

GEOPHYSICS IN GEOTHERMAL ENERGY – TODAY AND TOMORROW

12–14 OCTOBER 2021



PROGRAMME

JAKARTA TIME
(GMT + 7:00)

Commitee

- STEPHEN HALLINAN, CGG - CO-CHAIR
 AQUARDI RACHMAT SUMINAR, STAR ENERGY - CO-CHAIR
 IMAM RAHARJO, PERTAMINA GEOTHERMAL ENERGY - CO-CHAIR
 ALISON KIRKBY, GEOSCIENCE AUSTRALIA
 AMINE OURABAH, STRYDE FURTHER
 AWAL MANDONG, CGG
 CHRIS NELSON, STAR ENERGY
 DODDY ASTRA, SARULLA OPERATIONS LTD
 EUGENE SUNIO, PHILIPPINE GEOTHERMAL PRODUCTION COMPANY, INC.
 GREG USSHER, JACOBS ENGINEERING
 JONATHAN LEE MONASTERIAL, ENERGY DEVELOPMENT CORPORATION
 KHAIRUL ARIFIN MOHD NOH, UNIVERSITI TEKNOLOGI PETRONAS
 MARINO BAROEK, SUPREME ENERGY
 MOHD HARIRI ARIFIN, UNIVERSITY KEBANGSAAN MALAYSIA
 SARVAGYA PARASHAR, HALLIBURTON
 MS IYER, HALLIBURTON
 ROBERT HUNN, FORTESCUE
 STEVEN SEWELL, ORMAT
 TOSHIHIRO UCHIDA, GEOLOGICAL SURVEY OF JAPAN (GSJ)

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SPEED NETWORKING SPONSOR DAY 1



DAY 1 : CURRENT PRACTICES

13:00 - 13:10 **Welcome: Technical Committee Co-Chairs**
 13:10 - 13:20 **Leadership Keynote Address: SEG Board**
 13:20 - 13:50 **Opening Speaker: Ahmad Yuniarto, Pertamina Geothermal Energy**

STREAM 1		Session Chair: Marino Baroek (Supreme Energy) and MS Iyer (Halliburton)	
13:50 – 14:10	25 Years of imaging the geothermal “clay cap” Progress and remaining challenges Greg Ussher, Jacobs	14:50 – 15:10	Magnetotellurics (MT) in Geothermal Exploration: Overview of Current Practice and Perspective within Indonesian Context Hendra Grandis, Institut Teknologi Bandung (ITB)
14:10 – 14:30	A critical view on the MT technology for geothermal exploration: Success story, pitfalls and lesson learned for future applications Yunus Daud, Universitas Indonesia	15:10 – 15:30	Magnetotellurics and Geothermal Systems: the Importance of Scale Jared Peacock, United States Geological Survey
14:30 – 14:50	Shared experienced of geophysical exploration in Indonesia Geothermal prospects (+/- 35 years experience) and application of conceptual model William Cumming, Cumming Geoscience		
15:30 – 16:00	Moderated Discussion	16:00 – 16:30	SPEED NETWORKING BREAK

DAY 2 : CURRENT PRACTICES & LATEST TECHNOLOGY

13:00- 13:20 **Opening Speaker: CGG**

STREAM 1		Session Chair: Awal Mandong (CGG) and Eugene Sunio (Philippine Geothermal Production Company, Inc.)	
13:20 – 13:40	Magnetotelluric Data and Resistivity Interpretation of Wayang Windu Geothermal Field, Indonesia Rifqa Wicaksono, Star Energy Geothermal	13:20 – 13:40	Tectonic of Minahasa District: An Update from Local Tompaso Geothermal Field Data Muhammad Ikhwan, Pertamina Geothermal Energy
13:40 – 14:00	Gravity Data Reveals the Structural Play of Geothermal System: Case Study of Muara Laboh Geothermal Field, Indonesia Irvan Ramadhan, Supreme Energy	13:40 – 14:00	Four-dimensional Seismic Tomography to Detect Temporal Velocity Changes within Geothermal Reservoir in Sumatra, Indonesia: A Preliminary Study Aditya Abdurrahman Juanda, Pertamina Geothermal Energy
14:00 – 14:20	Euler Deconvolution Application in Tompaso Geothermal Field Fadhilaz Digdaya Haq, Pertamina Geothermal Energy	14:00 – 14:20	Adjusted Mesh in Inverse Modelling of Timelapse Microgravity in Geothermal Area Mochamad Tofan Sastranegara, Pertamina Geothermal Energy
14:20 – 14:50	Moderated Discussion Streams 1 & 2	14:50 – 15:20	SPEED NETWORKING BREAK
		15:20 – 15:40	Keynote Speaker: Priyandaru Effendi, Indonesia Geothermal Association

