Wednesday Session 10

10A: New Technology - Seismic

Shaun Strong

MODELLING COMPLEX NEAR-SURFACE FEATURES TO IMPROVE SHALLOW SEISMIC EXPLORATION

After a short period doing gravity acquisition, he joined Velseis where he has worked in production data processing, field QC, and R&D. In 2016 he received a Phd from the University of Queensland.

Currently, his focuses range from seismic acquisition methods, to data processing, and algorithm development.

Joe Zhou

LEAST SQUARE Q-KIRCHHOFF MIGRATION: IMPLEMENTATION AND APPLICATION

Joe Zhou has 16 years industry experience with most of his technical work focused on Depth imaging, Broadband processing and OBS processing technologies. He started his career with Veritas DGC Houston office in 2001 after earning a MS in Physics from Rice university. He then relocated to Singapore office in 2007 and hold the responsibility as the processing manager for CGG Singapore Scope from 2013. Joe is now the regional technical manager and the imaging manager for CGG Perth.

10B: New Technology - CO2

Trevor Irons

Integrating geophysical monitoring data into multiphase fluid flow reservoir simulation

Trevor is a research professor in the Department of Civil & Environmental Engineering at the University of Utah. His research interests include multiphysics modelling and inversion, high performance computing, and numerical methods. Applications in which he is engaged in include near surface hydrology, permafrost studies, and carbon capture and sequestration.

Tegan Smith

CA-IDTIMS and Biostratigraphy: Their impact on exploration

Tegan Smith is a stratigrapher in the Resources Division at Geoscience Australia. She holds a BSc from UTas (double major in Earth Science and Zoology) and ANU (honours). In 2007 she undertook a PhD at the ANU before joining Geoscience Australia in 2011. She is currently in GA's Resources Advice and Promotion Branch, working on the Acreage Release product and managing the Stratigraphy and Timescales Project. Tegan is a member of PESA, the Association for Women Geologists (AWG), and Australian Science Communicators (ASC).

Rafael Souza

ANALYSIS OF TIME-LAPSE SEISMIC AND PRODUCTION DATA FOR SYSTEMATIC RESERVOIR MODEL CLASSIFICATION AND ASSESSMENT

Rafael holds a Bachelor degree in Physics from the University of Campinas and a Master in Science and Petroleum Engineering from the same university. Rafael worked for the digital rock physics company Ingrain acquiring CT images of whole cores and plugs, image processing and segmentation. Rafael recently finished his PhD at The University of Western Australia with the thesis entitled "Quantitative Integration of 4D Seismic and Production Data for Saturation and Estimation and Fluid-

flow Model Assessment. During 3 years of his PhD studies, Rafael also worked as a Post-graduate Geophysicist at CGG GeoSoftware in Perth.

10D: Strategy & Geological Models

Desmond Fitzgerald

Dykes, Synclines and Geophysical Inversion - Is Geology Important?

Desmond holds a PhD in Mining Engineering from the University of Melbourne and is the Managing Director as well as owner and founder of Intrepid Geophysics. Some of his major projects include: the development of the Intrepid geological processing system (software) with Geoscience Australia; a complete compilation of Australian regional geophysical maps (both onshore and offshore) for magnetics, gravity, and bathymetry in partnership with Geoscience Australia; and liaising with the French Geological Survey to further develop and promote new technology for 3D Geological mapping software integrated with potential field geophysics.

Mark Jessell

Multidimensional Topology Transforms

Mark Jessell is a Professor and Western Australian Fellow at the Centre for Exploration Targeting at The University of Western Australia having arrived from Toulouse, France where he was a Director de Recherche with the Institute de Recherche pour le Development, and where he started the West African Exploration Initiative (WAXI).

His scientific interests revolve around microstructure studies (the Elle platform), integration of geology and geophysics in 2 and 3D (the WA_In3D project), and the tectonics and metallogenesis of the West African Craton (WAXI). "

Evren Pakyuz-charrier

COMMON UNCERTAINTY RESEARCH EXPLORER, UNCERTAINTY ESTIMATION IN GEOLOGICAL 3D MODELING

Evren Pakyuz-Charrier is the main developer and designer for the Common Uncertainty Research Explorer (CURE) at the Centre for Exploration targeting, UWA. As a PhD student, his research project focusses on uncertainty propagation in geological 3D modeling and more specifically on the underestimated inherent advantages of the Monte Carlo approach to solve these large problems.

10E: Geophysical Case History

Barry Bourne

GEOPHYSICS FOR SEDIMENT HOSTED COPPER AND GOLD MINERALISATION, THE ROLE OF 3D IP

Lynelle Beinke has experience in Australia and Africa exploring for base metals, gold and uranium at a range of scales from greenfield to minesite in hard and soft rock terrains. Lynelle has completed both a Master of Economic Geology from The University of Tasmania and a BSc in Geophysics. Her expertise is modelling and imaging of geophysical data and integration with other datasets to increase geological understanding and generate exploration models and targets.

Jean Legault

GEOPHYSICS OF THE PATTERSON LAKE SOUTH URANIUM DEPOSIT, SASKATCHEWAN, CANADA

Jean Legault is a 30 year professional mineral exploration geophysicist who has worked in the airborne and ground geophysics contracting and consulting sectors since 1985. He obtained a BASc in geological engineering (geophysics) in 1982 from Queen's University and his MScA in mineral engineering (geophysics) at Ecole Polytechnique in 2005. After 5 years with Sagax Geophysics (Montreal CAN) and 18 years with Quantech Geoscience (Toronto, CAN), he joined Geotech (Aurora, CAN)) in 2008 where is chief geophysicist. He provides technical support to sales & marketing and his primary area of interest is airborne EM methods applied to geologic targeting.

