



34th International Geological Congress Plenary Program

Plenary Session 1: Resourcing Tomorrow – Meeting the needs of a growing population

Monday, 6 August, 11.00am to 12.00pm, Great Halls 1 & 2

This plenary will review the future demand and availability of groundwater and mineral resources. By 2050 the world's population will exceed 9 billion with well over half living in urban areas. This will require more natural resources, especially minerals and energy, than used in the past and present challenges for the discovery of resources and new extraction technologies. Population growth is likely to lead to a shortage of water in many parts of the world: water security is already shaping up as a major challenge for many countries as a consequence of climate change and a decline in groundwater resources through over use. This has profound implications for human health, global food security and the environment.

Mr XU Shaoshi (China)

Mr XU Shaoshi has been China's Minister of Land and Resources and Chief Supervisor of State Land of the People's Republic of China since 2007.

Marcio Luis Silva GODOY (Brazil)

Marcio is Head of Global Exploration and Mineral Project Development for the large Brazilian mining house, Vale.

Steve GORELICK (USA)

Professor Steven Gorelick runs the Global Freshwater Initiative at Stanford University. One of his major research focus areas is analysis of water-supply sustainability in developing nations.

Plenary Session 2: Energy in a carbon-constrained world

Tuesday, 7 August, 11.00am to 12.00pm, Great Halls 1 & 2

This plenary will briefly review the drivers for change to a low-carbon energy future and examine the range of energy sources potentially available but with particular focus on the geo-sources of energy (fossil fuels, geothermal, nuclear, hydro). The plenary will consider the resource base, accessibility, extraction and use, technological and other limitations, and the environmental impacts of use of the various energy sources available now and in the medium term.

Lord Ron OXBURGH (UK)

Lord Oxburgh is a graduate of the Universities of Oxford and Princeton. After a very distinguished academic career, Lord Oxburgh served as chairman of The Shell Transport and Trading Company until its unification with Royal Dutch Petroleum. He is a member of the House of Lords of the UK Parliament.

Scott TINKER (USA)

Scott W. Tinker is Director of the Bureau of Economic Geology, the State Geologist of Texas, Director of the Advanced Energy Consortium, a Professor at the University of Texas at Austin. Tinker's passion is building bridges between academia, industry and government. He recently produced and is featured in the acclaimed documentary film on global energy, SWITCH, which is being shown to the public the evening of Wednesday 8 August.

Sally BENSON (USA)

Professor Sally M. Benson is Director of the Global Climate and Energy Project at Stanford University. A ground water hydrologist and reservoir engineer, Prof. Benson investigates the fundamental characteristics of carbon dioxide storage in geologic formations and other issues related to technologies and energy systems for a low-carbon future. She was a coordinating lead author on the 2005 Intergovernmental Panel on Climate Change (IPCC) Special Report on Carbon Dioxide Capture and Storage.

Plenary Session 3: The Earth and Man – Living with a restless Earth

Wednesday, 8 August, 11.00am to 12.00pm, Great Halls 1 & 2

An increasing proportion of the world's population, especially in developing countries, are potentially at risk from natural hazards. This plenary will examine how man's interaction with the Earth's natural processes has shaped human society and how man has adapted to living in close proximity to natural hazards such as volcanoes, earthquakes, tsunami and floods. The speakers will also review the impact of past major geological disasters on human society and progress in assessing and mitigating the risk of geological hazards, especially in relation to major cities. The plenary will also consider man's impact on the geosphere, biosphere and the landscape, and our potential role in increasing society's vulnerability to natural hazards.

Iain STEWART (UK)

Professor Iain Stewart is a geologist and broadcaster who holds a chair in Geoscience Communication at Plymouth University, UK. After presenting several major BBC television series about the planet, including "How Earth Made Us", his latest landmark BBC series examines how plants have helped shape Earth's history. He will be filming for another BBC series while in our region, and giving a number of public lectures along the way.

