Editorial

It is with great pleasure that as the co-editor in chief and on behalf of the editorial board of **Global Journal of Earth Science and Engineering (GJESE)**, that I welcome you to the Inaugural Issue of **Global Journal of Earth Science and Engineering**. This is a new online peer-reviewed journal published in English, with the aim of providing a platform for exciting, stimulating and thought-provoking academic exchange. **GJESE** covers a wide range of various fields in earth sciences and engineering, including basic sciences and engineered applications, via original research, reviews, short communication, etc. It is hoped that the vibrant academic exchange would enable effective dissemination and sharing of the current knowledge and findings, to be shared and benefited by scientists, academicians, researchers, practitioners, policy makers and all other related industrial players.

There is indeed a great deal of cooperation and support from those who are actively involved the members of the editorial Board and a skillful reviewers as well as generous support of the Avanti Publisher without which this first volume would not be possible. I am grateful and applaud everyone for their dedicated efforts for volunteering their time and determination to produce this quality product. A capable peer review in giving constructive ideas and suggestions and a high quality of research work and these reviews will help us to produce high standards of scientific merit issue. The high quality articles could serve as an educational, enlightening, thought stimulating and insight instilling values.

This inaugural issue would not have been possible without the support and collaboration of **Avanti Publisher**, an established research company primarily providing online peer-reviewed forum for scientists and scholars to publish high quality and refereed papers. We are indeed thankful for the technical support and assistance of the dedicated staff at Avanti Publisher in the process of making this journal a reality. Of course, due appreciation is also due to the authors who contributed to this first issue, who have had faith in our ability to compile, review and finally publish the journal. Thank you for your patience and commitment to make this possible.

The inaugural issue contains an interesting mixture of 5 entries from various fields of earth sciences and engineering. Excerpts from the respective paper's summary are outlined here. The first paper is entitled "Numerical Pattern of 3D Tornado Rise with Account for Mirror Asymmetry" by *Alexander Gubar* and *Victor N. Nikolaevskiy*. The authors worked on the basic concepts of turbulence – homogeneity and symmetry principles, and showed that the homogeneity of constant mean velocity gradient (instead of constant velocity) permits introduction of the mirror asymmetry. This corresponds with the stratified atmosphere and the differential volumes in any continuum model. In addition, the authors proposed the use of the intrinsic eddy angular velocity (so-called spin or mesovorticity) as the internal thermodynamic parameter, necessary for adequate dynamic description of tornado and intensive atmospheric vortices. The continuum description is formulated with standard introduction of stresses averaged over a cross-section, with motivated asymmetry leading to the vortices moment of momentum balance. The set of nonlinear 3D partial differential equations were proposed to account for the problem of tornado generation from a cloud of initial vortices. The dependence of turbulent rotation viscosity on the spin permits localization of the tornado body due to the nonlinear diffusion effect. Numerical calculations were performed at two different clusters using Parjava program environment. The growth of typical tornado structure was shown by a sequence of pictures, including a visual comparison with the dynamics of Hurricane Isabel in year 2003.

The second manuscript entitled "The Thixotropic Hardening Behaviour of a Low Plasticity Dredged Marine Silt" is presented by *Chee-Ming Chan* and *Adib Syazwan Ahmad Shakri*. An alternative to solve the problem of disposing dredged marine sediments (DMS) in open sea, which could lead to undesirable contamination and destruction of the marine ecosystem, is to reuse the material in reclamation works. For such applications, it is important to determine the time required for strength gain of the relocated DMS. A lab-based study was conducted to simulate and examine the post-consolidation hardening of DMS when placed as a backfill with relation to time. A separate series of tests were also carried out on the DMS being lightly solidified with cement, with the purpose of identifying potential shortening of the waiting period. The DMS sample was prepared at different water contents based on the soil's liquid limit (LL = 54.5 %), i.e. 0.90, 1.25 and 1.81LL. The undrained shear strength was measured using the

laboratory vane shear (VS) test. Complementary fall cone (FC) tests were conducted for additional information on the improved remoulded strength and stiffness of the DMS. The results showed that the strength and stiffness (cone penetration resistance) of the relocated DMS could effectively improve with time, though the rest period required is shorter for a sample with lower initial water content. On the other and, light cementation shortened the rest period, and significantly improved the strength and stiffness at dosages as low as 5 % (as per dry weight of the soil). Overall the study gave an overview of the reusability of DMS as a backfill material in reclamation works, whether with or without lightly induced solidification, depending mainly on the limitations of rest period available.

