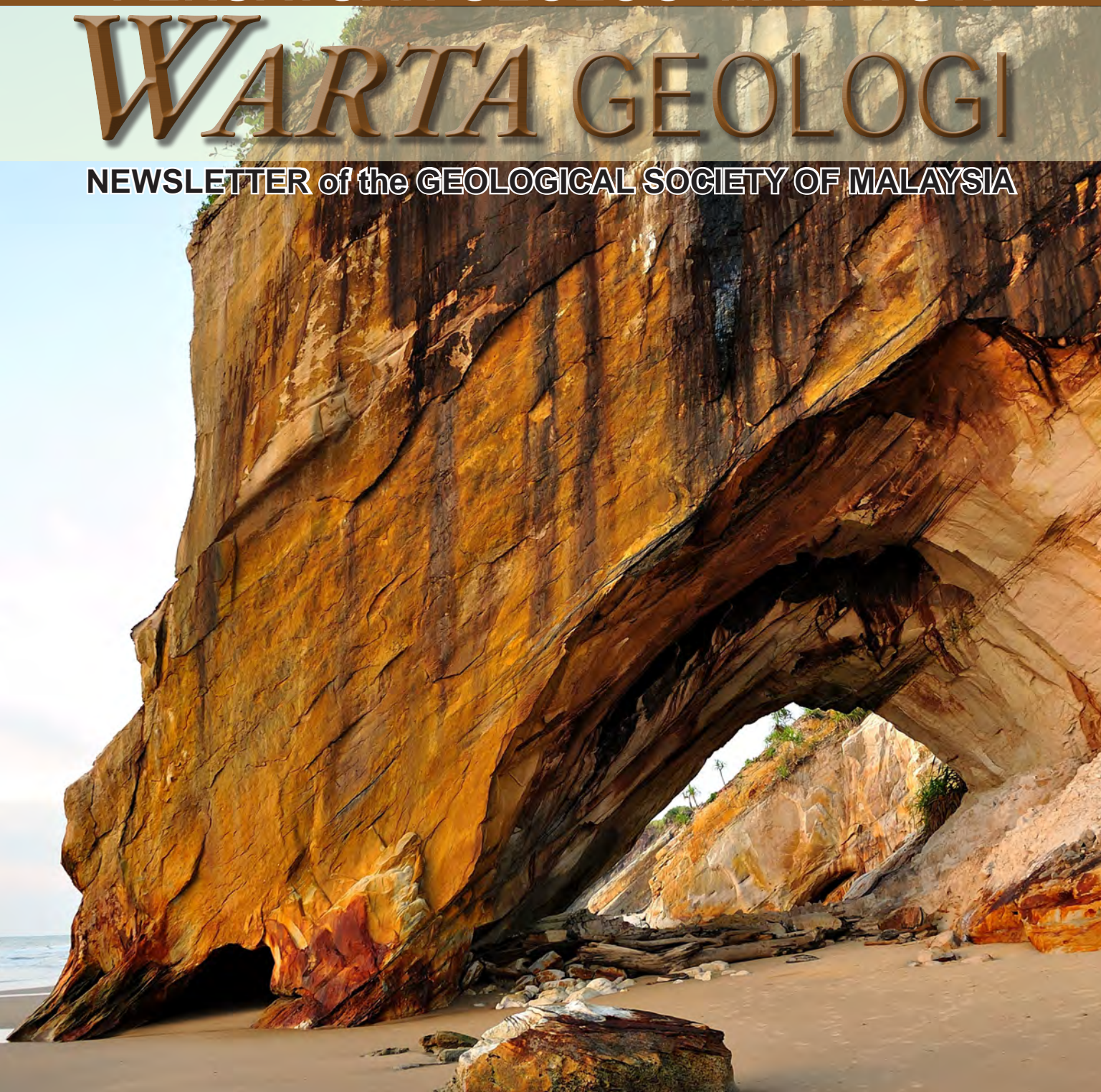




PERSATUAN GEOLOGI MALAYSIA

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The Geological Society of Malaysia was founded in 1967 with the aim of promoting the advancement of geoscience, particularly in Malaysia and Southeast Asia. The Society has a membership of about 600 local and international geoscientists.