Ken Witherly

AN ASSESSMENT OF GEOTEM, ZTEM, AIRMT AND FALCON SURVEYS OVER THE NEBO BABEL DEPOSIT, WESTERN AUSTRALIA.

Ken Witherly graduated from UBC (Vancouver Canada) with a BSc in geophysics and physics in 1971. He then spent 27 years with the Utah/BHP Minerals company during which time as Chief Geophysicist, he championed BHP's programs in airborne geophysics which resulted in the development of the MegaTEM and Falcon technologies. In 1999, Ken helped form a technology-focused service company that specializes in the application of innovative processing and data analysis to help drive the discovery of new mineral deposits.

10F: Magnetics

Jim Austin

USING AMS AND PALAEOMAGNETIC DATA TO ASSESS TECTONIC ROTATION: A CASE STUDY FROM SAVANNAH NICKEL MINE, WA

Jim Austin is interested in the application of structural geology and geophysics to base metal exploration. He's worked with the pmd*CRC, Perilya, Encom Consulting, Pangaea Resources and CSIRO on projects across the Mount Isa Inlier, Broken Hill, Thomson, New Guinea, Musgrave, Arunta, Capricorn, Kimberley and Arnhem Land. He currently leads the Multiphysics team at CSIRO and has been focussed on IOCG, Sedex /BHT and Magmatic Nickel Sulphide systems over the last 6 years. He has published papers on applied geophysics, structural geology and mineral exploration and is currently a member of the ASEG and Society of Economic Geologists.

Roger Clifton

EXTENDING MAGNETIC DEPTHS PAST 1000 m

"ROGER CLIFTON started off 50 years ago at BMR in 1968, did field work during the nickel boom, backpacked through Asia and Europe, taught physics at Curtin University, and has spent the last twenty-odd years at NT Geological Survey, Recently he participated in a World Record Skydive of Skydivers over Sixty.

Suzanne McEnroe

MAGNETIC FIELD SURVEYS OF THIN SECTIONS

Suzanne McEnroe is a professor at Norwegian University of Science and Technology. Her current main topic is the relationship between magnetic mineralogy, and magnetic anomalies.

10G: Groundwater

Denys Grombacher

Gaining insight into the T2*-T2 relationship through complex inversion of surface NMR free-induction decay data

Denys did his undergrad at the University of Alberta, and his PhD at Stanford University. He is currently a postdoctoral researcher in the Hydrogeophysics group at Aarhus University. Denys also like fishing and hockey.

Ralf Schaa

CONSTRAINED MAGNETOTELLURIC INVERSIONS FOR CHARACTERISATION OF COMPLEX AQUIFER SYSTEMS

Ralf is a computational geophysicist currently working on cooperative inversion of seismic and magnetotelluric data. Before coming to Australia, Ralf completed his masters at the University of Cologne in Germany. He then completed a post-doc on inversion of TEM data at the University of Tasmania. He previously worked as a computational geophysicist at the University of Queensland where he implemented 2D and 3D finite element modelling and inversion code. Ralf's main research interests are in applied and theoretical geophysics with a focus on geologically constrained inversion approaches for resource exploration as well as for hydrogeophysical and environmental applications.

10H: Groundwater

Michael (mike) Friedel

IMPROVED GROUNDWATER SYSTEM CHARACTERIZATION AND MAPPING USING HYDROGEOPHYSICAL DATA AND MACHINE-LEARNING WORKFLOWS

Dr. Michael J. Friedel is Senior Hydrogeophysicist at GNS Science. Prior to GNS, he was a research hydrologist and geophysicist with the US Geological Survey. Mike also is an associate professor in Mathematical & Statistical Sciences at the University of Colorado-Denver; and has been a visiting professor at Colorado College and universities in Brazil, China, El Salvador, and Finland. His research interests are in applying computationally-intelligent approaches to observations for characterizing, predicting, and interpreting the spatiotemporal influence of natural and human pressures on groundwater, geothermal, and crustal processes. Intelligent computing involves workflows that combine data science, numerical, and statistical methods.

Elliot Grunewald

RECENT ADVANCEMENTS AND APPLICATIONS OF LOGGING AND SURFACE MAGNETIC RESONANCE FOR GROUNDWATER INVESTIGATIONS

Elliot Grunewald is Chief Geophysicist at Vista Clara Inc.and is a specialist in NMR Geophysics. Elliot received a Ph.D. in Geophysics from Stanford University and a Bachelors from Brown University.

Peter Milligan

Novel methods for near-surface hydrogeological feature enhancement from high-resolution airborne magnetic data Peter Milligan works as a geophysical consultant after a 30 year career at Geoscience.Australia, where as a senior geophysicist he combined developing new products associated with the Magnetic Anomaly Map of Australia with helping to develop a Magnetotelluric capability. Peter graduated from The Flinders University of South Australia with B.Sc. (Hons.) in geophysics and geology, a Ph.D. in geomagnetism and a Dip.Ed. After some high school teaching, he

joined Geoscience Australia (then the Bureau of Mineral Resources, Geology and Geophysics) in 1985, initially with the Geomagnetism and Airborne Geophysics groups. In 2016 Peter was awarded an ASEG Service Certificate.