The third manuscript is contributed by *A.V. Tatarinov* and *L.I. Yalovik*, entitled "Placer-Forming Cenozoic Mud-Volcano Genetic Type of Gold Mineralization in the Lena Area, Patom Highland, Russia". A genetic type of Cenozoic gold mineralization related to mud volcanoes is suggested to be recognized in the Lena area. This type of mineralization has never before been distinguished in the area and is genetically related to the development of depression mud-volcano structures on the northern continuation of the Baikal rift. Geological-geophysical data and results of lithological-petrographic and mineralogical studies of the mud-volcano lithological complex, naturally occurring microscorias, and ore minerals from the loose Quaternary rocks, as well as and comparison of the chemical composition of the latter with analogous minerals from the Sukhoi Log and Pervenets gold deposits, prove genetic links of economic placer deposits in the Lena area with mud volcanoes.

In the fourth manuscript, "Spatial Variation of Textural Parameters in a Small River: An Example from Khurar River, Khajuraho, Chhaterpur District, Madhya Pradesh, India", *S. Kanhaiya* and *B.P. Singh* described the texture (grain size) as one of the many parameters used in determining depositional environments of sediments and sedimentary rocks. In the present investigation, texture was analysed from sixteen stations in the Khurar River, Madhya Pradesh, India. Here, grain size analysis was carried out employing mechanical sieving method using a sonic shaker. Frequency and cumulative frequency curves were prepared from the grain size data on centimetre and arithmetic probability papers, respectively. The phi values were determined and used to calculate the statistical parameters such as mean, standard deviation, skewness and kurtosis. It is found that the mean size value varies from-0.63to 0.80 with a graphic mean distribution ranging from -0.27 to 0.40 φ, indicating that the size of the river sand is very coarse to coarse-grained. The standard deviation (sorting) shows a range of 0 .69 to 1.65 φ. The skewness values of the sediment samples range from 0.19 to 0.29 φ, thus, indicating the presence of fine fraction to near-symmetrical fraction in the population. The kurtosis varies between 1.03 and 1.09 φ, indicating that 25% of the samples are leptokurtic, 6.25% are very leptokurtic, 50% are mesokurtic and 12.5% are platykurtic. The platykurtic nature in few cases suggests mixing of sediments from two sources. Bivariate plots prepared combining various textural parameters were used to interpret their behaviour in the river sediments. C-M plot was also prepared to understand the dominant mode of sediments transportation in the Khurar River. In this river, all the sediments are dominantly characterized by the rolling process of transportation. This study reveals that sorting varies from poorly sorted to moderately well sorted in the course of the river may be because of dominance of winnowing and selective sorting in the lower reaches of the river.

The fifth paper, "Penecontemporaneous Deformational Structures in the Glauconitic Sandstone, Semri Group (Vindhyan Supergroup), Sonbhadra District, Uttar Pradesh, India and their Structural Analysis" was submitted by *C.K. Singh, K. Mohan and B.P. Singh*. The Glauconitic sandstone is well exposed in the Newari area of Sonbhadra district of Uttar Pradesh, India. Conjugate pairs of kink bands are confined within the laminated sandstone and are present half km west of Newari near the confluence of a tributary with the Son river. The conjugate kink bands are plunging at 13^0 and 36^0 in SE ($S58^0E$) and NE ($N56^0E$). This shows that ephemeral compressional stress regime was responsible for the development of conjugate set of kink bands. The stress axis would have been oriented from NE-SW direction. A major fault F_1 passes through the glauconitic sandstone in the west of the Newari village. This fault is a reverse fault and strikes at N25ºW - S25ºE. Another fault F_2 oblique to F_1 passes in the direction N70ºE-S70ºW. In view of the fact that the kink bands are confined within the laminated sandstone, it is inferred that they have been formed as a result of penecontemporaneous deformation and suggest seismic activities that might have occurred around 1080±40 Ma ago as a result of activation of the faults present in the Newari area of the Sonbhadra district, Uttar Pradesh, India those may be companion faults of the Son-Narmada Fault system.

Finally, we believe with the continuing support of our potential contributors from all over the world, together with the dedicated members of the editorial board and publication team, **GJESE** will continue to grow and thrive to become a mainstream, preferred platform for publishing high quality manuscripts.

We look forward to your future contributions, whether in terms of manuscripts, ideas or suggestions.

Thank you.

Chee-Ming Chan
Co-Editor-in-Chief
Global Journal of Earth Science and Engineering
Universiti Tun Hussein Onn Malaysia,
Malaysia
E-mail: chan@uthm.edu.my