Warta Geologi (Newsletter of the Geological Society of Malaysia) is published quarterly by the Society. Warta Geologi covers short geological communications and original research, as well as reports on activities and news about the Society. It is distributed free-of-charge to members of the Society. Further information can be obtained from:

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CERAMAH TEKNIK TECHNICAL TALK

The Mengkuang Dam, Penang

IR. KHOR CHAI HUAT (CONSULTANT)

Monday 15th October 2012

Department of Geology, University of Malaya, Kuala Lumpur

The talk on “The Mengkuang Dam, Penang” was presented by Ir. Khor Chai Huat (Consultant) on 15th October, 2012 at the Department of Geology, University of Malaya. The project actually involved an extension of the pre-existing Mengkuang Dam, to cater for increasing water demand in the area. Details of the presentation are contained in the synopsis below.

As usual, long discussions followed the rather lengthy presentation which had also included a short video (and another which was disallowed due to time constraints). As the project is currently under construction, another talk is possible in the future on completion of the project.

We thank the speaker, Ir Khor Chai Huat, for his contribution to the Society’s activities.

Tan Boon Kong,

Chairman, Working Group on Engineering Geology, Hydrogeology & Environmental Geology

Synopsis: The Mengkuang Dam Expansion Project involves raising the existing dam by 11.88 m and construction of a new dam about 50 m high and 1.67 km long on the left valley extending from the left abutment of the existing dam. Upon completion of the expanding work, the crest length will be increased to approximately 3.0 km. The dam foundation is widely covered with sandy clayey silt of alluvian or slope wash of the Quaternary system.

Residual soil layer varies widely from 2 m to 40 m. Highly to moderately weathered granite varying from zero to 8 m thick generally overlay the slightly weathered to fresh granitic bedrock. The residual soil and weathered granite have permeability coefficient in the range of 10^{-4} cm/s.

The dam is a semi-homogeneous earthfill embankment. In order to control internal erosion and piping risk, a comprehensive filter and internal drainage systems and seepage cutoff measures are provided. The foundation seepage cutoff system comprised cut-off trench, plastic concrete cut-off wall, and jet grouting wall are incorporated to cutoff seepage in the residual soil and weathered granite formation. Consolidation grouting is incorporated below the claycore founded on moderately to slightly weathered granite.

Curtain grouting is provided to seal the potential leakage paths in the slightly weathered to fresh granite bedrock below the dam, drawoff tunnel and the dam abutments. The potential risks related to geotechnical and geological factors are discussed.

A stratigraphic and sedimentologic preview of the Miocene Stage III and Stage IVA of Labuan Island and Klias Peninsula, Borneo

TERRENCE LUKIE (TALISMAN MALAYSIA LTD.)

2nd November 2012

Department of Geology, University of Malaya

Abstract: Labuan Island and Klias Peninsula have great outcrops for the study of the Miocene Stage III and Stage IVA strata. The Stage III and IV have an estimated combined thickness ranging between 4 and 7 kms and comprise interstratified sandstones and shales deposited in environments ranging from non-marine fluvial, marginal marine deltaics, shoreface and deep-water turbidites. Exposed on the Klias Peninsula and Labuan Island, the Stage IV sits on the Middle Miocene Unconformity (MMU) which marks the onset of the next major phase of sediment accumulation after the Stage III in NW Sabah.

The Stage III was studied at two main outcrops, Batu Linting on the Klias Peninsula and Kampung Bebuloh on Labuan Island. Batu Linting is composed of thinly (5-30 cm) interbedded sandstones and shales with an estimated net sand of 80-90%. Kampung Bebuloh is also composed of thinly-bedded (5-10 cm) interbedded sandstones and shales with an estimated net sand of 40-50%. Sand beds at Batu Linting contain a sharp base with flute- and gutter-casts, and contain massive-, planar- and current ripple-bedding representing incomplete Bouma successions; within-bedding bioturbation is rare. The sand beds at Kampung Bebuloh are similar containing flute-casts on the bed bases and physical sedimentary structures including planar- and current ripple-bedding. Within-bedding bioturbation was rarely observed. Both outcrops contained abundant bedding-plane trace fossils of the *Nereites* ichnofacies including *Paleodictyon*, *Spirorhaphe*, *Helminthoida*, *Taphrohelminthopsis*, *Cosmorhaphe*, and *Scolecia*. The Stage III at these 2 locations is interpreted as inner to middle turbidite fan at Batu Linting, and middle to outer turbidite fan at Kampung Bebuloh.

