



Oceania invites you to the 34th International Geological Congress (IGC): AUSTRALIA 2012



Unearthing Our Past And Future – Resourcing Tomorrow

Brisbane Convention and Exhibition Centre
Queensland

5 - 10 August, 2012 | www.34igc.org

34TH IGC CIRCULARS

General distribution of this and subsequent Circulars for the 34th IGC is by email. Please feel free to forward it to others who may be interested. If necessary, hard copies can be supplied in limited numbers on request through the website: www.34igc.org or by contacting Carillon Conference Management Pty Ltd. by email: info@34igc.org, or by post: PO Box 177, Red Hill, 4059, Queensland, Australia.

The Second Circular is scheduled for electronic distribution in April 2011.



FIRST CIRCULAR

MAJOR SPONSOR AND GEOHOST SPONSOR



34th IGC PARTNERS



Australian Government
Geoscience Australia



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MAJOR SPONSOR AND GEOHOST SPONSOR





Letter of Invitation from the President and Secretary General of the 34th IGC

Please accept our invitation to attend the **34th International Geological Congress** in Brisbane, Australia, from 5 to 10 August 2012. Australia is hosting this large and prestigious meeting on behalf of the Oceania region.

The venue for the event is the highly acclaimed Brisbane Convention and Exhibition Centre, a world class facility that has hosted numerous large and successful international meetings. Sub-tropical Brisbane offers great weather in August, value for money and proximity to geo-tourist features such as the Great Barrier Reef and the beautiful beaches and hinterland of southeast Queensland.

The 34th IGC will showcase the Oceania region's geoscience strengths, innovations and natural wonders. It will feature a very wide ranging scientific program, an exciting range of pre- and post- Congress field trips, both of which are being organised with important contributions from our New Zealand partners and inputs from other Pacific neighbours. A large exhibition, expert training workshops and an education and outreach program will be other features.

Under the theme **Unearthing our Past and Future – Resourcing Tomorrow**, the IGC program will cover all facets of the geosciences. It will demonstrate how geoscience knowledge and applications are contributing directly to meeting societal needs through innovation in the resources and energy based industries, better informed land and water management, enhanced understanding and mitigation of climate change and geohazards, and building major cities and infrastructure. The scientific program remains open for comment and we invite your suggestions.

Over thirty field trips are planned. These will be held in every Australian state, New Zealand, New Caledonia, Papua New Guinea and Malaysia. There will also be a variety of day tours available during the Congress, which will cover places of geological, scenic and cultural interest closer to and within Brisbane.

A GeoHost program supporting attendance of delegates from developing nation is being planned around participation in a range of training workshops on important topics such as sustainable mining, geohazards and climate change, carbon sequestration, and groundwater. Furthermore, the anticipated UNESCO patronage of the 34th IGC and the inclusion of Symposia which are directly relevant to the needs of developing nations, will help other delegates from such nations receive support for their attendance from international sources.

The 34th IGC will incorporate the 2012 meetings of IUGS' Commissions, Task Groups and Joint Programs, and the 2nd Young Earth-Scientists (YES) Congress. We invite all geoscience groups internationally to consider integrating their 2012 meetings into 34th IGC, to benefit from the opportunities it offers for synergies and networking.

The 34th IGC website, www.34igc.org, is our key information outlet. Please visit it to find up to date information about the congress, make suggestions, register your interest or volunteer your services.

Neil Williams
PRESIDENT, 34TH IGC

Ian Lambert
SECRETARY GENERAL, 34TH IGC - ian.lambert@ga.gov.au



Letter of Invitation from the President of the International Union of Geological Sciences

Dear Colleagues,

The International Geological Congress, which is normally held every four years, is the main meeting under the scientific sponsorship of the International Union of Geological Sciences (IUGS).

As President of the IUGS, I extend a warm invitation for you to attend the **34th International Geological Congress** in Brisbane, Australia in August 2012.

The IUGS was founded in 1961 as a mechanism was required to take action on global geological problems between the International Geological Congresses. For nearly 50 years the IUGS has coordinated international geoscientific research programs on a continuing basis, fostering dialogue and communication among the various specialists in earth sciences around the world. At present, IUGS gives special consideration to: International standards; Geoscience education; Geoscience information; and Environmental management and hazards. Each of these priorities will be featured at the 34th International Geological Congress, which will provide an outstanding opportunity for discussing current geological issues. Facilities will be available at Brisbane for meetings of the many scientific Commissions, Joint Programs, Task Groups and other groups under the IUGS.

The IUGS has agreed with the Local Organising Committee that, in recognition of increasing time demands, the core program for the 34th International Geological Congress will be held over one business week only. Following delegate registration and a welcoming reception on Sunday 5 August, the Scientific Program is scheduled from Monday 6 August to Friday 10 August 2012.

I look forward to seeing you at the 34th IGC in Brisbane.



Alberto Riccardi
PRESIDENT

Congress Participation and Visa Requirements

All members of the global geoscience community are welcome to participate in the Congress and are warmly invited to attend. Membership of a national geoscience society or association is not necessary, but will attract a discounted registration.

All delegates are required to complete a delegate registration form and pay the appropriate congress registration fee. Note that registrations will not be confirmed until after payment has been made and cleared.

Delegates from all countries will need to obtain a visa to enter Australia. The only exceptions are citizens of Australia and New Zealand travelling on passports issued by these countries. Official letters of invitation will be provided to delegates by the congress **only after clearance of registration fee payment**. Information on visa requirements is available from the Australian Department of Immigration www.immi.gov.au/visitors/event-organisers-participants/iecn.htm

Congress fees will be payable in Australian Dollars (AUD). Payments cannot be accepted in any other currency. Secure on-line credit card payment facilities will be available.

34th International Geological Congress Partners

RESPONSIBLE ENTITY

The legal entity responsible for the 34th International Geological Congress is the Australian Geoscience Council (AGC), the Peak Body for the main geoscience societies, associations and professional institutes in Australia, namely:

- Association of Applied Geochemists
- Australasian Institute of Mining and Metallurgy
- Australian Geoscience Information Association
- Australian Institute of Geoscientists
- Australian Chapter, International Association of Hydrogeologists
- Australian Society of Exploration Geophysicists
- Geological Society of Australia
- Petroleum Exploration Society of Australia.

