

## Tuesday Session 7

### 7A: PNG and NZ

#### **Andrew Gorman**

#### CHARACTERISATIONS OF FOCUSED GAS HYDRATE ACCUMULATIONS FROM THE PEGASUS BASIN, NEW ZEALAND, USING HIGH-RESOLUTION AND CONVENTIONAL SEISMIC DATA

Andrew Gorman has lectured in geophysics at the Geology Department of the University of Otago in Dunedin, New Zealand since 2003. His research focuses on the application of seismic methods to a range of geological imaging problems - much of that research takes place on Otago's research vessel, Polaris II. Andrew's geophysical career started in the Canadian petroleum industry with Chevron in the 1980s. Then, following a PhD at the University of British Columbia, he moved on to the University of Wyoming where he developed an interest in marine seismology and gas hydrates in particular.

#### **Jasper Hoffmann**

#### INVESTIGATION OF POSSIBLE SHALLOW GAS ACCUMULATIONS ASSOCIATED WITH POCKMARKS ON THE OTAGO SLOPE SOUTHEAST OF NEW ZEALAND

Jasper Hoffmann finished his Bsc. in Geosciences in Kiel, Germany in 2014. He achieved his Msc. degree in Geophysics in 2016 and specialised in marine geophysics during his 4 years as a student assistant at Geomar - Helmholtz Centre for Ocean Research. During these four years he participated in several research cruises working on multibeam and 2D/3D seismic data. In 2017 he started his PhD as part of the Petroleum Source rocks and Fluids (PSF) project, being granted a University of Otago's scholarship.

#### **Dariusz Jablonski**

#### New Regional Data and Advances in Understanding of the Stratigraphy, Tectonics, Structure and Prospectivity of the Gulf of Papua (Papua New Guinea)

Dariusz Jablonski received a BSc in Geology from the Western Australian Institute of Technology (WAIT) in 1985. He joined Woodside Offshore Petroleum where he worked as a basin analyst on acreage assessment, risk analysis, play map generation and building geological databases that covered the Westralian Superbasin, Perth Basin, South Australia, Irian Jaya and Papua New Guinea. Between 2001 and 2005 he was involved as a contractor in prospect generation and evaluation of exploration acreage in Australia, Europe, North (US, Canada, Mexico) and South America and Africa. Between 2006 - 2016 he was the Exploration Manager of Finder Exploration responsible for both conventional and unconventional exploration acreage in Australia, New Zealand, United Kingdom, Papua New Guinea, Jamaica and Canada. During his time at Finder he specialised in regional basin play analysis working from mega-scale plate tectonics to prospect specific identification. As exploration manager of Finder Exploration his latest successful wells were the oil discovery at Phoenix South-1, gas discovery at Roc-1 and the successful unconventional well test and at Theia-1. Dariusz is currently working as a Discover Geoscience Pty Ltd. as a consultant for Searcher Seismic Pty Ltd.

#### **Titus Murray**

#### COMPARING SHALE GOUGE RATIO AND JUXTAPOSITION ANALYSIS USING STOCHASTIC TRAP ANALYSIS: EXAMPLES FROM GIPPSLAND, TARANAKI, OTWAY AND SOUTHERN NORTH SEA BASINS

Titus is a research structural geologist with extensive experience in regional restoration and characterization of faulted/fractured reservoirs in over 30 countries. He provides technology for oil/gas and ground water industries. Developing algorithms to describe structures and fluidflow. In many

cases these algorithms involve looking at outcrops to distill the key geometry and rheological characteristics. Following the development of a probabilistic hydrocarbon exploration software suit, he has started a Research and Development program to develop technology to characterize groundwater flow across and through faults. Much of this work is focused on aquifers impacted by Coal Mining and Coal Seam Gas developments.

#### 7B: International

##### **Asbjorn Norlund Christensen**

Airborne Gravity Gradiometer Survey over the Pelarang Anticline Onshore Kutai Basin Indonesia

Asbjorn Norlund Christensen is owner of Nordic Geoscience Pty. Ltd., consulting world-wide on ground and airborne geophysics for resource exploration. He has worked on minerals and petroleum exploration projects in Australia, Asia, Africa and the Americas, and he has managed research teams and technology companies. His areas of interest are: geophysical technology development and deployment, potential fields, and the integrated interpretation of geophysical data for minerals and petroleum exploration. He has an MSc in Geophysics from University of Aarhus, Denmark and a PhD in Geophysics from Colorado School of Mines, USA. Asbjorn is based in Melbourne, Australia."