The Stage IVA was studied at the Batu Luang and Bethune Head outcrops. The lower portions of the outcrops are dominated by 30 metres of fluvial conglomerate with thin sandstone lenses (Batu Luang) or 120 metres of stacked trough cross-bedded sandstones (Bethune Head). This interval, interpreted as lowstand, is capped by a highly bioturbated sandstone with sand-filled burrows extending up to ½ metre into the underlying shale interpreted as a *Glossifungites* surface; this marks the onset of transgression. A tidal flat with small tidal creek deposits are observed capping the fluvial succession at Bethune Head.

The middle portions of the studied outcrops are dominated by wave-dominated delta (Batu Luang) to shoreface sandstones (Bethune Head) and shales. The sandstones are dominated by swaley cross-stratification punctuated by intervals of trough cross-bedding; ichnofauna from the *Skolithos*, *Cruziana*, and *Zoophycus* ichnofacies dominate the rocks. Thicker, offshore (Bethune Head) to prodelta (Batu Luang) shale sections are interpreted as the maximum flooding surfaces (MFS), which signal the end of transgression and the beginning of the relative sea-level highstand. The upper portion of the two outcrops are composed of coarsening-up sandstone packages deposited in a wave-dominated delta system containing tidal flats, distributary channels, delta front sands and prodelta sediments. As observed in the middle portion of the outcrops, the sands are dominated by swaley cross-stratification and are punctuated by intervals of trough cross-bedding, which become more abundant moving up the section. The ichnofauna observed tend to belong to the *Skolithos* and *Cruziana* ichnofacies. These sand packages are contained within the clinofolds of the delta as it prograded into the basin during the highstand.

A petrographic analysis of the Stage IVA sandstones determined that most of the samples can be classified as quartz-dominated, sub-lithic arenites with pore-systems dominated by primary pores and subordinate secondary pores formed by the dissolution of unstable grains (feldspars and lithics). Overall reservoir quality varies with facies type; the fluvial and deltaic sandstones can have similar porosity measurements, but the higher degree of sorting in the deltaic sands is an indicator of better permeability in this facies. Although the lowstand sands have relatively good reservoir quality, the transgressive and highstand shelf sediments have a wider distribution making them more targetable.



Sea-level changes in two geologically different environments: Peninsular Malaysia and Sabah

PROF EMERITUS DR. TJIA H.D. (UNIVERSITI KEBANGSAAN MALAYSIA)

21st November 2012

Department of Geology, Universiti Kebangsaan Malaysia

Abstract: During the Last Glacial Maximum (LGM) some 20 thousand years ago, a vast land area formed the Southeast Asian subcontinent. Borneo, Jawa, Sumatera and the seas among them were part of the landmass of Asia. Gigantic rivers drained the subcontinent into the South China Sea and into the Flores sea. When global ice masses melted, sea level rose at 15 mm/y, transgressed present datum to reach its maximum elevation of some 5 metres at 4300 year Before Present. A substantial number of biogenic (fossil rock-clinging oysters, calcareous algae, *Tridacna* sp. in growth position, and certain solitary corals) and geomorphological shoreline indicators (abrasion platforms, mid-tide notches on cliffed coasts, and intertidal calcareous beachrock) provide evidence. Subsequently sea level descended stepwise three times, to attain its current position several hundred years ago. These were regional secular sea-level changes as the palaeo-sea-level indicators were determined from tectonically stable Sundaland (Peninsular Malaysia and the Indonesian tin islands Bangka-Belitung-Kundur).

On the other hand, radiometrically dated palaeoshoreline indicators in Sarawak and especially in Sabah show average annual uplift rates of the land in the range of 5 to 7 millimetres during the past 30 thousand years, For instance, the coral reef base of Semporna town formed during the LGM and thus experienced some 120 metres uplift to reach its present position of 2-3 metres above sea level.

The Pahang-Selangor Interstate Water Transfer Tunnel

TAKAYUKI MATSUMOTO (SHIMIZU CORP.)

Friday, 7th December 2012

Department of Geology, University of Malaya, Kuala Lumpur

The talk on “The Pahang-Selangor Interstate Water Transfer Tunnel” was presented by Mr. Takayuki Matsumoto (Shimizu Corp.), deputy project manager, on 7th December 2012 at the Department of Geology, University of Malaya.

