

Subsurface 2020 Conference Program

Day One: Wednesday 12th February 2020

08:15 - 09:15	Registration Lobby Level 2 Arrival tea and coffee - Hallway outside Cygnet room Poster setup - Victory Lounge	
	Black Swan Room Chair: Tim Munday	
09:15 - 09:25	Welcome to Country - Shaun Nannup, <i>W.I.S.D.O.M In Your Life</i>	
09:25 - 09:30	Welcome to Sub20 - Tim Munday - <i>DEI FSP Director</i>	
09:30 - 09:45	Official opening - Cathy Foley - <i>CSIRO Chief Scientist</i>	
09:45 - 10:15	Keynote - Building models of the earth: merging methods, rock physics and geostatistics <i>Lucy MacGregor - Edinburgh Geoscience Advisors¹, Cognitive Geology²</i>	
10:15- 11:00	Morning tea Balcony between Black Swan and Cygnet rooms	
	Black Swan room Imaging I Chair: Erdinc Saygin	Cygnet room From models and images to concepts I Chair: Clive Foss
11:00 - 11:15	<i>The past, present, and future of FWI at Woodside</i> <i>Henry Debens - Woodside</i>	<i>Conceptualising trapping frameworks and prospectivity trends using stratigraphic forward modelling</i> <i>Laurent Langhi – Energy, CSIRO</i>
11:15 - 11:30	<i>High-frequency full waveform inversion for subsurface interpretation</i> <i>Troy Thompson - DownUnder GeoSolutions</i>	<i>Developing models of Western Australia's lithospheric architecture: challenges and opportunities</i> <i>Klaus Gessner - GSWA</i>
11:30 - 11:45	<i>Joint facies/elastic full waveform inversion of seismic data</i> <i>James Gunning – Energy, CSIRO</i>	<i>Numerical simulation of critical mineral system geological processes</i> <i>Peter Schaub - Mineral Resources, CSIRO</i>
11:45 -12:00	<i>Monte Carlo simulations for model uncertainty and model automation</i> <i>Edward Lewis - PGS</i>	<i>Incorporating fault kinematics into implicit modelling</i> <i>Lachlan Grose - Monash University</i>
12:00 - 12:15	<i>Inversion of skeletonized seismic data by hybrid machine learning</i> <i>Yuqing Chen - DEI-FSP, CSIRO</i>	<i>We still need theoretical modelling</i> <i>Thomas Poulet - Mineral Resources, CSIRO</i>
12:15 - 12:30	Session summary	Session summary
12:30 - 13:30	Posters Followed by lunch Victory Lounge	
	Black Swan room Imaging II Chair: James Gunning	Cygnet room From models and images to concepts II Chair: Luk Peeters
13:30 - 13:45	<i>Magnetotellurics: past, present and future</i> <i>Graham Heinson - University of Adelaide</i>	<i>Map deconstruction helps model construction</i> <i>Mark Jessell - University of Western Australia</i>
13:45 - 14:00	<i>Guided inversion with Bayesian spatial ensemble fusion</i> <i>Gerhard Visser - DEI-FSP, CSIRO</i>	<i>Reconciling cover thickness estimates in Cloncurry Region in Queensland using Bayesian estimate fusion</i> <i>Jelena Markov - DEI-FSP, CSIRO</i>
14:00 - 14:15	<i>Gravity and magnetics for mineral exploration in the 2020s</i> <i>Clive Foss - Mineral Resources, CSIRO</i>	<i>Conceptualising geological Systems in 3D: Loop, the next Generation 3D Geological modelling open source package</i> <i>Laurent Ailleres - Monash University</i>
14:15 - 14:30	<i>Selecting optimal frequency range for estimating depth to magnetic sources</i> <i>Stefan Westerlund - DEI-FSP, CSIRO</i>	<i>Kinematic evolution model of intraplate rift margins: Dampier Sub-Basin</i> <i>Patrick Makuluni - University of New South Wales</i>

14:30 - 14:45	<i>Imaging across scales correlation wavefield</i> <i>Erdinc Saygin – DEI FSP, CSIRO</i>	<i>Chemostratigraphy in the Beetaloo Basin</i> <i>Stuart Munday - Chemostrat Australia</i>
14:45 - 15:00	Session summary	Session summary
15:00 - 16:00	Posters Followed by afternoon tea Victory Lounge	
16:00 - 17:00	Round table discussions Black Swan room	
17:00- 18:30	Networking reception Victory Lounge & Platinum Terrace	
18:30	Conference dinner Black Swan room	

Day Two: Thursday 13th February 2020

08:30 - 09:15	Arrival tea and coffee - Hallway outside Cygnet room Upload talks - Hallway outside Cygnet room	
	Black Swan room Chair: Tim Munday	
09:15 - 09:45	Keynote - Learning through inference: from inversion to prediction Malcolm Sambridge - Australian National University	
09:45 - 10:30	Morning tea Balcony between Black Swan and Cygnet rooms	
	Black Swan room Prediction I Chair: Marina Pervukhina	Cygnet room Current and new research initiatives Chair: Tim Munday
10:30 - 10:45	<i>Rock typing for seismic inversion using rock physics models</i> <i>Roman Beloborodov - DEI-FSP, CSIRO</i>	<i>AusPass, making seismic data stewardship FAIR</i> <i>Michelle Salmon - Australian National University</i>
10:45 - 11:00	<i>Importance of rock physics for CO₂ geosequestration</i> <i>Boris Gurevich - Curtin University</i>	<i>Metal Earth: a multidisciplinary academic project using deep geophysical methods to understand localization of mineral deposits in Archean rocks</i> <i>Richard Smith - Laurentian University</i>
11:00 - 11:15	<i>Can surface geochemistry be used to identify and predict the crustal blocks of the Australian continent?</i> <i>Hassan Talebi - DEI-FSP, CSIRO</i>	<i>Deep learning for model emulation - an ML/AI FSP perspective</i> <i>Dan Pagendam - Data61, CSIRO</i>
11:15 - 11:30	<i>Applying machine learning to mineral exploration and geological mapping</i> <i>David Cole - Data61, CSIRO</i>	<i>New technologies for exploration and ore discovery</i> <i>Yulia Uvarova - Mineral Resources, CSIRO</i>
11:30 - 11:45	Session summary	Session summary
11:45 - 13:00	Posters Followed by lunch Victory Lounge	
	Black Swan room Prediction II Chair: Thomas Poulet	Cygnet room Social licence to operate Chair: Claudio Delle Piane
13:00 - 13:15	<i>Tungsten transport in ore-forming fluids: insights from ab initio molecular dynamics simulations</i> <i>Yuan Mei - DEI-FSP, CSIRO</i>	<i>Operationalising the Diamond Model of social license to operate</i> <i>Hanabeth Luke - Southern Cross University</i>