AGC member societies are involved in the organisation of the 34th IGC, and investing in the event.



GEOSURVEYS



Geoscience Australia, the national geological survey and geospatial information agency, is playing a substantial role in the organisation of this large and prestigious event: it has committed to provide the Secretary General (Ian Lambert), Deputy Secretary General (Paul Kay) and the Chair of the Scientific Program Committee (Lynton Jaques). Neil Williams, who retired as Chief Executive Officer of Geoscience Australia early in 2010, will continue as President of the 34th IGC.

Geoscience Australia is also contributing to national and international promotion of AUSTRALIA 2012 and will be supporting several of the major activities during the Congress.

GNS Science, New Zealand, and the **Australian State and Northern Territory Geological Surveys** are also strongly supporting the IGC. In particular, they are organising field trips and, together with Geoscience Australia, they are contributing financial support.

QUEENSLAND EVENTS



Queensland Events – a corporation owned by the Queensland Government, which attracts, develops and supports major national and international events in Queensland – is investing in the staging of the 34th IGC.

INTERNATIONAL UNION OF GEOLOGICAL SCIENCES



IUGS (www.iugs.org) is one of the largest and most active non-governmental scientific organizations in the world. Founded in 1961, IUGS is a member of the International Council of Science. IUGS promotes and encourages the study of geological problems, especially those of world-wide significance, and supports and facilitates international and interdisciplinary cooperation in the earth sciences. The IUGS is the scientific sponsor of the 34th IGC

UNESCO

In early October 2010 UNESCO, was in the process of formalising its patronage of the 34th IGC.

Sponsorship and Funding Support

We are pleased to announce Vale, the second largest mining company in the world, as the first a major sponsor of the 34th IGC. Sponsorship is currently being negotiated with several other resource companies, universities, research centres and government funding agencies.

Australia's aid agency, AusAID, has agreed in principle to fully fund approximately 90 delegates to participate in a training workshop on Sustainable Mining, under its Africa program.

We invite you to consider the sponsorship of the 34th IGC. Details of the range of sponsorship options available, which start at \$5,000, can be obtained by emailing: sponsor@34igc.org.

Core Organising Committee



PRESIDENT
Neil Williams

*FORMER CHIEF EXECUTIVE OFFICER,
GEOSCIENCE AUSTRALIA*



SECRETARY GENERAL
Ian Lambert

GEOSCIENCE AUSTRALIA

Paul Kay (Geoscience Australia) Deputy Secretary General, Coordination

Paulo Vasconcelos (University of Queensland) Deputy Secretary General, International

Miriam Way (The Australasian Institute of Mining and Metallurgy) Treasurer

Lynton Jaques (Geoscience Australia) Scientific Program

Colin Simpson (IUGS), Scientific Program International

Mark Berry (Australian Institute of Geoscientists) Workshop Program

Dave Mason (Geological Survey of Queensland) Field Trips

Maurie Drew (Petroleum Exploration Society of Australia) Queensland sponsorship

David Denham (Australian Society of Exploration Geophysicists)

Michael Leggo and Mike Smith (Australian Geoscience Council)

Alex Malahoff, Des Darby and Hamish Campbell (GNS Science), New Zealand representatives

Ashley Gordon (Carillon Conference Management) Sponsorship

Jon Gordon (Carillon Conference Management)

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Important Dates

Please note that the Congress will be organised in accordance with the following dates:

April 2011	Abstract submission opens.
August 2011	Early registrations open (available until 30 April, 2012).
17 February 2012	Abstract submissions close.
30 March 2012	Formal notification to authors of the success or otherwise of their abstract submissions.
30 April 2012	Presenters of papers (oral and poster) accepted for the 34th IGC must pay for their registration for the congress by this date or be automatically deleted from the Congress Program. Close of Early registration. The more expensive Standard registration fee will automatically apply for all registrations received 1 May – 1 July 2012.
1 July 2012	Standard registrations close. The more expensive Late registration fee will apply to all registrations received after this date. An additional on-site processing fee will apply to all registrations received on or after 1 August 2012.

Proposed Overall Structure of 34th International Geological Congress

Pre-Congress Field Trips	28 July – 5 August 2012
Young Earth-Scientist Field Trip and Reception	4 August 2012
Registration opens, Exhibition set up, some business meetings	5 August 2012
34th IGC Welcome Reception	Evening, 5 August 2012
Opening Ceremony	First session, 6 August 2012
Scientific Program	6-10 August 2012
Business Meetings	Evenings, 6-10 August
Congress Dinner	8 August 2012
Closing Ceremony	Last session, 10 August 2012
Post Congress Field Trips	11-17 August 2012



Registration

Congress registration fees will be announced in August 2011. As a general indication only, the full Early registration fee is likely to be roughly AUD1,000 for members of a geoscience society or professional institute. Registration fees for students and retired geoscientists will be lower. Early registration will be available until 30 April 2012, after which the registration fees will be progressively increased.

Registration fees will cover lunches, morning and afternoon refreshments, a ticket (1 person) to the welcome reception and congress materials including detailed congress program and abstracts. It is hoped to provide the program and abstracts on an electronic tablet reader which will also have Wifi access.



Draft Scientific Program

The overall theme of Australia 2012, **Unearthing our Past and Future – Resourcing Tomorrow**, reflects the crucial roles the geosciences play in meeting the needs of societies while sustaining the Earth.

The scientific program for the 34th IGC will take place over five days (6 to 10 August, 2012). Each day will comprise around 30-35 concurrent Symposia, and a plenary 'Hot Topic' session in the middle of each day.

Oral presentations will be 15 minutes, with keynote addresses occupying two 15 minute slots. Poster papers will be accorded a prominent place in the Congress program – abstracts for all poster papers will be published in the congress materials and posters will be located in high traffic areas adjacent to rooms used for oral sessions and catering points.

The 34th IGC Scientific Program Committee (chaired by Lynton Jaques, Geoscience Australia) is developing the program around a range of Themes, which are designed to cover all facets of the Geosciences. Local and international Coordinators will organise the Themes, each of which will have a number of Symposia (Sub-Themes). With guidance and oversight from the Scientific Program Committee, and taking into account the formal suggestions and nominations received, the Coordinators will refine the Symposia under their Themes and arrange Convenors for these Symposia.