Sdr Matsumoto gave a comprehensive account of the project, including site geology/engineering geology, tunnelling methods/TBM/D&B, in-situ stress measurements, problems of ground collapse and water ingress into the tunnel when intersecting major fault zones, and rock burst due to high ground stresses and brittle rock behavior (granite). Further details of the project are provided in the abstract attached below. To-date (Dec 2012), ~ 80% of the project has been completed, with good progress recorded for the TBM's.

As usual, there were lively discussions at the end of the talk.

Tan Boon Kong,

Chairman, Working Group on Engineering Geology, Hydrogeology & Environmental Geology



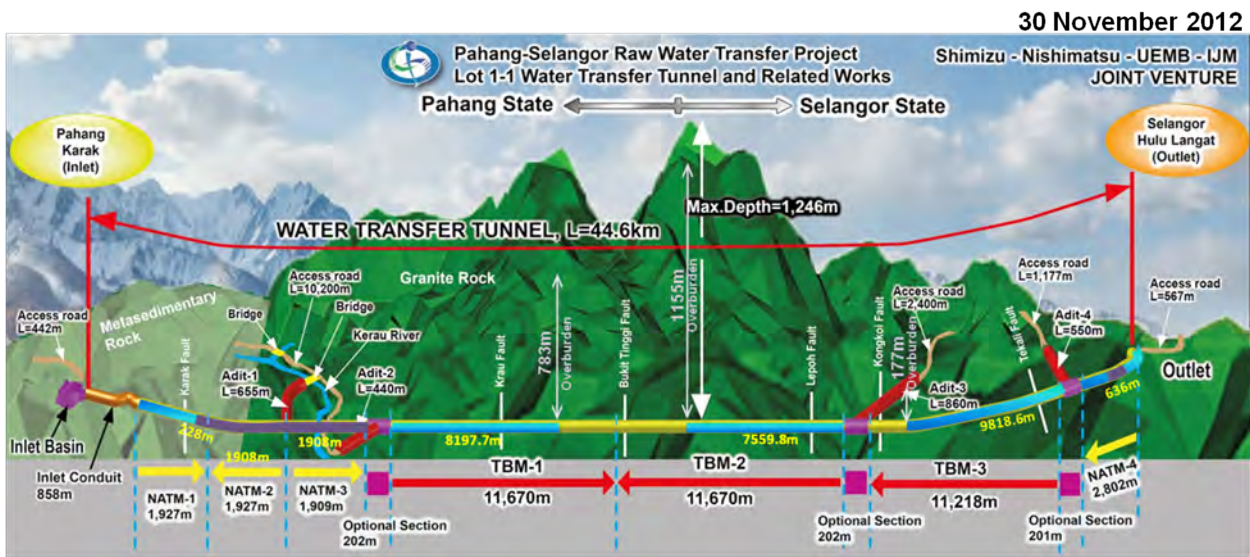
Abstract: This project includes the long distance water transfer tunnel project which links the state of Pahang and Selangor in Malaysia. The tunnel length is 44.6 km with diameter of 5.2 m and it constitutes as one of the largest infrastructure projects in Asia. The completed project will aim to relieve the shortage of water supply for daily life and industries of Kuala Lumpur and Selangor State in the future (Supplying Approximately 1.89 million m³/ day). Of 44.6 km length, 3 sections comprising 34.6km excavated by Tunnel Boring Machine (TBM), 4 sections with length of 9.1km is by New Austrian Tunneling Method (Conventional Tunneling), and 1 section with length of 0.9 km by Cut and Cover method. In this paper, the challenges in long-distance tunneling (with TBM drives up to 11.6 km length) in order to achieve high-speed TBM excavation under hard rock conditions with high overburden, adverse geological conditions and heavy water ingress are discussed.

The TBMs have to excavate through granite rock with uniaxial compressive strength of 150-200 MPa. It is expected that more than 85% of the tunnel alignment consists of hard granite in good condition (Rock Classification A&B). In addition, the maximum overburden depth is 1,246 m. During the excavation of TBM we have encountered the heavy water ingress rate of 10t/min, rock burst and hot spring water in some areas.