##### **Yousif Mohammed Makeen Ahmed**

Hydrocarbon source potential of Tertiary carbonaceous mudstones, shales and sandstones of eastern Chenor, onshore Penyu Basins, Pahang, Malaysia

##### **Zhao Ning**

SEDIMENTARY CHARACTERISTICS AND LITHOLOGICAL TRAP IDENTIFICATION OF DISTANT BRAIDED RIVER DELTA DEPOSITS: A CASE ON UPPER CRETACEOUS YOGOU FORMATION OF TERMIT BASIN, NIGER ZHAO

Ning, male, born in 1980, received a doctor degree from China University of Geosciences (Beijing), and engaged in high-resolution sequence stratigraphy and sedimentology study, and worked as a geologist of Africa department in RIPED, PetroChina from 2010 to now.

##### **Gregory Smith**

THE EFFECT OF DEEP BURIAL AND FOLDING ON SANDSTONE RESERVOIRS IN GIANT GAS FIELDS, SOUTH AMERICA

Greg Smith is Adjunct Professor of Petroleum Geology at Curtin University. He has 40 years of experience in petroleum geology, geophysics and geochemistry involving technical, research and managerial positions at Exxon, ARCO, BHP, Woodside/Shell and the Herman Research Laboratory. Initial research into 3D modelling of basins, sediments and organic geochemistry was followed by successful coal, oil shale and petroleum exploration, field development and production in Australia and overseas.

Greg undertakes research, interpretation and geostatistical analysis of seismic, well log, core and production datasets to build 3D scenario models. Special interests include low T-P burial/thermal history modelling and organic matter petrology.

#### 7C: Non Conventional

##### **Matthieu Cauchefert**

## IMPACT OF ARTIFICIALLY MATURED ORGANIC MATTER ON THE DIELECTRIC AND ELASTIC PROPERTIES OF COMPACTED SHALES

I graduated from a master in Earth sciences at Universite Pierre et Marie Curie (UPMC), Paris, France. I am now doing a Ph.D. at Curtin university, department of Exploration Geophysics, Perth, Australia.

### **Jarrold Dunne**

#### GEOMECHANICAL PRESTACK DEPTH MIGRATION OF THE KRAKEN 3D (BROWSE BASIN, AUSTRALIA)

Jarrold has over 20 years of experience in seismic amplitude interpretation, reservoir characterisation and seismic processing, with experience in a large number of basins throughout the world, having worked for Shell, Woodside and a number of smaller oil companies. Jarrold has remained actively involved in R&D through involvement in software development and post-graduate student supervision. He is an active member of ASEG and PESA holding committee roles in both societies.

### **Mattilda Sheridan**

#### THE STRATIGRAPHIC ARCHITECTURE, DISTRIBUTION AND HYDROCARBON POTENTIAL OF THE ORGANIC RICH KYALLA AND VELKERRI SHALES OF THE UPPER ROPER GROUP (MCARTHUR BASIN)

Mattilda is a 3rd year geologist at Santos. She has worked as a wellsite geologist in the Cooper basin for 1.5 years and as a sedimentologist for over a year. Mattilda is currently working in a New Ventures role at Santos, focussing on the unconventional hydrocarbon potential within the McArthur Basin.

### **Maxwell Williamson**

#### Fracking Australia

Max Williamson is a Past President of PESA and has worked on the NSW Branch activities for over 20 years. He has a Distinguished Service Award from PESA. Max is now a consultant principally applying his skills over taxation issues for the resources industry, having been a resources tax adviser for 50 years through various employers and accounting partnerships. He is a Fellow Chartered Accountant, CPA, FINSIA and Governance Institute.

#### 7D: Geochemistry

### **David Cohen**

Can geophysics and geochemistry combine to detect mineralisation under transported cover?

David Cohen has undertaken research in geochemical exploration methods in many parts of the world, including use of selective extractions and biogeochemistry. He is also involved in large scale regional geochemical mapping programs, including the NE region of NSW, Cyprus and New Zealand. He is a past president of the (Int'l) Association of Applied Geochemists, a former Head of the UNSW School of Biological, Earth and Environmental Sciences. He is a Fellow of the Royal Society of NSW, the AIG and the AAG. He has been the AusIMM visiting lecturer to New Zealand.