Because of programming constraints, Symposia will need to be as broad-ranging as possible. Presentations on related subjects will be scheduled in blocks within Symposia.

All IUGS' Commissions, Task Groups, Joint Programs, Initiatives and affiliated bodies have been invited to participate in the 34th IGC through organising or participating in Symposia. The Young Earth-Scientists Network will organise some Symposia and Round Table Discussions which present the perspectives of future geoscience leaders on major issues.

The Scientific Program will continue to evolve. Further information and updates will be made available progressively through the 34th IGC website: www.34igc.org, where you can provide interactive comment in the lead up to the second, more detailed, circular, scheduled for April 2011.

The official language of the congress will be English and translation services will not be provided.



Proposed Plenary “Hot Topic” Sessions

Plenary sessions are planned for 1-2pm each day. These will include presentations and discussion on significant contemporary issues in the geosciences, potentially:

1. Unearthing our Past and Future – What does the geological record tell us about where we are headed?
2. Resourcing Tomorrow
3. Geoscience Information Revolution
4. Earth and Planetary Evolution
5. Geoscience for Society – Major Earth Science Developments

Proposed Themes and Theme Coordinators

The following 35 Themes have been identified. The list of Coordinators will grow – in general, each Theme will have one or more local and international Coordinators. Short descriptions and indicative examples of proposed Symposia are included to illustrate the general scope of each Theme.

1. Geoscience for Society

Coordinators – Hamish Campbell (h.campbell@gns.cri.nz)

This Theme encompasses the roles of the geosciences in decisions and approaches that are of wide public interest, including geological heritage and geotourism; geoscience underpinning conservation; geoscience education; communicating geoscience to the public; museum collections; forensic geoscience; and gemstones.

2. Geoscience Benefiting Low Income Countries

Coordinators – Mike Katz (m.katz@unsw.edu.au); Shrikant Limaye (limaye@vsnl.com); Afia Akhtar (afia@agni.com), and Antony Reedman (antony@areedman.wanadoo.co.uk)

This Theme recognises the importance of creating social awareness and capacity building in low income countries, in relation to groundwater management and rural health; geohazards; climate change; medical geology for human survival and welfare; geoplanning for urban development and infrastructure; role of geosciences in protecting ecosystems; geoethics; role of women geoscientists in resource development; construction and industrial minerals; production of mineral and energy resources.

3. Climate change: lessons from the past; implications for the future

Coordinators – Michael Bird (michael.bird@jcu.edu.au) and Chris Hollis (c.hollis@gns.cri.nz)

The geological record offers unique insights into understanding the multiple drivers and diverse consequences of climate change. Abrupt and rapid climate climatic changes in the past provide valuable analogues for future potential changes, and can be used to explore the veracity of climate models. We are interested in contributions addressing climate model-paleoclimate data comparisons, climate sensitivity, ocean acidification, carbon cycle dynamics, geosphere-biosphere feedbacks, climate variability in a warmer world, multi-proxy approaches to climate-temperature-hydrology reconstructions, and polar ice sheets and sea-level change. Contributions from other important areas of paleoclimate research such as climate and tectonics are also welcome.

4. Environmental Geoscience

Coordinators – Colin Simpson (simpsons@grapevine.com.au) and Michael Leggo (michael.leggo@madronresources.com)

This Theme covers the interconnectedness of geology and related environmental effects and includes the application of geoscientific methods in the measurement and mitigation of environmental issues. Indicative Symposia topics: indicators of environmental change; pollution and ground instability; medical geology (including dust and aerosols; gold and mercury); regional to global geochemical mapping; communicating environmental geoscience. Some other substantial areas of environmental geoscience will be covered under other Themes, particularly global climate science, groundwater/hydrogeology, mining, landscape evolution, and geohazards.

5. Geoscience Information Supersymposia

**Coordinators – Bruce Simons (bruce.simons@dpi.vic.gov.au),
Simon Cox (simon.cox@jrc.ec.europa.eu);
Robert Tomas (robert.tomas@jrc.ec.europa.eu) and Richard Hughesl (rah@bgs.ac.uk)**

This major Theme encompasses spatial data infrastructure and regional geoinformation initiatives; interoperability and standards; delivery, dissemination and exploitation of geoscience data and information; mathematical geology and geostatistics; model fusion, visualisation, exploration and 3D & 4-D modelling; tools – software, hardware, open source and super computers.

6. Energy in a Carbon Constrained World

**Coordinators – Peter Cook (pjcook@co2crc.com.au) and
David Lumley (david.lumley@uwa.edu.au)**

Global demand for energy continues to grow strongly but at the same time pressure mounts to reduce greenhouse gas emissions to mitigate the impacts of rapid climate change. Symposia will explore issues and options for future energy use including: the future of fossil fuels; carbon capture and storage; geothermal energy including exploration and resource characterisation: renewable energy resources; nuclear energy – including uranium and thorium resources and demand, and nuclear waste disposal.

7. Mineral Resources and Mining

Coordinators – Graham Carr (graham.carr@csiro.au) (graham.carr@csiro.au) and Dale Sims (dalesims@tpg.com.au)

This Theme will include a global perspective on mineral resources; leading edge technologies for increased automation and decreased wastes and mine site pollution; high technology commodities for the future; industrial minerals; advances in in-mine geophysics; resource definition, modelling, estimation and reporting; resource development techniques and issues over a range of commodity types; specialist sessions on industry issues and case studies for uranium, iron ore, diamonds, nickel, base metals, sampling and geometallurgy; future sources of industrial and construction materials.

8. Mineral Exploration Geoscience

Coordinators – Cam McCuaig (campbell.mccuaig@uwa.edu.au) and David Giles (david.giles@adelaide.edu.au)

This Theme will address the science of mineral exploration against the backdrop of increasing global demand for mineral resources. Indicative Symposia topics include: mineralising systems; the science of exploration targeting; exploration geophysics; advances in geochemical exploration; 3-D geology and geophysics in targeting; deep exploration and discovery; quantifying and managing uncertainty and risk in exploration, and declining exploration success rates; major discovery case histories; exploration trends and emerging mineral districts.