Under the conditions mentioned above, in order to achieve high-speed TBM excavation, the countermeasures below have been considered and executed;

- Sufficient Thrust Force for hard rock excavation (14,000 kN)
- Use of 19-inch cutter disk (19 inch; 27 pieces and 17 inch; 8 pieces)
- Development of cutter monitoring system
- Use of sprayed fiber mortar system for early support installation
- Use of Tunnel Seismic Prediction (TSP) in order to detect unforeseen ground condition and water ingress location
- Use of high-performance drilling system for probe drilling and drilling data analyzing system
- Analysis of real-time TBM machine data during excavation in order to determine rock class
- Use of real-time TBM guidance system

The application of the above measures has provided steady improvement in TBM excavation progress. At present the maximum monthly progress is 660m. We are still challenging to improve our rate.



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5	Geophysics	Dr. Samsudin Hj Taib
6	Petroleum Geoscience	Dr. Liaw Kim Kiat / Mr. Robert Wong

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PERSATUAN GEOLOGI MALAYSIA GEOLOGICAL SOCIETY OF MALAYSIA

NATIONAL GEOSCIENCE CONFERENCE 2013

The Geological Society of Malaysia is pleased to announce that the National Geoscience Conference 2013 (NGC 2013), 26th in the annual conferences, will be held at the Kinta Riverfront Hotel Ipoh from 8 to 9 June 2013. The Conference is a premier geoscientific event in Malaysia, which is well attended by geoscientists from academia as well as the public and private sectors. NGC 2013 is co-organised with Minerals & Geoscience Department Malaysia (JMG) Perak and Universiti Teknologi PETRONAS.

Theme: Geoscience For Environmental Wellbeing

The wellbeing of our environment is very important and crucial for the sustenance of life on earth. Knowledge of the earth's systems and processes has helped us improve our quality of life through the utilisation and management of the earth's natural resources such as rocks, minerals, petroleum, natural gas and groundwater. Geoscience, understanding and implementing its sustainable strategies, could steer and safeguard the exploitation of our resources for our future generations. The non-exploitative approach provides alternative means for us to tap the resources monetary returns through nature, eco- and geotourism concepts.

Programme

The technical program of NGC 2013 consists of oral and poster presentations on all aspects of geoscience related to the theme. Presentations will be delivered by keynote speakers on topics of relevance to the theme and interest to the nation. There will be a one-day Pre-NGC 2013 Fieldtrip to Kinta Valley Area.

Call for papers

Once again, we seek your support to ensure the success of NGC 2013. Participants are invited to present papers on original research either in English or Bahasa Malaysia for the Technical Sessions. Contributors may submit more than one paper, however the Organising Committee has the right to select only one paper by any first author for oral presentations, while the rest will be for poster presentations. Priority will also be given to papers with full manuscript. Please come and share your experiences, ideas and expertise for the benefit of our country and future generations.

Those who would like to present papers are required to submit an extended abstract. The extended abstract should be between 500 to 750 words long, can have up to 3 figures and/or tables and must have at least 3 references. Abstracts of accepted papers will be distributed to all participants of NGC 2013. Full papers will be reviewed and published in the Bulletin of the Geological Society of Malaysia. Manuscript requirements can be downloaded from <http://geology.um.edu.my/gsmpublic/NGC2013/Instruction.pdf>.

Pre-NGC 2013 Conference Fieldtrip

Location: Kinta Valley area
Date: 7th June 2013 (Friday)
Number of participants: Maximum 30
Charges: RM 30.00 per person

The geology of the Kinta Valley and especially Ipoh town is basically underlain (up to 80%) by the limestone rock type. The limestone age ranges from 250 to 400 million years. What we observe as limestone hills formed only part of the exposed limestone rock formations, in which 38 hills are identified to occupy within the Kinta Valley area. The limestone hills displayed typical karst topography featuring mogote hills of varying shapes and sizes towering above the flat alluvial topography that dominate the Ipoh landscape.

REGISTRATION FORM

PERSATUAN GEOLOGI MALAYSIA GEOLOGICAL SOCIETY OF MALAYSIA



NATIONAL GEOSCIENCE CONFERENCE 2013

Kinta Riverfront Hotel & Suites,
Ipoh

8-9 June 2013

Geoscience For Environmental
Wellbeing

Please complete and return this form to:

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University of Malaya
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You may also download the pdf registration form from http://geology.um.edu.my/gsmpublic/NGC2013/first_circular.pdf and email the completed form to the above email address.

