institute (VSEGEI)
EE9	BRGM - French Geological Survey
EE10	Scientific Drilling IODP ICDP
F9	Vale Exploration
F16	Prospectors Supplies Pty Ltd
F20	Acacia Mining
F21	AAPG
FF1	Bruker
FF2	WESTERNEX
FF4	International Union of Geological Sciences
FF5	International Union of Geological Sciences
FF6	The Geological Society Of South Africa
FF7	Geological Society Of China
FF8	Geological Society Of China
FF10	REFLEX
G4	CoreScan
G9	American Geosciences Institute
GG1	Bundesanstalt Für Geowissenschaften Und Rohstoffe
GG2	GFZ German Research Centre For Geosciences
GG3	GFZ German Research Centre For Geosciences
GG4	GFZ German Research Centre For Geosciences
GG5	36th IGC Secretariat C/o Geological Survey Of India
GG6	Geological Survey Of Norway
GG8	Geological Survey Of Norway

## SPONSORS

The Organising Committee of the 35<sup>TH</sup> International Geological Congress extends an invitation to organisations and individuals to participate in this special event as a sponsor. Since potential sponsors have different objectives, requirements and budgets, a number of sponsorship options have been made available, allowing sponsors to choose their particular requirements. Interested parties are encouraged to view these [options](#). However, should the proposed opportunities not suit your company needs, please contact the organisers to discuss alternatives. Please note that sponsorship packages are allocated on a 'first come first served' basis – our liaison team will ensure that sponsors receive the maximum return on their investment and the agreed level of exposure.

Once again, we encourage you to visit our website and/or contact the Sponsorship Chair, [Mike Wuth](#) for more information.





# GEOHOST SUPPORT PROGRAM



## HOW TO QUALIFY FOR THE 35<sup>TH</sup> IGC GEOHOST PROGRAMME

**GeoHost** is a support scheme that aims to provide financial support to selected young earth scientists from around the globe, or eligible geoscientists who live and work in low-income countries to attend the 35<sup>TH</sup> IGC in 2016. Financial support obtained by the 35<sup>TH</sup> IGC through sponsorship or funding mechanisms will be utilised to assist young geoscientists (inclusive of YES participants) and deserving geoscientists from low-income countries to participate in the 35<sup>TH</sup> IGC as full delegates.

### WHY APPLY?

- Have you always wanted to attend a major scientific event?
- Do you see yourself as a future leader in the global geosciences?
- Do you want to share your geoscientific research results on the international stage?
- Do you want to develop your career, grow your network and enhance your professional standing?

### WHO CAN APPLY?

- Application is open to individuals only
- Selection is open to applicants in one of two categories (note: apply to one category only). Choose the category that applies to you:
  - Category A: eligible earth scientists, 33 years of age or younger
  - Category B: eligible earth scientists from low-income countries.

### HOW TO APPLY?

The first step is to submit an acceptable scientific abstract. After your abstract has been accepted, you may select the GeoHost category that fits you best. You have to support and substantiate your application by submitting an essay of maximum 250 words. Complete the application form and submit both documents online. Only successful candidates will be notified in writing, at the latest by early-April 2016. If you have not been notified by the end of May 2016, please accept that your GeoHost application was unfortunately unsuccessful.

**Application window: 1 July 2015 – 31 January 2016.**

## SELECTION CRITERIA

### STREAM A — YOUNG EARTH SCIENTISTS

- Earth scientists located anywhere in the world who are **33 years of age or younger** on 31 December 2016.
- **Proof of registration for full-time study** at a tertiary education institute for the 2016 academic year — please provide your university/school name and student number on the application.
- **A written substantiation** of maximum 250 words on what it would mean for your earth science career to attend the 35<sup>TH</sup> IGC in Cape Town. (Assessment criteria: word limit, spelling, overall style and content).
- **The title** of accepted conference abstract.