9. Mineral Deposits and Ore Forming Processes

Coordinators – Ross Large (Ross.Large@utas.edu.au) and Cornel de Ronde (Cornel.deRonde@gns.cri.nz).

Understanding the controls on the distribution and formation of ore deposits is critical to future discovery of new ore deposits. Symposia will include: major mineral provinces of the world; mineral alteration halos; tectonics and ores in magmatic arcs; magmatic sulfides; basin-hosted ores; dating of ore deposits; geometallurgy; iron oxide copper gold (IOCG) - the unhappy family; volcanic hosted metal sulphide (VHMS) deposits; sediment-hosted base metal and gold deposits; structure and gold; and submarine mineralisation.

10. Coal - a Myriad of Resources

Coordinators – Joan Esterle (j.esterle@uq.edu.au)

As well continuing to play its essential role in global power production and steel making, new industries based on coal resources, such as coal seam gas, are emerging. Indicative Symposia topics include coking and thermal coal; water issues in coal mining and coal seam gas production; advances in coal mining; coal quality issues; new and emerging coal technologies including underground coal gasification.



11. Petroleum Systems and Exploration

Coordinators – Marita Bradshaw (marita.bradshaw@ga.gov.au) and Chris Uruski (c.uruski@gns.cri.nz)

Global demand for petroleum continues to grow, driving the search for resources to new frontiers as well as the need to extract petroleum as efficiently as possible from existing basins. Indicative topics include petroleum geoscience - advances in seismic applications, petroleum geochemistry, other geophysical techniques, and applications of paleontology; frontier petroleum basins - extending exploration in time and drilling depths; southern hemisphere petroleum prospectivity; enhanced oil recovery - horizontal drilling, reservoir fracturing, chemical methods, water/CO₂ injection and re-injection; petrophysics - pressure, permeability and rock property predictions; advances in petroleum exploration - new ideas on prospectivity, basin modelling, source rock models, reservoir modelling; putting the geo into geophysics – use of potential fields in interpreting economic basement, structure and reservoir presence/quality, seismic sequence analysis, facies mapping and depositional environments.

12. Unconventional Hydrocarbons – Emerging Fuels

Coordinators – James Underschultz (James.Underschultz@csiro.au) and Ingo Pecher (i.pecher@gns.cri.nz)

Unconventional hydrocarbons, notably shale gas and coal seam gas, are emerging as important new energy sources in Australia and southeast Asia. Symposia will focus on the unconventional hydrocarbons and their emergence as important future sources of energy including transport fuels: coal seam gas geology, resources and extraction and water production and management; shale gas and tight gas resources and potential; gas hydrates.

13. Sedimentation and Sedimentary Processes

Coordinators – Chris Fielding (cfielding2@unlnotes.unl.edu) and Peter McCabe (Peter.Mccabe@csiro.au)

Sedimentary basins host the world's hydrocarbon resources and substantial mineral resources. Indicative topics include geological basin evolution; sequence stratigraphy; clastic sedimentation; modern sedimentary processes; sedimentation in foreland, forearc, rift and strike-slip basins; sequence stratigraphy; large scale stratigraphic correlations; biostratigraphy; stratigraphic databases; diagenesis; evaporites; isotope and chemostratigraphy; sedimentary organic matter in modern and ancient systems.

14. Basin Formation and Continental Margin Processes

Coordinators – George Gibson (george.gibson@ga.gov.au)

Basin formation is integral to the processes that operate at passive and active continental margins, including transform (sheared) continental margins. Indicative Symposia topics include basin formation at passive and active continental margins; transform (sheared) continental margins; basement control and structural inheritance; seismic and geophysical imaging of margins; role of magmatism, detachment structures and mantle involvement; preservation of continental margin structures during subsequent orogenesis; and geological basin evolution.

15. A Dynamic Earth

Coordinators – Dietmar Müller (dietmar.muller@sydney.edu.au)

Symposia in this theme will address the processes and driving mechanisms that have shaped the distribution of the continents and the formation of ocean basins, island arcs and microcontinents through geological time. Likely symposia include global geodynamics; evolution of the plates and plate tectonic history; exploration geodynamics; the accretion and break-up of super-continents; subduction processes and mechanisms, linking deep earth and surface processes; understanding deep earth structure and rheology; and major impact events and their significance.

16. The Deep Earth

Coordinators – Sue O’Reilly (sue.oreilly@mq.edu.au) and Bill Griffin (bill.griffin@mq.edu.au)

Symposia will include: the lithosphere-asthenosphere boundary including its physical and geochemical nature, formation and evolution; fluids in the lithospheric mantle including their composition, distribution and significance; the crust-mantle lithosphere system including their definition, formation, evolution and geodynamics; and deep earth circulation addressing the heterogeneity and flow patterns of the deeper mantle, its changes through time involving subduction recycling, lithosphere formation and preservation, and the importance of this circulation through Earth’s history; and advances in seismic imaging.

17. The Early Earth: Hadean and Archean Development of a Habitable Planet

**Coordinators – Vickie Bennett (vickie.bennett@anu.edu.au,
Malcolm Walter (malcolm.walter@unsw.edu.au) and
Martin Van Kranendonk (martin.vankranendonk@dmp.wa.gov.au)**

This Theme will cover the Hadean and Archean eons and will cover topics such as accretion of the solar system and the giant Moon-forming event; development of the oceans and atmosphere; Hadean crust and the early formation of continents; Archean tectonics: the role of plumes versus plates in crust development; evolution, diversity and habitats of early life; and the Archean-Proterozoic transition: its timing and significance.

18. The Proterozoic Earth

Coordinators – Peter Betts (peter.betts@sci.monash.edu.au)

The Proterozoic eon is characterised by major and rapid continental growth and accretion, supercontinent cycles and extensive orogenic activity. Symposia will cover all aspects of Proterozoic crustal evolution including magmatism, sedimentation and metamorphism; metallogeny; oxygenation of the Earth; and geodynamics and plate tectonic reconstructions.