Renato SOLIDUM Jr (Philippines)

Dr. Renato U. Solidum, Jr. is a geologist and is currently the Director of PHIVOLCS, the Philippine government organisation mandated to monitor and warn, assess hazards and risk, conduct research and development, and formulate awareness and preparedness plans to events related to volcanoes, earthquakes and tsunami.

Plenary Session 4: What does the geological record tell us about the Earth's past climates in relation to projected climate change?

Thursday, 9 August, 11.00am to 12.00pm, Great Halls 1 & 2

This plenary will overview the current data and projections relating to global climate change and examine the evidence from the geological record of past climate change. It will consider rates of climate change, sea levels, CO₂ levels and temperatures, geosphere-biosphere feedbacks and climate sensitivities, and explore what this might mean for the Earth's climate in the future.

Tim NAISH (New Zealand)

Professor Tim Naish is Director of the Antarctic Research Centre at Victoria University of Wellington and Principal Scientist at the New Zealand Crown Research Institute, GNS Science. He is a paleoclimatologist focussed on reconstructing past global sea-level changes from continental margin geological records. He was co-chief scientist of the McMurdo Ice Shelf Project which recovered sediment cores documenting the first direct evidence that the West Antarctic Ice Sheet had collapsed the last time the world was 2-3°C warmer, 3-5 million years ago. He is currently a Lead Author on the Intergovernmental Panel of Climate Change's 5th Assessment Report.

Will STEFFEN (Australia)

Professor Will Steffen is Executive Director of the ANU Climate Change Institute at the Australian National University, Canberra, and serves on the Multi-Party Climate Change Committee and as a Climate Commissioner. His research interests span a broad range within the fields of climate change and Earth System science, with an emphasis on incorporation of human processes in Earth System modelling and analysis; and on sustainability and climate change, with a focus on urban systems.

Plenary Session 5: Digital Earth - The information explosion

Friday 10 August, 11.00am to 12.00pm, Great Halls 1 & 2

This plenary will overview the digital revolution and explosion of information shaping the future direction and application of the earth sciences. Rapid advances in real time monitoring and measurement, web technologies and in data transfer are making geological and geospatial data increasingly global, accessible and instantaneous, and therefore useful for purposes beyond which they were originally collected. This

expanded information base, coupled with increased understanding of global geological processes, is becoming increasingly vital to governments and the global community at large. Topics include remote sensing; 4-D geology, with GPS networks contributing to the fourth dimension; geohazards and environmental monitoring; regional and global scale geophysical datasets; and 3D geological mapping.

Thomas CUDAHY (Australia)

Dr Tom Cudahy is the Director of the Western Australian Centre of Excellence for 3D Mineral Mapping. His 2020 vision is a public, web-accessible 3D mineral map of Australia (and beyond) based on a new generation of satellite, airborne, field and drill-core logging hyperspectral technologies.

Kristine ASCH (Germany)

Dr Kristine Asch, a geologist, heads the Geological Information Systems and Maps unit at the Federal Institute for Geosciences and Natural Resources (BGR). She is Chair of the IUGS Commission of Geoscience Information, leads the Europe Subcommittee of the Commission of the Geological Map of the World, and coordinates building the Geoscience Information in Africa (GIRAF) network. Kristine has been closely associated with the development and dissemination of a new web language for geology, which allows nations to share data with each other and the public.

Ken GLEDHILL (New Zealand)

Ken Gledhill is the GeoNet Project Director at GNS Science in Wellington, New Zealand. GeoNet is New Zealand's geological hazards monitor system employing state of the art equipment and telecommunications technology. He is also chair of the governance group for the Pacific Tsunami Warning and Mitigation System. His research has concentrated on geophysical instrumentation, the field studies of large earthquakes, and the study of the deep structure beneath New Zealand and internationally using the seismic waves generated by earthquakes.

For more information about the IGC visit www.34igc.org.

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