### STREAM B — DESERVING EARTH SCIENTISTS FROM LOW-INCOME COUNTRIES

- A **passport** from a World Bank-designated low-income country is required and a copy of the photo page must be provided on application. Please see the end of the document for a full list of the applicable countries.
- **Name and contact details of employer**, stating position, the number of years in the position, and where the location of your work.
- **Professional Curriculum Vitae**, clearly demonstrating your geoscience-related publishing record, industry activity, and/or positional gravitas.
- **Written substantiations** by the applicant and by a referee (neither essay should exceed 250 words, and the assessment criteria are the word limit, spelling and the overall style and content).
- **The title** of the accepted conference abstract.



## FAQS

### HOW MANY PEOPLE WILL BE SUPPORTED BY THE GEOHOST PROGRAMME?

- It is envisaged that the IGC35 2016 GeoHost programme will support 100 geoscientists.
- A minimum of 60% of the available funds will be allocated to young earth scientists.

### WHAT WILL THE FINANCIAL SUPPORT OF THE GEOHOST PROGRAMME COVER?

- Return economy air ticket from the main airport in the country of origin to Cape Town, South Africa.
- Return airport transfer on arrival and departure in Cape Town, South Africa.
- Accommodation for the full conference duration at a three-star or equivalent hotel/guest house.
- Daily stipend to cover meals, hotel transfers and incidentals.
- Maximum value: USD 4 000.

*Note: The only funds to be paid directly to the successful applicants will be the daily stipend. All other transactions will be done on behalf of the applicants. Funds will not be provided to attend the field trips.*

### HOW WILL MY GEOHOST APPLICATION BE ADJUDICATED?

- If all the primary requirements are met, the application essay will be adjudicated independently by at least two members of the GeoHost subcommittee. Each successful application requires the final approval of the GeoHost Chairperson. Only successful applicants will receive written confirmation, at the latest by mid-May 2016.



## HOW TO PROCEED

Collect all the information required, write your substantiation essay, and write your conference paper abstract. Submit your abstract, indicating that you want to be considered for GeoHost support, complete the GeoHost online application.

Only one application per delegate is allowed. Multiple applications will disqualify the registrant entirely from consideration for GeoHost support. There will be a GeoHost event during the conference that all successful applicants are required to attend. The successful applicants must also attend required photographic or media events during the conference. Sufficient warning will be provided for such events.

## IF YOU DO NOT MEET THE SELECTION CRITERIA OR YOU WERE UNSUCCESSFUL

Did you know that many global geoscience organisations are providing support and travel grants for students to attend the IGC35 2016? Please use these travel grant opportunities before submitting an application to the GeoHost programme.

We encourage you to approach the following list of IUGS Member Organisations who offer Grant Programmes prior to applying for assistance from the GeoHost Programme as we believe the demand will exceed funds available.

IUGS MEMBER ORGANISATIONS WITH GRANT PROGRAMMES	
<a href="http://iugs.org">iugs.org</a>	<a href="http://www.iugs.org">www.iugs.org</a>
Association of Geoscientists for International Development	<a href="mailto:afia@agni.com">afia@agni.com</a>
Association of European Geological Societies	<a href="mailto:corinai@bioge.ubbcluj.ro">corinai@bioge.ubbcluj.ro</a>
African Association of Women in Geosciences	<a href="mailto:erramiezzoura@aawg.org">erramiezzoura@aawg.org</a>
Canadian Federation of Earth Sciences	<a href="http://www.earthsciencescanada.com">www.earthsciencescanada.com</a>
American Geophysical Union	<a href="http://www.sites.agu.org">www.sites.agu.org</a>

continued...