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- I would like to attend NGC 2013
- I would like to join the Pre-Conference Fieldtrip
- I would like to present the following paper(s)

1. _____

2. _____

Please email the abstract(s) to geologicalsociety@gmail.com

Signature _____ Date _____

Deadlines

Submission of abstract: 31st March 2013
Submission of full manuscript: 30th April 2013
Early Registration: 30th April 2013

Registration

All intending participants are advised to register early to facilitate the planning of the Conference. Registration fees will cover conference material, lunch and refreshment. Payment by crossed cheque or bank draft is acceptable and should be made payable to the "Geological Society of Malaysia". Payment can also be made by banking in directly to the Geological Society of Malaysia, Standard Chartered Bank, current account no. 794 1054 02263. Please fax or email the bank-in-advise slip to the Society for verification.

Membership	Early Registration	Late Registration
Presenters	RM 100	RM 120
Full/associate/life members	RM 100	RM 120
Non-members	RM 140	RM 170
Spouse/family of members	RM 80	RM 100
Student members	RM 50	RM 80
Student non-members	RM 80	RM 100
Children below 5 years	free	free

Accommodation

Accommodation is at the participant's own expense. Participants are advised to make early room reservations. For reservation, please contact the hotel:

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March 6-8, 2013: Offshore Asia, Kuala Lumpur, Malaysia. Contact: Jenny Phillips, Tel: +44 1992 656 629; Fax: +44 1992 656 700; email: jennyp@pennwell.com

March 12-14, 2013: Asia Pacific Deepwater Plays: Exploration & Production, Brunei Darussalam. AAPG Asia Pacific, email: apereira@aapg.org>

March 18-19, 2013: Petroleum Geoscience Conference & Exhibition 2013, Kuala Lumpur, Malaysia. Email: geologicalsociety@gmail.com

March 18-20, 2013: Eagle Ford Shale, San Antonio, Texas, USA. Email: education@aapg.org

March 18-22, 2013: Prospect and Play Assessment, Kuala Lumpur, Malaysia. Tel: +603 21664751; email: asiapacific@petroskills.com

March 26-28, 2013: 6th International Petroleum Technology Conference (IPTC). Contact: EeMei Fan, email: emfan@spe.org; website: www.iptcnet.org/2013

April 07 - 12, 2013: European Geosciences Union General Assembly 2013, Vienna (Austria). <http://meetingorganizer.copernicus.org/EGU2013/>

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April 29-May 4, 2013: 7th International Conference on Case Histories in Geotechnical Engineering and Symposium in Honor of Clyde Baker, Chicago (Wheeling), Illinois, USA. For further information: <http://7icchgcs.mst.edu>

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May 7-8, 2013: Optimising Enhanced Oil Recover 2013, Doha, Qatar. Contact: Dimitri Pavlyk, Tel: +44 (0) 207 981 2503; email: dpavlyk@acieu.co.uk

May 13-17, 2013: Introduction to Petroleum Geology for Non-Geologists, Vienna, Austria. Tel: +43 3842 43053-0; Fax: +43 3842 43053-1; Email: training@hoteng.com; website: www.hoteng.com

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July 1-5, 2013: Basin Analysis Workshop: An Integrated Approach, Singapore. Tel: +603 21664751; email: asiapacific@petroskills.com

July 3 - 5, 2013: Geological Society of South African (GSSA) GeoForum 2013: Mineralization and Geosciences in Africa. Johannesburg, South Africa. <http://www.gssa.org.za/event/geoforum-2013/>

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August 5-11, 2013: North Sea Petroleum Geology and field trip, Aberdeen, UK. Tel: +603 21664751; email: asiapacific@petroskills.com

July 7-11, 2013: 15th International Clay Conference (XVICC), Rio de Janeiro, Brazil. <http://www.aiepa.org/> or www.15icc.org; email: info@15icc.org

August 5 - 9, 2013: The International Mine Water Association and the Colorado School of Mines are hosting the 2013 International Mine Water Association Symposium in Golden, Colorado, USA. <http://csmospace.com/events/imwa2013/>

August 12-14, 2013: Unconventional Resources Technology Conference (URTeC), Denver, USA. Contact: jsimmons@urtec.org