13:15 - 13:30	<i>Geochemical inversion of regional alteration assemblages for fluid compositions</i> Evgeniy Bastrakov - <i>Geoscience Australia</i>	<i>The role of earth science in informing policy and the regulatory process for mine approvals</i> Peter Baker - <i>Dept. Environment and Energy</i>
13:30 - 13:45	<i>What to do when probabilities are hard to believe: impact assessment using causal networks</i> Luk Peeters - <i>DEI-FSP, CSIRO</i>	<i>Offshore data acquisition. Enhancing the social licence to operate: challenges and opportunities</i> Simon Molyneux - <i>Molyneux Advisors Pty Ltd</i>
13:45 - 14:00	Session summary	Session summary
14:00 - 15:00	Posters Followed by afternoon tea Victory Lounge	
	Black Swan room Chair: Tim Munday - <i>DEI-FSP Director</i>	
15:00 – 15:30	Keynote - There and back again...or The Mouses' Dilemma Ken Witherly - <i>Condor Consulting</i>	
15:30 – 16:30	Panel discussion - Imaging - Conceptualisation - Prediction Lead: Tim Munday - <i>DEI-FSP Director</i>	
16:30 - 16:40	Closing remarks & Prize award Tim Munday - <i>DEI-FSP Director</i>	
16:40 - 17:40	Closing reception & poster removal Victory Lounge	

Poster Presentations:

Biondo Ribeiro, Vanessa & Markov, J [DEI-FSP, CSIRO]

Combining Edge Enhancement Images for More Reliable Detection of Magnetic Features

Castellazzi, Pascal [DEI-FSP, CSIRO]

Space borne radar imagery in groundwater science

Chen, Yunfeng & Saygin, E. [DEI-FSP, CSIRO]

Empirical Green's function retrieval using ambient noise source-receiver interferometry

Crombez, Vincent*, Faiz, M & Delle Piane, C [*DEI-FSP, CSIRO]

Controls on the stratigraphic evolution of the Velkerri and Kyalla formations of the Beetaloo Basin (N.T., Australia)

Crombez, Vincent*, Hauser, J., Peeters, L. & Chopping, R. [*DEI-FSP, CSIRO]

Understanding sedimentary basin's gravity response variability using stratigraphic parameterisation

De Souza, Andre*, Vialle, S., & Bona, A. [*Curtin University]

Seismic signature of gold mineralization from laboratory rock physics and petrology characterization

Delle Piane, Claudio & Merkov, J. [DEI-FSP, CSIRO]

Exploring links between resistivity and thermal maturity in organic-rich shales

Guo, Peng, Visser, G. & Saygin, E. [DEI-FSP, CSIRO]

Bayesian trans-dimensional reflection full waveform inversion: synthetic and field data application

Kelka, Ulrich, Westerlund, S. & Peeters, L. [DEI-FSP, CSIRO]

GIS based fault and fracture network analysis

Martinez, Cericia*, Gunning, J. & Hauser, J. [*DEI-FSP, CSIRO]

Velocity model building and arrival classification using expectation-maximization

Mazher, Abeer*, Emelyanova, I., Pervukhina, M., Moughal, T., Dyt, C., Warner, D.S., Dunlop, E.C, Faiz, M., Dewhurst, D. & Warner, P.R.R. [*DEI-FSP, CSIRO]

Deep Learning for Coal Seam Gas Reservoirs Exploration

Pirot, Guillaume*, Joshi, R., Jessell, M. & Lindsay, M. [*University of Western Australia]

From geological data and historical scenarios to conceptual models

Tork Qashqai, Mehdi & Saygin, E. [DEI-FSP, CSIRO]

Crustal properties from joint inversion of scattered teleseismic body waveforms

Rongier, Guillaume & Peeters, L. [DEI-FSP, CSIRO]

Exploring how rivers and their deposits distort estimates of aquifer recharge using numerical simulations

Scheiter, Matthias, Valentine, A. & Sambridge, M. [Australian National University]

Surrogate Modelling in Geophysical Inverse Problems

Seillé, Höel & Visser, G. [DEI-FSP, CSIRO]

Magnetotelluric inversions using structural constrains derived from a probabilistic workflow

Siegel, Coralie*, Mei, Y. & Hu, S-Y. [*DEI-FSP, CSIRO]

Epigenetic conceptual geochemical modelling of the Century deposit, Mount Isa

Turunctur, Buse*, Valentine, A. & Sambridge, M. [*Australian National University]

Compressive sensing, compressive inversion? Investigating the potential of sparsity-promoting schemes for geophysical inverse problems.