Society for Geology Applied to Mineral Deposits	<a href="http://www.e-sga.org">www.e-sga.org</a>
European Mineralogical Union	<a href="http://www.eurominunion.org">www.eurominunion.org</a>
American Association of Petroleum Geologists	<a href="http://www.foundation.aapg.org">www.foundation.aapg.org</a>
Geological Society of France	<a href="http://www.geosoc.fr">www.geosoc.fr</a>
The Meteoritical Society	<a href="http://www.meteoriticalsociety.org">www.meteoriticalsociety.org</a>
American Geosciences Institute	<a href="http://www.agifoundation.org">www.agifoundation.org</a>
Association internationale pour l'etude des argiles	<a href="http://www.aiepa.org">www.aiepa.org</a>
Coordinating Committee for Geoscience Programs in East and Southeast Asia	<a href="http://www.ccop.or.th">www.ccop.or.th</a>
Drilling, Observation and Sampling of the Earth's Continental Crust	<a href="http://www.dosecc.org">www.dosecc.org</a>
European Association of Geoscientists and Engineers	<a href="http://www.eage.org">www.eage.org</a>
Geochemical Society	<a href="http://www.geochemsoc.org">www.geochemsoc.org</a>
International Association of Geomorphologists	<a href="http://www.geomorph.org">www.geomorph.org</a>
Geological Society of America	<a href="http://www.gsafweb.org">www.gsafweb.org</a>
International Association for Engineering Geology and the Environment	<a href="http://www.iaeg.info">www.iaeg.info</a>
International Association of Geochemistry	<a href="http://www.iagc-society.org">www.iagc-society.org</a>
International Association for Mathematical Geosciences	<a href="http://www.iamg.org">www.iamg.org</a>
International Society of Soil Mechanics & Geotechnical Engineering	<a href="http://www.issmge.org">www.issmge.org</a>
National Groundwater Association	<a href="http://www.ngwa.org">www.ngwa.org</a>
International Association of Sedimentologists	<a href="http://www.sedimentologists.org">www.sedimentologists.org</a>
Society of Economic Geologists	<a href="http://www.segweb.org">www.segweb.org</a>
Society for Sedimentary Geology	<a href="http://www.sepm.org">www.sepm.org</a>
Association of Applied Geochemists	<a href="http://www.appliedgeochemists.org">www.appliedgeochemists.org</a>
European Federation of Geologists	<a href="mailto:isabel.fernandez@eurogeologists.eu">isabel.fernandez@eurogeologists.eu</a>
International Center for Training and Exchanges in the Geosciences	<a href="mailto:rshankar_1@yahoo.com">rshankar_1@yahoo.com</a>
Earth Science Matters	<a href="mailto:secretariat@earthsciencematters.org">secretariat@earthsciencematters.org</a>
International Society for Rock Mechanics	<a href="mailto:secretariat@isrm.net">secretariat@isrm.net</a>
Balkan Geophysical Society	<a href="mailto:vafidis@mred.tuc.gr">vafidis@mred.tuc.gr</a>



The GeoHost and Legacy programmes for IGC35 2016 are beginning to take shape and gain momentum. ‘Legacy’ as used in this instance is the attempt to hand on something durable after an event such as this congress. A person or an organisation could also bequeath a lasting legacy. The aim of the Legacy programme therefore is to make a significant contribution to the longer lasting impact of IGC35 2016 for years to come. It would be prudent to ask for what legacy the LOC of IGC35 2016 would like to be known and how the impact of IGC35 2016 could continue to resonate in Africa for years after the event. Leaving a legacy of excellence and continuous advancement within the African geological landscape would be a superb aspiration for IGC35 2016.

#### EXCELLENCE AND CONTINUOUS ADVANCEMENT COULD BE ACHIEVED THROUGH HUMAN CAPITAL AND GEOHERITAGE.

“GeoHost” is a support scheme that aims to provide financial support to selected young earth scientists (young geoscientists younger than 33 and full time students with a registration letter), i.e. geoscientists who live and work in lower income countries, and eligible people who have assisted with the organisation of aspects of the event. However, this initiative needs funding. Individuals and organisations wishing to contribute to this worthy cause are therefore encouraged to contact the portfolio Chairman, Dr Jeannette McGill. As a reward for their generosity, the organisational brands of supporters and the names of individual sponsors will be reflected in the success and ideals of this programme. As a longer-term ambition, the legacy aspect of GeoHost might include a bursary scheme, a travel-grant scheme and similar initiatives. The details of the donor application process will be made available shortly.