August 19-23, 2013: Introduction to the Oil & Gas Industry, Vienna, Austria. Tel: +43 3842 43053-0; Fax: +43 3842 43053-1; Email: training@hoteng.com; website: www.hoteng.com

August 25-29, 2013: MEDGEO 2013. IMGA 5th International Conference on Medical Geology, USA. http://rock.geosociety.org/GeoHealth/MEDGEO_2013/Welcome.html

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September 1-5, 2013: Foundations of Petrophysics, Abu Dhabi, UAE. Tel: +43 3842 43053-0; Fax: +43 3842 43053-1; Email: training@hoteng.com; website: www.hoteng.com

September 2-4, 2013: Building Strong Continents: Evolution of the Continental Crust: Growth, Stabilisation, Preservation and Recycling, University of Portsmouth, UK. Contact: Craig Storey: craig.storey@port.ac.uk; Mike Fowler: mike.fowler@port.ac.uk; website: [//www.port.ac.uk/special/buildingstrongcontinents/](http://www.port.ac.uk/special/buildingstrongcontinents/)

September 2-6, 2013: Advanced Seismic Stratigraphy: A Sequence – Wavelet Analysis Exploration – Exploitation Workshop, Kuala Lumpur, Malaysia. Tel: +603 21664751; email: asiapacific@petroskills.com

September 2-6, 2013: 15th Annual Conference of the International Association for Mathematical Geosciences, Madrid, Spain. Contact: Carolina Guardiola Albert, Tel: +34 91 349 5829; Fax: +34 91 349 5929; email: c.guardiola@igme.es; e.pardo@igme.es

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September 4–6, 2013: 12th European Geopark Conference. Geoparks: an innovative approach to raise public awareness about geohazard, climate change and the sustain-able use of our natural resources. Ascea-Velia-Elea, southern Italy. <http://egnconference2013.cilentoediano.it/index.asp?ref=pagine&id=109&lan=ita>

September 8-11, 2013: AAPG 2013 International Conference & Exhibition, Cartagena Convention Center, Cartagena. Email: convenc@aapg.org

September 8-11, 2013: Second South African Geoheritage meeting. Oudtshoorn, South Africa. Field excursions will highlight the geology and geomorphology of the Cape Fold Belt; the meeting will address various aspects of geoheritage in South Africa and globally, with special interest on the Klein Karoo. Email: info@gssa.org.za

September 8-12, 2013: Reservoir Engineering for Non-Reservoir Engineers, Dubai, UAE. Tel: +43 3842 43053-0; Fax: +43 3842 43053-1; Email: training@hoteng.com; website: www.hoteng.com

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September 16-20, 2013: Naturally Fractured Reservoirs: Geologic and Engineering Analysis, London, UK. Tel: +603 21664751; email: asiapacific@petroskills.com

September 22-24, 2013: Energy Elevated, Salt Lake City, Utah, USA. Email: kalyea@aapg.org

September 23-27, 2013: Production Geology for Other Disciplines, Kuala Lumpur, Malaysia. Tel: +603 21664751; email: asiapacific@petroskills.com

September 26-28, 2013: Medical Geology meeting, University of Johannesburg. The meeting will consist of 2 days short course by Prof Jose Centeno (USA) and collaborators, followed by 1 day presentations, with a possibility of a 1 day excursion. Contact: Hassina Mouri at: hmouri@uj.ac.za

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September 1 – 5, 2014: The International Mineralogical Association 21st general meeting (IMA 2014 – Delving Deeper: Minerals as Mines of Information). Johannesburg, South Africa. <http://www.ima2014.co.za>

September 15-18, 2014: IAEG X11 Congress. Torino, Italy. Theme: “Engineering Geology for Society and Territory”. <http://www.iaeg2014.com/>

November 12 – 19, 2014: IUCN World Parks Congress 2014, Sydney, Australia. The Congress will serve as a vital link to achieving IUCN’s overall vision of a “just world that values and conserves nature”. <http://www.iucn.org/>

August 27 to September 5 2016: The 35th International Geological Congress: Cape Town, South Africa. Danie Barnado, Secretary-General: 35th IGC. [barnardo@geoscience.org.za; http://www.35igc.org](http://www.35igc.org)

