

## **Monday Session 1**

### **1A: Coal**

#### **Mehdi Asgharzadeh**

##### THE USE OF FWI IN COAL EXPLORATION

Dr. Mehdi Asgharzadeh is a Geophysicist with more than 14 years combined industry work and academic research experiences in exploration geophysics. He has completed an Eng degree in Mining Exploration (2000), a MSc. degree in Petroleum Geosciences (2004) and a PhD. in Exploration Seismic (2014). He has worked with National Iranian Oil Co. and Schlumberger Australia as a Geophysicist and as a researcher with Curtin University.

#### **Kevin Ruming**

##### Coal in NSW

Kevin is the Director Strategic Advice and Resource Assessment with the Geological Survey of NSW. He graduated with a BSc (Hons) from The University of Newcastle and returned later to complete a PhD.

Kevin has been with the Geological Survey of NSW for ten years. He leads a team that provides advice on resources to government, industry and the public, acquires coal and petroleum pre-competitive data and manages resource and exploration data. Coal resource assessment and coal geology have been a major focus of his work with the Geological Survey.

#### **Darren Walker**

##### DISCOVERY THROUGH THE AGES – A JOURNEY OF COAL RESOURCE DISCOVERY IN QUEENSLANDS BOWEN BASIN FROM THE 1960'S AND THE 2000'S

Mr Darren Walker is a Senior Executive with U&D Coal Ltd, a coal developer based in Queensland. He has over 20 years experience in exploration, mining operations, marketing and corporate management in coal, iron ore, gold and other metals as well as petroleum and gas.

He holds a B.SC. (Hons) in Geology as well as an MBA and is a member of the AusIMM, AIG and a Graduate of the AICD. "

### **1B: West Australian Basins Symposium**

#### **Adam Bailey**

##### MAPPING NORTHERN AUSTRALIA'S PRESENT DAY STRESS FIELD: THE CANNING BASIN

Adam completed his undergraduate studies in geology and geophysics at the University of Adelaide in 2011, graduating with first class Honours from the Australian School of Petroleum. In 2012 he commenced study towards a PhD at the Australian School of Petroleum, focusing on mapping natural fractures within energy-rich Australian basins. His PhD was awarded in 2016. In 2015 he started with Geoscience Australia as a graduate, and has been with the Onshore Energy Systems section since 2015 where he is working on understanding present-day stress conditions in several Northern Australian basins as part of the exploring for the future program.

## **Nadege Rollet**

### **REGIONAL JURASSIC SEDIMENT DEPOSITIONAL ARCHITECTURE, BROWSE BASIN: IMPLICATIONS FOR PETROLEUM SYSTEMS**

Nadege Rollet is a senior geoscientist in Geoscience Australia's Resources Division, Energy Systems Branch. Nadege is presently investigating the petroleum prospectivity of the Browse Basin. Nadege graduated from the University of Paris – Pierre et Marie Curie (France) where she obtained a MSc and a PhD (1999) in geology and geophysics. Her studies focused on the structural framework and geodynamics of the Ligurian Sea (western Mediterranean). Since joining Geoscience Australia, Nadege has contributed to assessments of the petroleum prospectivity, seepage studies and CO<sub>2</sub> storage of Australian sedimentary basins. Nadege is a member of PESA and SEAPEX.

#### 1C: East Australian Basins Symposium

## **Mark Bunch**

### **Predicting and Detecting Carbonate Cemented Zones Within Latrobe Group Reservoirs of the Gippsland Basin**

Mark Bunch is a Senior Lecturer in Petroleum Geoscience at the Australian School of Petroleum, University of Adelaide. His research concerns formation evaluation and seismic geomorphology. Prior to his present role, Mark spent seven years with the CO<sub>2</sub>CRC as a Research Associate in reservoir characterisation, during which he worked on geological modelling projects in the onshore Canterbury Basin (NZ), the Gippsland and Otway basins of Victoria, the Surat Basin of Queensland, and the Darling Basin of NSW. Mark holds degrees in Geology & Geophysics (BSc Hons), Hydrogeology (MSc), and a PhD in Earth Sciences (Stratigraphic Forward Modelling).