DAY 3 : EMERGING TECHNOLOGIES & GEOPHYSICS FOR THE WIDER GEOTHERMAL CONTEXT

13:00 - 13:20 **Keynote Speaker: Ken Riedel, Star Energy Geothermal**

STREAM 1		Session Chair: Steven Sewell (Ormat) and Doddy Astra (Sarulla Operations Ltd.)	
13:20 – 13:40	The value of geophysical data for geothermal exploration: examples from empirical, field & synthetic data Whitney Trainor-Guitton, Zanskar Geothermal & Minerals, Inc.	13:20 – 13:40	Mapping subsurface heat with surface conductive heat flow sensors Graeme Beardsmore, University of Melbourne
13:40 – 14:00	Multi-channel data modelling scheme for imaging with uncertainty the clay cap, temperature distribution and heat output in high temperature geothermal field Alberto Ardid, University of Canterbury	13:40 – 14:00	Miniaturization of seismic equipment enabling better seismic for geothermal exploration Amine Ourabah, STRYDE
14:00 – 14:20	Unlocking geothermal reservoir seismic characterization with physics-guided deep neural networks Jean-Luc Formento, CGG	14:00 – 14:20	High Resolution 3D seismic image for geothermal by jointly designing acquisition and imaging Nicolas Salaun, CGG
14:20 – 14:50	Moderated Discussion Streams 1 & 2	14:50 – 15:10	SPEED NETWORKING BREAK

TUESDAY, 12 OCTOBER 2021

All sessions are in Jakarta Time (GMT +7:00)

STREAM 2		Session Chair: Alison Kirkby (GNS Science) and Jonathan Lee Monasterial (Energy Development Corporation)	
16:30 – 16:50	Current practices in geophysics for geothermal resource exploration and monitoring Ted Bertrand, GNS Science	17:30 – 17:50	Geothermal Geophysics at the Sorik Marapi and Sokoria Fields, Indonesia Gabe Matson, Geologica Geothermal Group
16:50 – 17:10	Use of geophysics for exploration, development and operations in the high temperature Rotokawa, Ngatamariki and Kawerau geothermal fields of New Zealand Steven Sewell, Australis Geoscience Ltd	17:50 – 18:10	3D MT Characterization the Northern Part of Patuha Geothermal Field Arif Darmawan, PT Geo Dipa Energy
17:10 – 17:30	3D magnetotelluric inversion by finite-difference modeling including topography in Hakkoda geothermal area, northern Japan Toshi Uchida, Independant		
18:10 – 18:40	Moderated Discussion	18:40 – 19:10	SPEED NETWORKING BREAK

WEDNESDAY, 13 OCTOBER 2021

All sessions are in Jakarta Time (GMT +7:00)

STREAM 3		Session Chair: Khairul Arifin Mohd Noh (Universiti Teknologi Petronas) and Amine Ourabah (Sryde Further)	
15:40 – 16:00	Time-lapse Precision Gravity for Reservoir Dry-out Monitoring in Darajat Geothermal Field, West Java. Reka Tanuwidjaja, Star Energy Geothermal	16:40 - 17:00	Diffraction Imaging using Microseismic Record Obtained by DAS Moeto Fujisawa, JGI Inc
16:00 - 16:20	Reservoir Base Redefinition using Improved Microseismic Events from Tomography Study at Salak Field, Indonesia Muhamad Wildan Perdana, Star Energy Geothermal		
16:20 – 16:40	3D joint inversion of geothermal geophysics; towards geologically-consistent results Wolfgang Soyer, CGG		
17:00 – 17:35	Moderated Discussion	17:35 – 18:05	SPEED NETWORKING BREAK

THURSDAY, 14 OCTOBER 2021

All sessions are in Jakarta Time (GMT +7:00)

STREAM 3		Session Chair: Robert Hunn (Fortescue) and Marino Baroek (Supreme Energy)	
15:10 – 15:30	Integrated geophysical mapping of a fractured system for Geothermal exploration in a non-volcanic region: A case study in parts of the Peninsula Malaysia Mohd Hariri Arifin, Universiti Kebangsaan Malaysia	16:10 – 16:30	Implementation of an Induced Seismicity Protocol for the United Downs Deep Geothermal Power Project, United Kingdom Andrew Jupe, Altcom Limited
15:30 – 15:50	Integrated geophysical exploration of low-enthalpy geothermal resources - with a focus on Thailand Helmut Duerrast, Prince of Songkla University	16:30 – 16:50	The use of satellite InSAR across Geothermal Complexes to monitor surface deformation indicative of fluid dynamics Amy Lloyd, CGG
15:50 – 16:10	Detection of geothermal system below Chotanagpur granitic gneissic complex using audio magnetotelluric method in the Bakreswar geothermal province, Eastern India. Rajib Kumar Sinharay, Maharashtra Institute of Technology		
16:50 - 17:25	Moderated Discussion	17:25 - 17:45	Breakout Session with Speakers 1-4