Fracture system of columnar basalt at Amphur Wichianburi, Changwat Phetchabun

Jutamas Charoensuk and Pitsanupong Kanjanapayont

Department of Geology, Faculty of Science, Chulalongkorn University;
Tel.: 092-4903532, e-mail: aon.chanakan@gmail.com

Abstract: Columnar joint in Aumphur Wichianburi is Cenozoic basalt formed as a consequence of continental collision between Western Burma and Shan-Thai. This collision in Eocene have triggered the thinning of the crust and the intrusion of high-temperature basaltic magma along the weakness zones. Columnar joint is formed when hot lava masses cooling.

The intersection type and the polygon-side number can be indicated the maturity of joint by calculating some parameters including hexagonality index, average number of side, and axial ratio. By calculating these parameter, columnar joints at Sao-HinDonsawanare well developing which yield hexagonality index 1.06, average number of side is 5.18, the axial ratio is 1.45, and the average diameter size is 40.59 cm; whereas, columnar joints at Sub-Phlu waterfall are not very well developing and yield hexagonality index 1.33, average number of side 4.93, the axial ratio1.42, and the average diameter size is 31.30 cm.Furthermore, the rock in both study areas can be classified into absarokite, alkaline series based on texture observation under microscope, XRF data, and CIPW Norm calculation.By using the total alkali versus silica (TAS) diagram, the rock can be classified into Tephrite at Sao-HinDonsawan and Tephrite to Trachy-basalt at Sub-Phlu waterfall.

These characteristics of columnar joint and rock type may related to the reservoir of the petroleum field in Wichianburi area.

PS 027