



# AESCC

australian earth sciences  
convention

Sustainable  
Australia:

7-10 July 2014

NEWCASTLE, NSW, AUSTRALIA



## Hydrogeology at the AESC

Keynote Presentation by Mr George Gates  
PSM on "Groundwater requirements for a mining or coal seam gas gateway application". George Gates has had a 40 year career in hydrogeology and, until March 2013, he was Director of Water Management at the NSW Office of Water. He has extensive knowledge of the State's groundwater systems and has developed a number of groundwater policies for NSW. George is a member of the NSW Mining and Petroleum Gateway Panel which undertakes independent, scientific assessments of how State significant mining or coal seam gas proposals will impact the agricultural values of the land on which it is proposed to be located.

## Groundwater Quality, Implications of Changes in Physical Water Management

(3 sessions)

The topic investigates the groundwater and surface water dynamics with application to wetlands, estuarine, coastal and riparian systems. Managed aquifer recharge, its opportunities and challenges will be discussed.

## Hydrogeology, The Water Within

(3 sessions)

This topic will address the difficulty and uncertainties in assessing hydraulic parameters. It will also deal with the application of isotope methods to define diffusion in heterogeneous systems and to relate groundwater recharge to rainfall. Several case studies will be shown where groundwater studies have been applied to agricultural and general water quality problems.

## Coal Seam Gas and Groundwater

(6 sessions)

The topic deals with management and government regulation in different States in the coal seam gas industry and with technical issues related to the CSG. The impact of CSG on groundwater has been presented in several studies targeting the uncertainty, impact of structural geology on groundwater, baseline studies, connectivity between the aquifer/aquitards and geochemistry implications.



Australian Government  
GeoscienceAustralia



Coalfield Geology Council  
of New South Wales

T +61 2 4973 6573

F +61 2 4973 6609

Email: [aesc@willorganise.com.au](mailto:aesc@willorganise.com.au)

[www.aesc2014.gsa.org.au](http://www.aesc2014.gsa.org.au)





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AESC 2014 offers all geoscientists a unique opportunity for professional development and a chance to hear firsthand the latest developments in geosciences.

## PLENARY SPEAKERS:

**Professor Iain Stewart,**  
Geoscience Communication  
at Plymouth University (UK)

### **Between a rock and a hard place: communicating contested geoscience**

Iain Stewart, professor of Geoscience Communication at Plymouth University (UK), is an Earth scientist and broadcaster who specialises in recent geological change. After completing his undergraduate studies in Geography and Geology at Strathclyde University (1986), and a PhD in earthquake geology at Bristol University (1990), he taught Earth Science at Brunel University in west London, before leaving in 2002 to develop television projects on geoscience. Since then he has presented major television series for the BBC on the nature, history and state of the planet, most notably 'Earth: The Power of the Planet'; 'Earth: The Climate Wars'; 'How Earth Made Us'; 'How To Grow A Planet'; 'Volcano Live', and 'Rise of the Continents'.

He regularly fronts BBC Horizon specials on geoscientific topics, such as the Japanese earthquake, the Russian meteor strike, Shale gas/ Fracking, and Florida sinkholes. Some of his most programmes have explored his old 'backyard' with 'Making Scotland's Landscape' and a celebration of the Scottish pioneers of geology, 'Men of Rock'. He is currently President of the Royal Scottish Geographical Society, an Honorary President of the Scottish Association of Geography Teachers and a Patron of the Scottish Geodiversity Forum. In 2013 he was awarded the American Geophysical Union's Athelstan Spilhaus Award for conveying to the general public the excitement, significance, and beauty of the Earth and space sciences.

**Professor Craig Simmons,**  
Director, National Centre for Groundwater  
Research and Training, Flinders University

### **Groundwater and the Geosciences: Miles to go before we sleep**

Craig Simmons is Schultz Chair in the Environment at Flinders University and Director, National Centre for Groundwater Research and Training (Australia). One of Australia's foremost groundwater academics, Professor Simmons has been a significant contributor to global advances in the science of hydrogeology for many years and has published widely in areas including variable density groundwater flow, surface water - groundwater interaction, fractured rock hydrogeology, aquifer storage and recovery, and groundwater flow and solute transport modelling. He is a member of the Statutory Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development. His work has been recognised by numerous national and international research and teaching awards including the Anton Hales Medal for outstanding research contributions to the Earth Sciences by

the Australian Academy of Science. Professor Simmons has served as an Editor and Associate Editor for numerous major international journals including *Hydrogeology Journal* (Editor), *Water Resources Research*, *Environmental Modeling and Assessment*, *Journal of Hydrology*, *Groundwater and Vadose Zone Journal*.

## Public Forum: Energy 2050

Date: Monday 7 July  
Time: 7.30pm – 9.30pm  
Location: Civic Theatre, Newcastle  
Cost: Single ticket \$10  
Family ticket \$20  
(2 adults, 3 children)

As part of the Australian Earth Sciences Convention 2014, a Public Forum on '*Energy 2050: The Future of Energy in Australia*' will be held on Monday 7th July at 7.30 pm at the Civic Theatre, Newcastle.

The forum panel will consist of world-class speakers including Professor Iain Stewart, Geologist and Broadcaster and President of the Royal Scottish Geographical Society; Tony Irwin, Technical Director SMR Nuclear Technology; Rachel Connell, Director, Office of Coal Seam Gas; Dr Gary Ellem, University of Newcastle; Dr Alex Wonhas, Group Executive for Energy, CSIRO; Ben Hankamer, University of Queensland, Institute for Molecular Bioscience.



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