## **Simon George**

### **Organic geochemistry and petroleum potential of outcrop and core samples of the Permian in the southern Sydney Basin**

Professor Simon George is an organic geochemist at Macquarie University. His degrees are BSc(Hons) in geology from St Andrews University in Scotland (1985) and a PhD (1990) in organic geochemistry at the University of Newcastle-upon-Tyne, England. From 1991–2006 he worked for CSIRO (Sydney), leading research on petroleum geochemistry. He joined Macquarie University in 2006, where he investigates the geochemical record of the early evolution of life, petroleum geochemistry, marine geoscience, and bioremediation in cold climates. He has been an Acting Head of Department (Earth and Planetary Sciences), and since 2015 the director of the Macquarie University Marine Research Centre.

## **Andrew La Croix**

### **Impact of Sequence Stratigraphic Framework on Static and Dynamic Reservoir Models: Examples from the Precipice-Evergreen Succession, Surat Basin, Queensland**

"Andrew completed his Ph.D. at Simon Fraser University in British Columbia, Canada in sedimentology and ichnology. He also completed an M.Sc. at the University of Alberta. In early 2017, Andrew moved to the University of Queensland to undertake a Postdoctoral Research Fellowship as part of the university's Energy Initiative. His work is examining the sedimentology and sequence stratigraphy of the Precipice-Evergreen succession in the Surat Basin with the goal of improving static reservoir modeling and prediction of heterogeneity for CO<sub>2</sub> sequestration."

## **Sabin Zahirovic**

### TECTONICS AND GEODYNAMICS OF THE EASTERN TETHYS AND NORTHERN GONDWANA SINCE THE JURASSIC

Sabin Zahirovic has worked in the EarthByte group since 2008, and has focused largely on regional and global plate tectonic reconstructions and mantle flow modelling. His work has also explored Tethyan and Southeast Asian tectonics, with more recent work aimed at better understanding the geodynamic evolution of the New Guinea margin.

#### 1D: Geology Case History

## **Glenn Coianiz**

### Lithogeochemistry Of Pegmatites At Broken Hill: An Exploration Vector To Mineralisation

Glenn has over 25 years' experience in mineral exploration and has worked on gold and base metal deposits in Australia and Papua New Guinea and mineral sands deposits in Western Australia. He has conducted mineral resource studies on deposits in Papua New Guinea and Australia. Glenn currently runs his own geological consultancy providing support to a number of junior exploration companies.

## **Angela Lay**

### Ore and Gangue Minerals of the Hera Au-Pb-Zn-Ag Deposit, Cobar Basin, NSW

I am a PhD student, doing research on various silver deposits New England and Lachlan Orogens in New South Wales. The primary focus of my research is to examine and characterise the silver mineralogy and its association with other minerals and metals in the deposit using petrography, electron microscope as well as laser ablation on the sulfides identified.

#### 1E: IP From EM Surveys

## **James Macnae**

### Airborne EM and IP below 10 Hz

James Macnae has research interests in electromagnetic sensor development and the extraction of meaningful physical properties from airborne electromagnetic data. He has avoided as far as possible the use of underdetermined black-box inversion methodologies, focusing instead on optimising systems and then using fast and useful overdetermined strategies for physical property estimation. Along the way, he has contributed to the methodology of unwanted signal removal and noise minimization. He is a gold medallist of the Australian Society of Exploration Geophysicists.

## **Dave Marchant**

### Modelling IP effects in airborne time domain electromagnetics

Dave Marchant completed his PhD in Geophysics at the University of British Columbia in 2015 under the supervision of Prof. Doug Oldenburg. His research focused on new ways to understand induced polarization effects in inductive source electromagnetic data.

He has worked at Computational Geosciences Inc since 2010, where he consults to the resource industry on the interpretation and inversion of a wide variety of geophysical data.

