Synsedimentary deformation of the Kapas Conglomerate, Pulau Kapas, Terengganu

MUSTAFFA KAMAL SHUIB
Geology Department, University of Malaya, 50603 Kuala Lumpur

Late Paleozoic continental conglomerates are widely distributed in the Eastern Belt of Peninsular Malaysia. In Terengganu, it primarily occurs in Pulau Kapas as a wedge shaped basin, thought to be formed within a strike slip fault system. A structural and sedimentological study of the Kapas Conglomerate provides insight into its sedimentary tectonic history. The initial tectonic activity in the basin can be traced to movement along two major splaying strike-slip faults, the dextral NS Kapas Fault Zone and a sinistral NNW fault, which enclose the Kapas Conglomerate. When these faults were concurrently active, a region of compression and uplift developed where they converged. Correspondingly, extension and subsidence occurred where they diverged. This setting produced a major source area, which supplied relatively constant detritus to the adjacent fault-wedge basin. In the Late Palaeozoic, a braided alluvial fan developed in the region, as represented by the Kapas Conglomerate. The fan evolved in a semi-arid climate, and flows were generally from the west. The development of the fan is coeval with synsedimentary volcanism.The overall trend of the sedimentary sequence is the result of the strike slip faulting along the active margin of the subsiding basin. Active faulting activities continued during the deposition leading to synsedimentary deformation of the conglomerate. A NS dextral strike slip fault system at the western margin of the Kapas Conglomerate provides clear evidence for this tectonic phase. The influence of this tectonic phase is recorded in the coarsening upward cycles of the sedimentation. Due to ongoing synsedimentary strike slip deformation, the sediments show sets of small-scale conjugate normal faults creating a pattern of horst and graben structures, internally progressive tilting of the strata and an internal angular unconformity. This Late Palaeozoic dextral transpressive deformation, and rapid uplift followed deposition of continental sediment coeval with volcanism, in a tectonically active strike slip basin is a major orogenic event which can be considered as part of a large scale deformation in the Eastern Belt that may have accommodated the oblique convergence of the two tectonic blocks of Peninsular Malaysia.

Warta Geologi (Newsletter of the Geological Society of Malaysia), Vol. 30, No. 3, May-June 2004