19. Geochronology and Isotope Geology

Coordinators – Paolo Vasconcelos (paulo@earth.uq.edu.au) and Igor Villa (igor@geo.unibe.ch)

This Theme provides the opportunity for researchers working at the forefront of isotope geochemistry and geochronology to showcase advances in instrumentation and analysis, present new exciting applications, and explore the fundamental role of isotope geochemistry in the understanding and quantification of geological and cosmological processes.

20. Planetary Sciences

Coordinator – Graziella Caprarelli (Graziella.Caprarelli@uts.edu.au)

This Theme will address the processes and driving mechanisms that have led to the formation of planetary systems and their evolution, with particular emphasis on the formation of the solar system from the solar nebula, its physical and cosmochemical evolution, the formation and evolution of planets, the onset of life and its distribution in the solar system and in the universe. Likely topics will include the composition of the solar nebula and its early dynamics; the formation of planets; the cosmochemistry of planetary bodies, small objects and meteorites; planetary interiors; modeling of geodynamical processes on terrestrial planets; tectonism, volcanism, meteoritic impact history and surface processes on terrestrial planets; planetary atmospheres; the exploration of the solar system and results from recent space missions to planets and satellites; early life and astrobiology; terrestrial analogues; geological mapping of terrestrial planets; planetary databases; exoplanets.



21. Magmatism – Settings, Compositions and Processes

Coordinators – Janet Hergt (jhergt@unimelb.edu.au) and Jon Blundy (jon.blundy@bristol.ac.uk)

This will incorporate field-based, geochemical, experimental and modelling studies of magmatism – both ancient and modern - arranged according to magmatic setting. It will include granite petrogenesis and metallogenesis; granites in space and time; subduction zone magmatism including a special session on magmatism in the SW Pacific; active volcanism; ocean ridge and all forms of intraplate magmatism (e.g., kimberlites) and large igneous provinces.

22. Metamorphic Rocks and Processes

Coordinators – Jörg Hermann (joerg.hermann@anu.edu.au), Geoff Clarke (geoffrey.clarke@sydney.edu.au) and Simon Harley (Simon.Harley@ed.ac.uk)

Metamorphic rocks provide insight into plate tectonic processes and fluid-rock interactions acting in the Earth's crust. The symposia in this theme will include how metamorphic reactions monitor changes in the physical and chemical properties of the crust; constraints on fluid compositions from near surface alteration to subduction zone and collisional metamorphism to ore formation; and geochemical constraints on timescales of metamorphic processes. We encourage contributions from a wide range of disciplines such as modelling of phase equilibria, geochronology, geochemistry, experimental and metamorphic petrology and structural geology.

23. Evolution of the Biosphere

Coordinators – John Laurie (john.laurie@ga.gov.au)

This theme will explore the events, processes and drivers which have influenced the evolution of life and how life has influenced the evolution of the planet. Likely symposia topics include the Ediacaran and the Cambrian explosion; Paleozoic biofacies, biogeography and bioevents; evolution of hominins; oxygen and evolution; Archean life; Gondwanan Mesozoic vertebrates; Mesozoic bioevents; origin and evolution of marsupials; early vertebrate evolution; Cenozoic marine environments; modern techniques in paleontology; and general paleontology.

24. Reefs and Carbonates

Coordinators – Gregg Webb (ge.webb@qut.edu.au)

Carbonate rocks made by organisms, from reefs and microbialites to bioclastic grainstones, record ecological, environmental and biogeochemical information through time at a variety of time scales. Such information allows corals and coral reefs to inform our understanding of Pleistocene/Holocene and, potentially, future climate change while ancient carbonate rocks allow the investigation of secular changes in eustasy, marine chemistry and biology. This theme will include discussion of modern reefs and climate change; fossil reefs; microbial carbonates, including stromatolites; carbonate sedimentology and geochemistry.

25. Marine Geoscience and Oceanography

Coordinators – Peter Harris (peter.harris@ga.gov.au) and Neville Exon (neville.exon@anu.edu.au)

Marine geoscience, seabed mapping, oceanography and paleoceanography are closely interrelated themes, and are particularly important to Australia with its large marine jurisdiction. This theme will include Symposia on the International Ocean Drilling Program (IODP), with its many facets including deep biosphere below the ocean floor; the importance of geoscience in making offshore jurisdictional claims under the United Nations Convention Law of Sea; seabed mapping for living and non-living resource assessment and the development of marine protected areas; the marine geoscience aspects of the International Polar Year (IPY); deep biosphere below the ocean floor; coastal and offshore sedimentology; and physical oceanography.

26. Antarctic and Arctic Geoscience

Coordinators – Phil O'Brien (phil.obrien@ga.gov.au) and Tim Naish (timothy.naish@vuw.ac.nz)

Geoscience research in the polar regions has received major boosts through initiatives such as the International Polar Year, data acquisition projects such as IODP and the ANDRILL program drilling, major airborne geophysical campaigns and application of a new generation of computer climate and ice sheet models. At the same time concerns have grown over the impacts of climate change and human influences on both regions. This Theme will include Symposia on major developments in polar earth sciences and will also mark the centenary of the Australasian Antarctic Expedition led by Sir Douglas Mawson recognising the central scientific focus of the early Antarctic expeditions. Symposia are planned on marine biogeochemistry, geological processes and human impacts in polar regions; Rodinia to Gondwana: development of the Southern supercontinent; and polar climate archives integrated with numerical modelling and their global significance.

27. Biogeoscience

Coordinators – Jill Banfield (jbanfield@berkeley.edu) and Matthew Stott (m.stott@gns.cri.nz)

There is increased understanding that geology, biology and biochemistry are intricately linked. This Theme will explore the interaction between geology, and biology, and how this interaction influences the environment. It will include sessions on the roles of organisms in geological formation, biological involvement in ore formation; mineral bioprocessing; the detection and analysis of microbes in soils, extremophilic microorganisms and their niches, and earth systems management.