GEOLOGY OF PENINSULAR MALAYSIA

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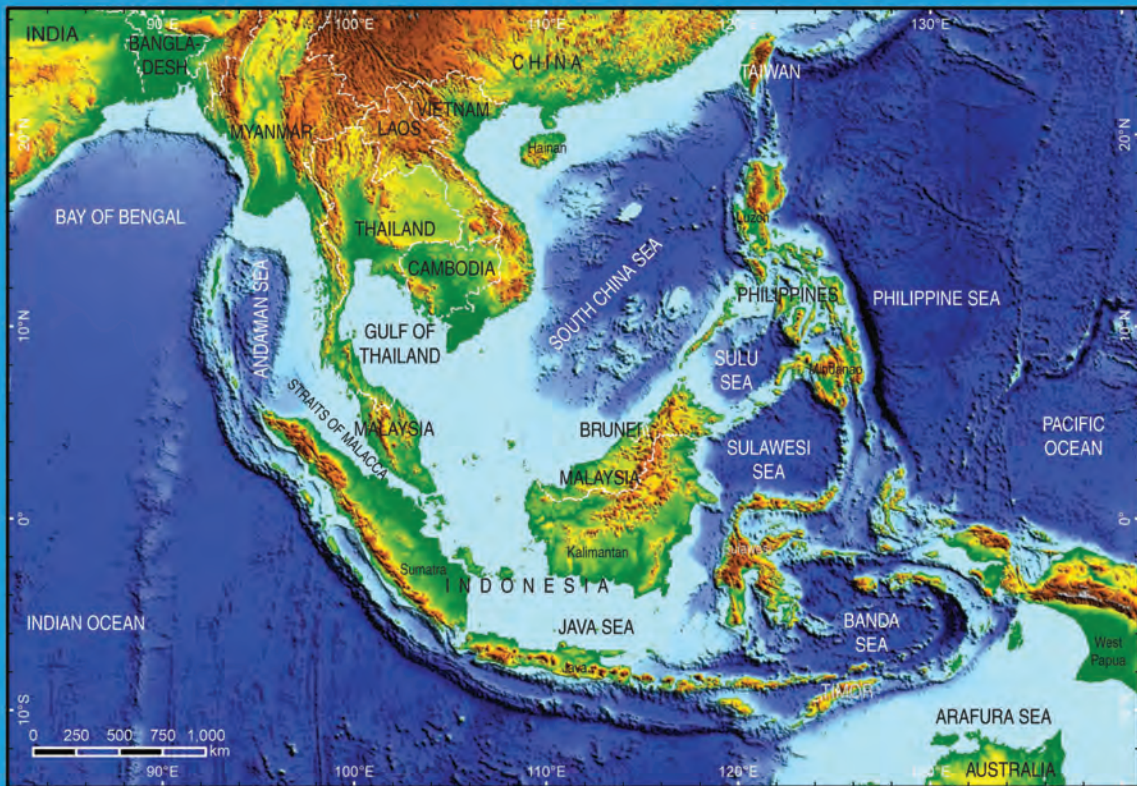


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The paper can be written in Bahasa Malaysia (Malay) or English. For English papers, use either British or American spelling but not a combination of both. The paper should be checked thoroughly for spelling and grammar. The manuscript must be printed at 1.5 spacing in a single column on one side of A4 paper. All pages should be numbered. Length of paper should be between 3,000 and 6,000 words for the *Bulletin* and between 2,000 and 3000 words for *Warta Geologi*, excluding tables and illustrations. Metric units should be used and all non-standard symbols, abbreviations and acronyms must be defined.

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Abstract in both Malay and English, each in one paragraph and should not exceed 300 words. It should clearly identify the subject matter, results obtained, interpretations discussed and conclusions reached.

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Chapter of book and Symposium volume:

Hosking, K.F.G., 1973. Primary mineral deposits. In: Gobbett, D.J. and Hutchison, C.S. (Eds.), *Geology of the Malay Peninsular (West Malaysia and Singapore)*. Wiley-Interscience, New York, 335-390.

Article in Malay:

Lim, C.H. & Mohd. Shafeea Leman, 1994. The occurrence of Lambir Formation in Ulu Bok Syncline, North Sarawak. *Geol. Soc. Malaysia Bull.*, 35, 1-5. (in Malay with English abstract)

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