## **Andrea Viezzoli**

### A THOROUGH SYNTHETIC STUDY ON IP EFFECTS IN AEM DATA FROM DIFFERENT SYSTEMS

Andrea Viezzoli earned his Bachelor in Physics at Bologna University (Italy). He earned a Ph.D. from Monash University in environmental applications of (ground) IP. It wasn't till he joined as Post Doc the hydrogeophysics group at Aarhus University that we really sank his teeth into AEM. He then left academia to manage Aarhus Geophysics Aps, where he focuses on virtually all aspects of AEM. Beside consultancy, he still finds time for R&D. The last couple of years saw him joining his two main research interests, working on modelling AEM data affected by IP for different applications.

#### 1F: Inversion Modelling Methods

## **Robert Ellis**

### EXPLORING INVERSION SOLUTION SPACE: A CASE STUDY OVER A Cu-Ag DEPOSIT IN THE KALAHARI COPPER BELT

Robert Ellis (PhD, Theoretical Physics, University of Melbourne) is currently Principal Scientist for modelling and inversion at Geosoft Inc. He was a founding member of the University of British Columbia Geophysical Inversion Facility, and subsequently continued to advance and apply geophysical inversion techniques as Principal Geophysicist at BHP Billiton Exploration, joining Geosoft Inc. in 2009.

#### Jeremie Giraud

### APPLICATION OF GEOLOGICALLY CONDITIONED PETROPHYSICAL CONSTRAINTS IN JOINT INVERSION: A CASE STUDY

After graduation in Geophysics (University of Strasbourg, France), various internships have led Jeremie to Canada and Germany, working on hydrogeophysics and magnetotellurics in research institutes and on reservoir mapping for industry. He worked for Schlumberger on reservoir appraisal and characterization, and went through the graduate program before moving to Perth. Following this he has been a PhD student at the Centre for Exploration Targeting since April 2015. Jérémie's project is focused on the integration of geological modelling and petrophysical data in geophysical joint inversion to quantify uncertainty and to recover lithological models.

## **Brett Harris**

### COOPERATIVE INVERSION: A REVIEW

Brett Harris is an Associate Professor and has a BSc (Hons) and PhD in Geophysics with over 20 years industry and academic experience. Brett's work history spans exploration for a wide range of commodities in Australia, Asia and South America. He has initiated and led numerous research projects focused on advancement of geophysical technologies.

## **Andrew King**

### Constraining an Inversion to follow curving trends in an image

Andrew has a broad background in geophysics, having worked in potential field and EM techniques for exploration, and seismic methods for mining problems. He has a PhD from Macquarie University in electromagnetic geophysics. He has worked for CSIRO since 2000, apart from a three-year

fellowship in the US, where he worked on seismic monitoring for mine safety. Andrew is currently working on the inversion of EM data, and on development of passive seismic techniques

#### 1G: Regional Tectonic

##### **Karol Czarnota**

Mapping metasomatised mantle by integrating magnetotelluric, passive seismic and geochemical datasets – SE Australia

Karol completed his undergraduate degree in applied geology from the University of NSW and joined Geoscience Australia as a graduate where he now leads the Mineral Potential Section. He holds an MSc in Petroleum Geoscience from Royal Holloway University London and a PhD in geology and geophysics from Cambridge University. His interests range from geomorphology to mantle dynamics and how mineral systems operate within the dynamic Earth.

##### **Alexei Gorbatov**

GEOSCIENCE AUSTRALIA'S CONTRIBUTION TO AUSARRAY – PASSIVE SEISMIC IMAGING OF AUSTRALIA

Alexei Gorbatov is a senior scientist of Resource Division, Geoscience Australia. His scientific interests include theory of seismic imaging and inversion methods. His professional career started in 1988 at the Institute of Physics of the Earth, Moscow, USSR. Later he worked as a research fellow in the Instituto de Geofísica, UNAM, Mexico. In 1998 he accepted position in the Earthquake Research Institute, Tokyo University, Japan, focusing on the development of theory and methods for seismic imaging. His career continued at RSES, ANU, and then in Japan Marine Science and Technology Centre. Finally he joined Geoscience Australia in 2004.