28. Groundwater/Hydrogeology

Coordinators – Ken Lawrie, Geoscience Australia (ken.lawrie@ga.gov.au) and Chris Daughney (c.daughney@gns.cri.nz)

The past decade has seen an increased demand for hydrogeological predictions to sustain growth, promote wealth and protect landscape, infrastructure and biodiversity assets. Improved understanding of hydrogeological systems underpins the development of more effective groundwater models and management strategies and actions. Indicative topics covered in this Theme include: climate change impacts on groundwater; surface-groundwater interaction; managed aquifer recharge; groundwater modelling and parameterisation; delineation and management of groundwater resources; aquifer and aquitard mapping and characterisation; recharge and discharge mapping; groundwater and mining; coastal groundwater; groundwater dependent ecosystems; risks to groundwater quality including salinity; hydrogeochemistry including water-rock interactions; and socio-economic, and legal aspects of groundwater management.

29. Surficial Processes and Landscape Evolution

Coordinators – Alan Chivas (toschi@uow.edu.au) and Brad Pillans (brad.pillans@anu.edu.au)

This theme will address the key processes that shape the landscape, the nature of landscape and its evolution. Planned Symposia will cover surficial process and rates of activity; regolith processes; landforms; pedogenic carbonates; laterites; soils; desertification; and landscape evolution.

30. Geohazards

Coordinators – Phil Cummins (phil.cummins@ga.gov.au), Kelvin Berryman (k.berryman@gns.cri.nz) and Terry Webb (t.webb@gns.cri.nz)

Symposia will address the wide range of geohazards that regularly impact on societies and economies, including research into geological and geophysical processes, geohazard mapping, impact and risk assessments, and the evaluation and testing of mitigation strategies. Indicative symposia will cover: earthquake hazards; neotectonics; volcanic (ash) hazards; tsunami hazards and monitoring systems; severe storm hazards; riverine flooding hazards; landslide hazards; natural hazard risk assessment and modelling methods; monitoring, prediction, warning and mitigation for geohazards.

31. Engineering Geology and Geomechanics

Coordinators – Mark Eggers (mark.eggers@psmconsult.com.au); Andrew King (a.king@gns.cri.nz); Francisco de Jorge (francisco.engeo@terra.com.br)

The interface between geology and engineering is critical to our rapidly expanding urban space and increasing demand for the Earth's resources. Indicative Symposia in this Theme include geoengineering challenges for our ever-growing cities; geoscience inputs to major infrastructure developments, including underground construction and corridor studies; increasing use of engineering geology concepts in the optimisation of open pit and underground mine design; key roles of geoengineering in mitigating climate change; improving the development of geological models for engineering projects; and advances in geomechanics.

32. Geoscience information from proximal and remote sensing technologies

Coordinators – Tom Cudahy (thomas.cudahy@csiro.au), Adam Lewis (adam.lewis@ga.gov.au) and Geological Applications of Remote Sensing (GARS) program, jointly sponsored by UNESCO and the IUGS.

Symposia in this theme will address how emerging “geoscience-tuned” sensed data from satellite, airborne, drill core, and other field sources can provide valuable information for the measurement, mapping and monitoring of geologic processes. Indicative topics include: new “geoscience-tuned” sensing technologies; mineral, lithological and structural mapping; resource (minerals, hydrocarbon and geothermal) exploration; volcanic hazard assessment; mapping and monitoring of landforms, soils, biomass and water; natural disaster management; mine environmental baseline-inventories, monitoring and mine closure assessment; mapping planets/moons; methods for the measurement of (bio)physicochemistry; geoscience information product standards; seamless, integrated (with other geospatial data) 3D and 4D (temporal) mapping; and geoscience information delivery systems.

33. History of the Geosciences

Coordinator – Barry Cooper INHIGEO (barry.cooper@unisa.edu.au)

This theme is being planned to include Symposia on history of geosciences; historical perspective on geologists; history of resource exploration and development; major geological achievements in 20th century; general contributions in the history of geology.

34. Major Geoscience Initiatives, Geosurveys and Maps (TBC)

Coordinator – Ian Withnall (ian.withnall@deedi.qld.gov.au)

It is proposed that this Theme will cover major geoscience initiatives, including those involving international Geosurveys and the Commission for the Geological Map of the World, where these are not covered under other Themes. In particular the option is open to integrate Maps into Geoscience Information Supersymposia.

35. Geostandards

Coordinators – Colin Simpson (simpsons@grapevine.com.au) and William Cavazza (william.cavazza@unibo.it)

Indicative standards will be covered under this Theme, or other Themes as appropriate, including: geoscience information; stratigraphic; geochronological; time scale; laboratory; professional.

Please note that room will be found in the program for any significant geoscience topics inadvertently missed in the above Themes.

HAVE YOUR SAY IN PLANNING THE SCIENTIFIC PROGRAM

At this stage the Scientific Program is still in the early stages of planning. The Organising Committee invites your participation in planning. Please use the Scientific Program option in the Congress web site: www.34igc.org where you should add your suggestions or comments by clicking on the main theme and using the inter-active link. You may also email Theme Coordinators directly with suggestions specific to their Themes.

We also recommend that you complete the “Register your interest” section when you visit the Congress website – you will then automatically receive updates and news.

Submission of Abstracts

Abstracts must be submitted through the congress website: www.34igc.org, from April 2011. All abstract submissions must be received by the cut-off date - 17 February 2012.

Please note that individuals will only be permitted to deliver one oral presentation (unless they are a plenary or invited keynote speaker) but they may co-author multiple oral presentations and may give multiple poster presentations. Full details on abstract submission requirements and terms will be available on the congress website in November, 2010.

Please also note that there will be a modest non-refundable abstract submission fee.

Workshops

A range of expert workshops will be available at extra cost. Details will be made available through the Congress website when they are available.

If you wish to develop and deliver a workshop, or suggest a topic, you can register your intention through the Congress website.

There will also be a range of training workshops designed for delegates from developing nations. These are outlined in the next section.

Geohost Support Program

We are pleased that Vale has agreed to be a major congress sponsor and supporter of the GeoHost program.

The organising committee is working to attract funds to support the attendance at the congress of appropriate delegates from low-income countries. This support will be provided through the GeoHost program. It will be necessary for those wishing to be considered for GeoHost support to complete an application process and agree to attend during-congress training workshops. Topics such as sustainable mining, carbon sequestration, geohazards, climate change and groundwater are proposed for these workshops, which are being designed to address challenges of particular relevance to developing nations. It is anticipated that the application process for individuals seeking GeoHost program support will be announced in the Second Circular, planned for April, 2011. To ensure that you receive the Second Circular, please visit www.34igc.org and register yourself to receive updates.

