World Academy of Science, Engineering and Technology
International Journal of Geotechnical and Geological Engineering
Vol:10, No:04, 2016

Tectonostratigraphic, Paleogeography and Amalgamation of Sumatra Terranes, Indonesia

Authors : Syahrir Andi Mangga, Ipranta

Abstract : The geological, paleomagnetic, geochemical and geophysical Investigation in The Sumatra Region has yielded some new data, has stimulated a reassessment of stratigraphy, structure, tectonic evolution and which can show a Sumatra geodynamic model. Sumatra island has in the margin of southwest part of the Eurasia plate in the Sundaland cratonic block and occurred as the amalgamation of allochtonous microplates, continental fragments, Island arc and accrctionary by foreland complex which assembled prior to Tertiary. The allochtonous rocks (terranes), can be divided into 4 (four) Terranes with Paleozoic to Mesosoic in age, had different origin, lithology and are separated by a Suture as main fault with trending NW-SE. The terranes are: the Tigapuluh-Bohorok (East Sumatra block / Sibumasu block), Permo-Carboniferous in age and is characterized by the rock types formed in glacio-marine and was intruded by Late Triassic to Early Jurrasic granitics, occupied in the Eastern part of Sumatra, the paleomagnetic data shown 41° South. Tanjung Karang - Gunung Kasih Terrane, is composed of higher metamorphic rocks and supposed to be pre-Carboniferous in age, covered by Mesozoic sedimentary rocks and were intruded by granitic-dioritic rocks, occupied in the Southern part of Sumatra, the paleomagnetic data shown 19° North. The Kuantan-Duabelas Mountain (West Sumatra block) is occupied by metamorphic, sedimentary and volcanic rocks of Paleozoic - Mesozoic (Carboniferous - Triassic) in age, contains a Cathaysion fauna and flora and are intruded by the Mesozoic granitoid rocks. The terrane occurred in the western part of Sumatra. Meanwhile, the Gumai-Garba (Waloya Terrane) which is occupied by the tectonite/melange, metasediment, carbonate and volcanic rocks of Mesozoic (Jurassic - Cretaceous) in age, are intruted by the Late Cretaceous granitoid rocks, the paleomagnetic data shown 30° - 31° South.

Keywords : tectonostratigraphy, amalgamation, allochtonous, terranes, sumatra
Conference Title : ICEGSE 2016 : International Conference on Earthquake, Geological and Structural Engineering
Conference Location : Los Angeles, United States
Conference Dates : April 05-06, 2016