### **Phil Hawke**

#### A NEW BLASTHOLE XRF PROBE FOR MINING GRADE CONTROL

Phil Hawke is a 25 year minerals geophysicist, with background as a company geophysicist, independent geophysical consultant and academic. In his current role as Chief Geophysicist with the

Wireline Services Group he is interested in developing ways of extracting the maximum value from drillholes through the application of wireline geophysical logging.

### **Melvyn Lintern**

#### LOW LEVEL FIELD ANALYSIS OF GOLD

Mel Lintern has been working as a scientist in CSIRO for 37 years. Highlights of his career including discovering the association between gold and calcrete which has led to multi billion dollar gold discoveries; calcrete sampling for gold continues to be important for explorers. He Mel found small gold nuggets in the leaves of tall deep-rooted trees growing above a buried gold deposit; he his an advocate of biogeochemical techniques in the search for mineral deposits. Recently, he invented a field method for gold that is set to transform the gold industry and that is his contribution today.

### **Walid Salama**

#### CASSITERITE AND RUTILE AS INDICATOR MINERALS FOR EXPLORING THE VMS SYSTEM, GOLDEN GROVE, WESTERN AUSTRALIA

Dr. Walid Salama, a research scientist working for CSIRO since 2012 and he involved in several research projects about geochemical exploration through cover in WA, Mount Isa and Africa. He got his PhD in Economic Geology through the German Academic Exchange Service program between Cairo University, Egypt and Friedrich-Schiller University-Jena, Germany.

#### 7E: Brine Deposits

### **Tom Neville**

#### Evaluating Brine Deposits Using Borehole Magnetic Resonance

Tom is currently Formation Evaluation Advisor to NMR Services Australia. After completing a BSc (Hons) in Geology at the University of Queensland in 1989, he spent six years working as a geologist for a number of Australian oil and gas companies before joining Schlumberger, where he spent the next twenty years in various technical and managerial roles in research, engineering, and operations, primarily in North America and Asia, focusing on all aspects of formation evaluation. After leaving Schlumberger in 2017, Tom joined NM RSA where he works on interpretation algorithm and answer product development, as well as supporting ongoing operations.

### **Steve Promnitz**

#### LITHIUM: FUNDAMENTAL SUPPLY/DEMAND, THE LITHIUM BRINES OF SOUTH AMERICA AND EXPLORATION/DEVELOPMENT METHODOLOGIES

Steve Promnitz. MD of Lake Resources (ASX:LKE) an emerging lithium explorer /developer in South America and a principal of an advisory firm in the energy and mining sector. Previously 30 years with mining companies and investment banks/advisory firms including CEO of junior/ mid-tier companies, senior manager with majors (Rio/CRA, WMC) and director with global banks including Citigroup, with a focus on South America and Asia/Pacific.

#### 7F: New Airborne EM Techniques

### **Malcolm Cattach**

#### Sub-Audio Magnetics Ground-based and UAV-borne FLEM Trials at Forrestania EM Test Range

Malcolm Cattach is the CEO and Managing Director of Gap Geophysics Australia and Gap GeoPak. He is also a founder and Executive Director of Gap Explosive Ordnance Detection. He is an Active Member of the Australian Society of Exploration Geophysics and Associate Member of the SEG. Malcolm's career has been committed to the development and commercialisation of unique Australian geophysical survey technologies. He is the Primary developer of the Sub-Audio Magnetics technique which was originally the subject of his PhD.

### **Daniel Sattel**

#### PASSIVE EM PROCESSING OF MEGATEM AND HELITEM DATA

Daniel Sattel holds a Ph.D. in geophysics from Macquarie University, where he specialized in electromagnetics. He worked for World Geoscience/Fugro Airborne Surveys in Perth from 1996-2004, where he was involved in the development of EM software and the interpretation of airborne EM data. In 2004 he moved to Golden, Colorado, from where he works as an independent consulting geophysicist.

### **Adam Smiarowski**

#### CGG'S NEW HELITEM C SYSTEMS

Adam completed his MSc at RMIT University, modelling radio-frequency MT and EM for salinity mapping in agricultural applications. Adam completed a PhD at the University of Toronto studying airborne EM and has since been performing AEM research as part of CGG.