Individuals from developing countries who do not wish to attend these workshops will not be eligible for the GeoHost program. They should independently pursue other sources of funding from international agencies to support their attendance at the 34th IGC. We have endeavoured to facilitate this by devoting a major theme of the 34th IGC to the interests and needs of low income nations, and inviting UNESCO patronage.

Pre- and Post-Congress Field Trips

A diverse and interesting array of Field Trips is being organised for delegates. Field Trips will be held in every Australian state and the Northern Territory, plus New Zealand, New Caledonia, Papua New Guinea and Malaysia. The Field Trips will run both prior to and after the 34th IGC. There will also be an interesting selection of day trips during the Congress.

Details of the Field Trips currently being planned are available for review on the 34th IGC website www.34igc.org, where you can express interest in participating. The titles of the proposed trips follow:

Queensland

One day trips during Congress

- D1. Geology of Brisbane at walking pace
- D2. The Glasshouse Mountains: Geological icons of Queensland
- D3. Stradbroke Island and Moreton Bay – Quaternary sandcastles east of Brisbane
- D4. The Tweed Shield: Australia's largest Cenozoic volcano
- D5. The scenic rim of Queensland: Volcanism, xenoliths, megacrysts, and geomorphology of the Early Miocene Main Range Volcano
- D6. Coal in southeast Queensland
- D7. Engineering geology in southeast Queensland
- D8. Toowoomba industrial materials
- D9. Sunshine Coast construction materials

Pre/Post Congress Field Trips

- 1. Geology of Heron Island, southern Great Barrier Reef
- 2. Mineralisation of the Mount Isa Region
- 3. Mount Isa crustal evolution and reconstructions of the Nuna (Columbia) Supercontinent
- 4. Coal, coal-seam gas, oil, traditional gas, groundwater, and carbon capture and storage in Queensland sedimentary basins
- 5. Whitsundays silicic large igneous province
- 6. Dinosaur and other Cretaceous fossil sites of the northern Great Artesian Basin
- 7. Plio-Pleistocene faunas of eastern Queensland
- 8. Fraser Island – natural and geological beauty on the world's largest sand island
- 9. Granite Belt (including visits to wineries)
- 10. Cracow-Gympie - Gold and more

New South Wales

11. Lake Mungo – early man, regolith, landform evolution
12. Lachlan Fold Belt – world class porphyry copper gold deposits in the accreted Ordovician intraoceanic Macquarie Arc
13. Broken Hill Mines and the New South Wales Proterozoic
14. The new England Batholith – felsic magmatism and lithophile dominated mineral systems in a primitive continental marginal arc
15. Bega – Murrumbidgee Pluton: Looking within and below batholiths
16. A banquet of New South Wales geology, geohistory, dead fish and great wines!
17. Oroclinal bending in the southern New England orogen (Brisbane to Sydney)

Victoria

18. Factors influencing volcanic eruption styles, in the intraplate, basaltic, Late Cenozoic Newer Volcanics province, Victoria and South Australia
19. Central Victorian historical gold mines, and recent wines
20. Otway Basin carbon capture and storage

Tasmania

21. North coast tectonic and sedimentary sequences
22. Western Tasmania – mines and mineralisation

South Australia

23. Gawler Craton – Recent insights into Proterozoic and Archean geology
24. Arkaroola-Flinders Ranges – Earliest life on earth and planetary geology excursion, South Australia
25. Uranium geology of South Australia
26. Ediacaran-Cambrian of South Australia

Northern Territory

28. Geology of Uluru – Alice Springs region, Ayers Rock, meteorite crater
29. Geology and aboriginal culture of Kakadu-Litchfield region

Western Australia

30. Yilgarn Archean Craton, Kalgoorlie gold and nickel mines, salt lakes, Mining hall of Fame
31. Pilbara – Hamersley Archean and Proterozoic, ancient life to mines
32. Geology of the Kimberley. Paleoproterozoic tectonics and mineralization, Neoproterozoic glaciations, Devonian barrier reef and petroleum prospectivity, diamond mine, aboriginal history

New Zealand

- 33. North Island: active volcanism, neotectonics, geothermal
- 34. North Island – Auckland Volcanic Field
- 35. North Island: Taranaki and Wanganui Basins, hydrocarbons, integrated stratigraphy
- 36. South Island: plate boundary structure, Alpine Fault, glaciation
- 37. South Island: Cretaceous-Cenozoic sequences of Zealandia, climate change

Malaysia

- 38. Langkawi Geopark. Clastics, fossiliferous limestones, karst, tropics, villages, culture

New Caledonia

- 39. New Caledonia Subduction/obduction system, HP-LT complex, ophiolites, syntectonic basins. Neogene tropical weathering and nickel resource Holocene landforms, barrier reef, neotectonics, Isle of Pines

Papua New Guinea

- 40. Rabaul caldera
- 41. Port Moresby – Kokoda – Kumusi – a transect from accretionary prism to subduction complex and ophiolite

If you have any queries regarding the Field Trips, please contact the Congress Managers:

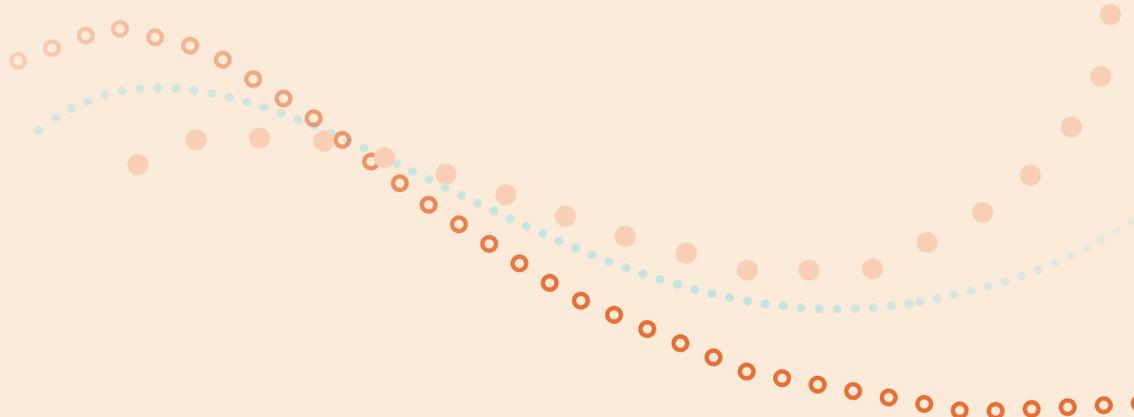
Carillon Conference Management Pty Ltd

Phone 61 7 3368 2644

Fax 61 7 3369 3731

Email tours@34igc.org

Mail PO Box 177, Red Hill 4059 Queensland Australia



Exhibition

The 34th IGC will feature a major exhibition. This will occupy two halls and will be built around a central meeting and eating area to be known as the GeoSpace. Details will be supplied in the Second Circular.