Direct any questions to Chair: Jeannette E. McGill ([jeannette.mcgill@angloamerican.com](mailto:jeannette.mcgill@angloamerican.com))

**Note: individuals who are part of or who assist in any organisational aspect of the 35<sup>TH</sup> IGC Congress are not eligible for GeoHost support.**

**Low income countries: Afghanistan • Bangladesh • Benin • Burkina Faso • Burundi • Cambodia • Central African Republic • Chad • Comoros • Congo, Democratic Republic of • Eritrea • Ethiopia • Gambia • Guinea • Guinea-Bissau • Haiti • Kenya • Korea, Democratic Republic of • Liberia • Madagascar • Malawi • Mali • Mozambique • Myanmar • Nepal • Niger • Rwanda • Sierra Leone • Somalia • Tajikistan • Tanzania • Togo • Uganda • Zimbabwe • ([data.worldbank.org/income-level/LIC](http://data.worldbank.org/income-level/LIC))**

# VOLUNTEER PROGRAMME

A call for expressions of interest to volunteer will be made during 2016, followed by an invitation to apply for registration as a volunteer. This will be for post-graduate students currently registered for Geoscience and related courses at educational institutions in South Africa and for retired geoscience practitioners.

At that time, further information will be provided regarding:

- full requirements to qualify
- details of the programme/schedule
- the tasks, duties and rules of conduct
- details of participation in meetings and seminars
- working conditions and benefits
- training requirements

For additional information please contact Elna van Niekerk: Volunteer Chair on [vniekhj@unisa.ac.za](mailto:vniekhj@unisa.ac.za).

## COMPETITIONS

### EXPRESSION OF INTEREST COMPETITION

In order to assist with planning 35<sup>TH</sup> IGC, we would appreciate your views and anticipated interests with respect to the Scientific Programme, Field Trips and all other aspects. Please participate in the online survey right away **AND STAND TO WIN A FREE REGISTRATION FOR THE CONGRESS!** Only fully completed surveys will be considered. The competition closes on 29th February 2016 and the winner of the draw will be announced on the 15th March 2016.

We have been gratified by the huge volume of conversation and comment that is already taking place in the social media between the members of the Organising Committee and thousands of prospective delegates. We encourage this interaction and hope that by the time the Congress starts we will all be old friends!

The 35<sup>TH</sup> IGC makes use of three main social media platforms: [Twitter](#), [LinkedIn](#) and [Facebook](#), as well as a blog on the [website](#) to keep delegates abreast of preparations for this 'Olympics of Geology'.

You are encouraged to use our social media platforms and to join the conversations. As an incentive, we are offering one lucky Emailer, Tweeter or Facebook follower the chance to win one free registration.

#### FOLLOW THESE THREE SIMPLE STEPS TO ENTER:

- 1 Follow us on **Facebook** or **Twitter**
- 2 Tell us which **newspaper** has voted Cape Town as the best city in the world to visit. (*scroll down on our Facebook page and Twitter feeds for the answer*)
- 3 Use the following **sentence** in a Tweet or as a post on our Facebook page: "I'm looking forward to #35IGC in Cape Town, voted by (*insert name of newspaper*) as the best city in the world to visit". Alternatively, email your answer to [juanitaw@geoscience.org.za](mailto:juanitaw@geoscience.org.za).

The winner of the draw will be announced 60 days prior to the start of the congress.

Please contact the Media Officer, Juanita Van Wyk ([juanitaw@geoscience.org.za](mailto:juanitaw@geoscience.org.za)) for more information.





## TRAVELLING TO SOUTH AFRICA

The organising committee is proud to announce preferential rates for 35<sup>TH</sup> IGC Attendees only on South African Airways, during travel dates 5th August to 30th September 2016, and Emirates Airline, during travel dates 22nd August 2016 to 9th September 2016. On payment of your registration fees you will receive the promotional codes to be used on the respective website to book these preferential rates.

South Africa is safeguarded by one of the world's most progressive constitutions, an independent judiciary, a free press and a robust multiparty political system. [www.southafrica.info](http://www.southafrica.info)

### • ADVENTURE EXPERIENCES

Whatever your craving for adventure, South Africa will satisfy it. The country offers excellent opportunities for climbing, surfing, diving, hiking, horseback safaris, mountain biking, river rafting and a host of other adventures, all supported by [dedicated operators](#).

### • CULTURAL EXPERIENCES

From modern art galleries to rock-art centres, state-of-the-art museums to remote cultural villages, city jazz clubs to open air festivals... These are just some of the ways in which you could experience the country's [rich culture and heritage](#).