##### **Laszlo Katona**

COORDINATING AND DELIVERING A 1.8 MILLION LINE KILOMETRE MAGNETIC AND RADIOMETRIC SURVEY – A STATE GOVERNMENT PERSPECTIVE

Laszlo (Laz) Katona is the Principal GIS Geoscientist with the Geological Survey of South Australia which he joined in 2006. Laz coordinates the "4D Geoscience Atlas of South Australia" program, whose role is capture, processing, modelling, analysis and dissemination of pre-competitive geological and geophysical data for mineral explorers working in South Australia.

##### **Robert Musgrave**

PALAEOMAGNETIC TEST OF OROCLINAL ROTATION IN THE DUNDAS TROUGH, TASMANIA

Bob Musgrave is the Research Geophysicist with the Geological Survey of NSW. Bob's interests are in potential field imaging and interpretation, geologically constrained inversion, and the application of palaeomagnetism and magnetic petrophysics to tectonics, mineralisation, and migration of fluids. Bob's recent research has focussed on the tectonic history of western NSW, the geophysical interpretation of middle and lower crust lithology, fluid-driven magnetic diagenesis, and the use of palaeomagnetism to identify vertical axis rotations. Bob is a conjoint Senior Lecturer at the University of Newcastle, where he operates a rock magnetic and palaeomagnetic laboratory.

## 1H: Geotechnical and Environmental

### **Michael Asten**

Tracking the Diprotodon - microtremor passive seismic profiling as a tool for location of megafauna bone beds

Michael Asten is a Professor (Retired) and ongoing Adjunct Senior Research Fellow in the School of Earth Atmosphere and Environment, Monash University, Melbourne. He is a past-President of the ASEG, and served a recent three-year term as the Australian Geoscience Council representative on the Australian Academy of Sciences UNCOVER Executive Committee. Prof. Asten has published as author or co-author 186 scientific papers. He has been involved in development of passive seismic (microtremor) methods for 15 years, developing applications for earthquake hazard, regolith characterization, and engineering tasks. He is a member of two international consortia furthering the use of microtremor methods.

### **Ashley Grant**

#### THE APPLICATION OF VSP IN THE PILBARA

Ashley Grant is a Senior Geophysicist with BHP Billiton Minerals Australia with over 15 years of experience across a wide range of exploration objectives in the petroleum, minerals and near surface exploration space. He has had a wide a range of exposure and gained in experience in the planning, processing and interpretation of a variety of geophysical techniques, include of late, the application of high resolution seismic for shallow iron ore targets. He has also a lot of experience in integration of airborne, ground and downhole geophysics data to build a single geological model.

### **Regis Neroni**

Application of the passive seismic Horizontal over Vertical Spectral Ratio (HVSR) technique for embankment integrity monitoring.

Regis graduated in 2006 with a French Master's degree in Geosciences, Environment and Risks from Strasbourg University. After spending a few years undertaking ground electrical surveys in outback Australia, he consulted to numerous mineral exploration companies with active projects mainly in Australia, SE Asia and Africa, alongside some of the most talented consulting geophysicists in Australia. He then worked as a company geophysicist for Barrick and Rio Tinto where he took part in multi-commodity exploration programs throughout Australasia. He is currently Fortescue Metals Group's Lead Geophysicist and steers the company's geophysical endeavours across their Pilbara-based operations and exploration projects in Australia and overseas.

### **Koya Suto**

#### AN INTEGRATED ANALYSIS OF GEOPHYSICAL DATA FOR LANDSLIDE RISK ASSESSMENT

Koya Suto. Born in Japan. B.E and M.E graduate in Exploration Geophysics from Mining College, Akita University. Studied further in the University of Adelaide.

Koya worked for the petroleum industry as a seismic geophysicist for 25 years. He translated "The Microtremor Survey Method" by Prof Okada, published by SEG. In 2003, Koya established Terra Australis Geophysica to service the engineering industry using the surface wave seismic method. He is an Honorary Membership of ASEG and President 2013-2014. He was awarded a Service Certificate from ASEG, Recognition of Merit from SEG Japan and Harold Mooney Award from SEG.