Venue

The 34th IGC will be held at the Brisbane Convention and Exhibition Centre (BCEC), Australia's largest purpose built convention centre and independently ranked in the top three convention centres in the World. It is Australia's most awarded convention venue. Flexible, modern, superbly located and offering a vast array of meeting spaces, BCEC is an appropriate and prestigious venue for the 34th IGC.

BCEC is located just 10 minute's walk from Brisbane's city centre, within Brisbane's renowned South Bank precinct. South Bank includes riverside parklands and the very best cultural facilities that Queensland has to offer, including the Queensland Art Gallery, the Gallery of Modern Art, the Queensland Museum, the Queensland State Library and the Queensland Performing Arts complex. All of these superb facilities are within five minute's walk of BCEC.

For further information on BCEC, visit their website at: www.bcec.com.au .

Destination

Brisbane – host city for the 34th IGC– extends a warm invitation to all IGC delegates.

Brisbane, with a population of 1.8 million, is Australia's fastest growing city and is the seat of government and commerce for the State of Queensland.

The gateway to the country's most popular tourist region, Brisbane is serviced by world class domestic and international airports located just 20 minutes from the city centre. Brisbane International Airport operates 24/7 and has direct international flights each week.

With an all year round idyllic climate, Brisbane is a dynamic, sophisticated and cosmopolitan city with a relaxed, friendly alfresco lifestyle.

The central business district is along the Brisbane River. The central city area, an easy and pleasant walk from BCEC, offers a myriad of accommodation, dining and retail options to satisfy every taste and budget.

As the Capital of the State of Queensland, Brisbane is the perfect place from which to commence touring a host of internationally acclaimed visitor destinations. Many of Australia's most famous attractions are to be found in Queensland and within easy reach of Brisbane, including the Great Barrier Reef, hundreds of coastal resorts and islands, the Gold and Sunshine Coasts, ancient rain forests and The Outback.

For more information on Brisbane visit: www.visitbrisbane.com.au

Accommodation

34th IGC delegates will be offered a range of accommodation options. Brisbane offers a diverse range of accommodation options of a high standard and at reasonable rates, from 5 star hotels to serviced apartments for families or small groups. Most have been reserved for the 34th IGC and will be offered at discounted rates. The Reservations facility will be available on the Congress website, together with Congress registration information, in August 2011.

See Australia

There's nothing like Australia – and you can see it all at the official Australian government tourism web site, www.australia.com.

Some interesting facts about Australia:

A wide, brown land - Australia is the sixth largest country in the world. It's about the same size as the 48 mainland states of the USA and 50 per cent larger than Europe, but has the lowest population density in the world - only two people per square kilometre.

Beach paradise - Australia's coastline stretches almost 50,000 kilometres and is linked by over 10,000 beaches, more than any other country in the world. More than 85 per cent of Australians live within 50 kilometres of the coast, making it an integral part of our lifestyle.

Our island home - Australia is the only nation to govern an entire continent and its outlying islands. The mainland is the world's largest island, and the smallest and flattest continent.

Opals in our eyes - Australia produces 95 per cent of the world's precious opals and 99 per cent of its black opals.

Gold galore - Kalgoorlie in Western Australia is Australia's largest producer of gold

Merinos and cattle calls - Australia's 85.7 million sheep (mostly merinos) produce most of the world's wool. With 25.4 million head of cattle, Australia is also the world's largest exporter of beef.

Longest road, rail and fence - The world's longest piece of straight railway track stretches 478 kilometres across South Australia's vast, treeless Nullarbor Plain. Australia's longest stretch of straight road - 148 kilometres – is on the Eyre Highway in Western Australia. The world's longest continuous fence – the dingo fence – was built to keep sheep safe from Australia's native dog and runs for 5,531 kilometres through central Queensland and South Australia.

A hopping icon - The iconic kangaroo is unique to Australia and one of our most easily recognised mammals. There are an estimated 40 million kangaroos in Australia, more than when Australia was first settled.

Unique wildlife - Australia developed a unique fauna when it broke away from the super-continent Gondwana more than 50 million years ago. Today Australia is home to a wealth of wildlife not found anywhere else in the world. We have around 800 species of birds, half of which are unique to this country. Our marine environments contain more than 4,000 fish varieties and tens of thousands of species of invertebrates, plants and micro-organisms. About 80 per cent of Australia's southern marine species are found nowhere else in the world.

Flourishing flora - Australia also supports at least 25,000 species of plants, more than the estimated 17,500 species in Europe. Australia's living fossils include the Wollemi pine and the grass tree.

An ethnic melting pot - Since 1945 more than six million people from across the world have come to Australia to live. Today, more than 20 per cent of Australians are foreign born and more than 40 per cent are of mixed cultural origin. In our homes we speak 226 languages - after English, the most popular are Italian, Greek, Cantonese and Arabic.

Aboriginal people - Believed to be the world's oldest civilization, Aboriginal people have lived on the Australian continent for more than 50,000 years. Aboriginal societies made many unique advances long before the Europeans arrived. They invented the aerodynamic boomerang and a type of spear thrower called the woomera, and were the first society to grind edges on stone cutting tools and to use stone tools to grind seeds.

See New Zealand

So close, but so different! Geologically young and active. You can see highlights of all that New Zealand has to offer at: www.nz.com.



www.34igc.org

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