### • CITY EXPERIENCES

South African cities offer an exciting mix of first- and third-world influences. From eventful Cape Town - one of the most beautiful cities in the world - to bustling Johannesburg, each city offers unique attractions.

### • FOOD AND WINE

South Africa is a cultural melting pot, which is reflected in the country's cuisine. South African food celebrates a rich heritage and the natural bounty of seafood, meat, game and vegetation. South Africa's excellent wines have been earning enthusiastic praise internationally for 300 years. Peruse the menu - and find out [where to eat tonight!](#)

### • SUN AND SURF

South Africa's beaches offer something for everyone: from the wild stretches of sand of the West Coast to the subtropical beaches of Maputaland. You can watch the sun rising over the Atlantic Ocean and setting over the Indian. You can perfect your tan, or participate in [surfing, windsurfing and diving activities](#). Not to mention the opportunities to play golf!

### • WILDLIFE AND WILDERNESS

South Africa is home to the 'big five', namely lion, leopard, elephant, rhino and buffalo and so much more! [Hundreds of species of birds and small animals](#) abound, such as the cute bush baby and the curious meerkat. Moreover, the country's extensive animal life is supported by an unparalleled botanical richness.

### • CURRENCY

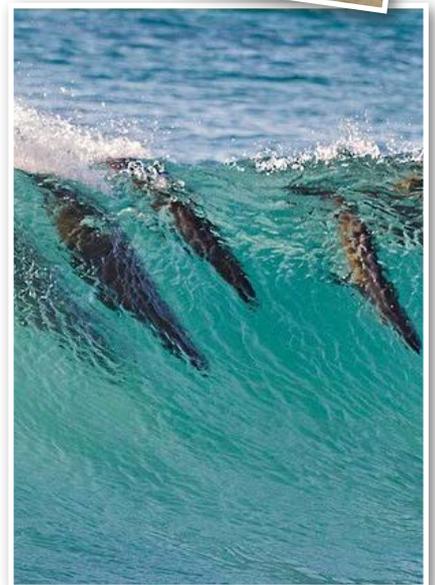
The [rand](#) (sign: **R**; code: **ZAR**) is the currency of South Africa. The rand is subdivided into 100 cents, symbol "c".

### • ELECTRICITY

South Africa 220/230 V\* - 50 Hz

### • SOUTH AFRICA TIME ZONE

GMT/UTC+02:00



## “THE FAIREST CAPE IN ALL THE WORLD!”

- Sir Francis Drake, 1580.



There truly is no city to rival Cape Town. Perched between the ocean and the mountain, with a national park as its heart, Cape Town offers everything your heart may ever desire.

Cape Town is the Mother City, the oldest city in the country. Its cultural heritage spans longer than 300 years and boasts the top five national attractions in South Africa — must-sees that should be on the itinerary of every visitor all year round.

You simply cannot forego walking on the flat top of Table Mountain, visiting the Victoria and Albert (V and A) Waterfront, experiencing a unique shopping trip to and relaxing at a scenic working harbour, seeing Robben Island (the prison home of Nelson Mandela), following the Cape Town wine routes to estates where some of the world’s best wines are produced, and enjoying the Kirstenbosch Botanical Gardens that is internationally acclaimed as one of the great botanical gardens of the world.

The unique topography of the region makes it easy to orientate yourself, as long as you remember that with Table Mountain behind you and Robben Island before you, you are facing north, looking across Table Bay and up the west coast of Africa.

To help you find your way around Cape Town, the area is divided into four tourism areas. These are Cape Town Central, Cape Town North, Cape Town South and Cape Town East. These areas are defined by their geographical locations and each area has a number of suburbs. Please visit [www.tourismcapetown.co.za](http://www.tourismcapetown.co.za) for more detail.