#### 7G: Regional Mapping Methods

### **Teagan Blaikie**

#### CHARACTERISING THE SUBSURFACE ARCHITECTURE AND STRATIGRAPHY OF THE MCARTHUR GROUP THROUGH INTEGRATED AIRBORNE EM AND GRAVITY INVERSION

Dr Teagan Blaikie completed her BSc and PhD at Monash University, Melbourne, Australia. She specialised in the geophysical interpretation and modelling of potential field data for understanding the subsurface architecture of volcanoes. Currently, Teagan is working as a postdoc for CSIRO Mineral Resources, but is embedded at the Northern Territory Geological Survey. Her current work focusses on geologically constrained interpretation and modelling of geophysical data to understand the structural architecture of the greater McArthur Basin.

### **Mark Duffett**

#### Terrain correction correction Tasmania – results and implications

After studies at the Universities of Adelaide and Tasmania, Mark Duffett has worked at Charles Darwin University, the Northern Territory Geological Survey and the University of Tasmania on projects ranging from saltwater crocodile nesting habitat to regional potential field acquisition and interpretation in the African Copperbelt. Since 2009 he has been Senior Geophysicist at Mineral Resources Tasmania.

### **Tasman Gillfeather-clark**

#### SELF ORGANISING MAPS - A CASE STUDY OF BROKEN HILL

Tasman is new to exploration. He studied geology and geophysics in undergrad before surveying with Fender and IMT. He is currently currently a Masters Research Candidate at Macquarie University. He

study's the relationship between grain size and conductivity using Magnetotellurics and TEM, over the Woodroffe thrust in Central Australia. Along with others from Macquarie completed this work on Self Organising Maps for submission to the Frank Arnott Award.

### **Stephen Kuhn**

THE UTILITY OF MACHINE LEARNING IN IDENTIFICATION OF KEY GEOPHYSICAL AND GEOCHEMICAL DATASETS: A CASE STUDY IN LITHOLOGICAL MAPPING IN THE CENTRAL AFRICAN COPPER BELT

Steve graduated with honours in geophysics from the University of Tasmania. In 2007 Steve commenced work as a Geophysicist with Gold Fields, first at the St Ives Gold Mine in Western Australia then in international exploration on a range of projects including boots on ground work in West Africa, South and North America; Central and South East Asia and widely throughout Australia. In 2014 Steve commenced a PhD on the topic of Machine Learning for geological mapping and is currently a PhD candidate with the TMVC hub, expecting completion in early 2018.

### 7H: Innovation

#### **Benjamin Birt**

Groundwater Assessment in a Coal Measures Sequence Using Borehole Magnetic Resonance

Benjamin previously worked as a wireline logging engineer in the coal seam gas sector, before moving to the role of petrophysicist in the oil and gas industry. He is now with Kinetic Logging Services processing advanced wireline logging tools and using petrophysical techniques in the mineral industry.

#### **Jakob Juul Larsen**

Low noise, multichannel surface NMR receiver system with wireless connections to receiver coils

Jakob Juul Larsen (born 1973) obtained a PhD degree in physics from Aarhus University in 2000. Since then he has held research positions at a number of private and public companies. He is currently Associate Professor at the Department of Engineering where he specializes in signal processing and instrument development for geophysical applications.

#### **Andrew Pethick**

ECloud – Magnetotelluric Webapp

Andrew is currently a Lecturer at Curtin University and has completed a PhD in marine controlled source electromagnetic computing and visualization.

#### **James Reid**

GEOLOGICALLY-CONSTRAINED INTERPRETATION OF AIRBORNE ELECTROMAGNETIC DATA FOR DEFINITION OF PROSPECTIVE GROUNDWATER RESOURCES, ALBANY HINTERLAND, WESTERN AUSTRALIA

James Reid holds B. Sc. (Hons.) and M. Sc. Degrees in Geophysics from the University of Sydney and a Ph. D. in Geophysics from Macquarie University. He is currently a Principal Consultant with Mira Geoscience in Perth, Western Australia, and has previously held positions with the University of Tasmania and Groundprobe Geophysics. His main technical focus is on applications of airborne electromagnetic methods to mineral and groundwater exploration.