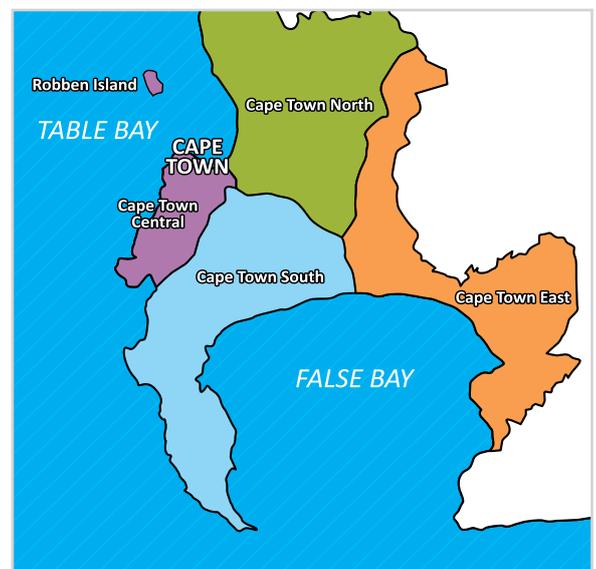
### CAPE TOWN IS ONE OF THE MOST POPULAR LONG-HAUL DESTINATIONS IN THE WORLD

The whole spectrum of the Rainbow Nation is represented in Cape Town. The city offers the beauty of Cape Dutch homesteads in exquisite settings, the spectacle of traditional dancers with painted faces performing in the streets, the smell of spicy Malay cuisine, the smooth taste of well-made wine, and so much more. This city is sure to daze your senses!

You could never be bored in Cape Town. Table Mountain affords challenging climbing opportunities, and the mountain is right here, in the city. Surfing is excellent and diving is cold but good. You can experience mountain biking or sea kayaking — you might even see whales or penguins. With the wind just right, you could take off from Lion’s Head with a qualified tandem paraglider pilot and land on the beach in time for sundowners. You could never be bored here!

If just reading about these activities makes you exhausted, there are other pleasures to be had here. Cape Town offers a number of excellent shopping malls, such as Cavendish Square, Canal Walk, or the Waterfront. Situated in Bellville, close to some of the most picturesque wine farms of the Western Cape, is the chic Tyger Valley Centre, only 15-minutes’ drive from the Cape Town CBD. For culture buffs, the city offers live music, art exhibitions, museums, plays, and even opera, ballet or symphony concerts, all year round.

As you will see from the map below, the Cape Town region stretches along a vast area of coastline.



# VISAS

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## LETTER OF INVITATION

On receipt of payment, the conference organisers will send a formal letter of invitation to those delegates needing an invitation letter for visa purposes. It is understood that such an invitation is intended to help potential delegates to raise funds or to obtain a visa. However, it does not imply a commitment from the conference organisers to provide any financial support. The 35<sup>TH</sup> IGC will provide delegates with an official invitation letter to meet the requirements of a visitor's visa application only after registration and payment.

## VISA

The entry formalities and vaccination requirements for South Africa vary according to the country of origin of delegates. For specific information, please contact your local travel agent or the South African Consulate in your home country.

**Note:** Please visit the Department of Home Affairs at <http://www.dha.gov.za/index.php/immigration-services/apply-for-a-south-african-visa> for more information.

Kindly pay special attention to the following regulations when travelling with children.  
<http://www.dha.gov.za/files/Brochures/Immigrationleaflet.pdf>



## GENERAL ENQUIRIES

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**Greg Botha**  
Secretary General  
[gabotha@geoscience.org.za](mailto:gabotha@geoscience.org.za)

**Danie Barnardo**  
Secretariat  
[barnardo@geoscience.org.za](mailto:barnardo@geoscience.org.za)

**Juanita van Wyk**  
Secretariat  
[juanitaw@geoscience.org.za](mailto:juanitaw@geoscience.org.za)



Invited parties interested in participating in this unique array of sponsorship opportunities, please contact Mike Wuth on [mikew@xbt.co.za](mailto:mikew@xbt.co.za) | phone +27 (0)11 486 1822 | mobile +27 (0)82 784 4161  
For exhibition enquiries, please contact Lesley Ferreira on [lesley@cebisaconferences.co.za](mailto:lesley@cebisaconferences.co.za) | phone +27 (0)21 671 7670 | mobile +27 (0)82 494 5475  
For registration enquiries, please contact 35<sup>TH</sup> IGC Registration Team on [35IGC@allevents.co.za](mailto:35IGC@allevents.co.za) | phone +27 (0)21 948 9549

[www.35igc.org](http://www.35igc.org)