



INTISARI

Pulau Sumatra yang terletak pada tatanan tektonik busur vulkanik aktif yang dilalui oleh Zona Sesar Sumatra dapat membentuk sistem hidrotermal. Penyebaran manifestasi hidrotermal berasosiasi dengan struktur geologi sepanjang Sumatra Fault System (SFS) terutama di daerah Lebong Utara perlu dilakukan untuk mengetahui hubungan antara struktur geologi dan sistem hidrotermal di daerah tersebut. Data lapangan yang digunakan terdiri dari data struktur geologi deformasi rapuh, data manifestasi hidrotermal, dan data mineral alterasi hidrotermal, didukung dengan data sekunder berupa data litologi dan stratigrafi. Uji XRD dilakukan untuk mengetahui jenis mineral lempung pada batuan teralterasi. Hasil dari analisa struktur geologi menunjukkan bahwa sesar-sesar di Lebong Utara memiliki arah utama barat laut - tenggara (NW-SE) yang merupakan bagian dari SFS. Sesar-sesar ini dibentuk oleh gaya kompresi berarah timur laut - barat daya (NE-SW). Pembentukan zona ekstensi yang membentuk lembah ekstensional Muaraaman yang dikontrol oleh gaya ekstensi berarah utara barat laut - selatan tenggara. Di daerah Lebong Utara dapat diidentifikasi 2 sistem hidrotermal, yaitu: sistem hidrotermal aktif di sekitar Air Putih dan sistem hidrotermal non aktif di Lebong Tambang. Manifestasi hidrotermal seperti mata air panas, spouting springs, fumarole, steaming ground, dan silica sinter, dijumpai di daerah penelitian ini. Penelitian ini menyimpulkan bahwa kontrol struktur geologi yang membentuk zona sesar utama di wilayah Lebong Utara ini dapat membentuk dilational jogs sebagai tempat munculnya aliran panas pada sistem hidrotermal di daerah Lebong Utara. Lebih jauh lagi, pergeseran sumber panas dari wilayah Lebong Tambang ke wilayah Air Putih dapat disebabkan oleh kontrol dari aktivitas tektonik Sumatra.

Kata kunci: sistem hidrotermal, tektonik, Lebong Utara, Zona Sesar Sumatra, dilational jogs

ABSTRACT

Sumatra island is located in active volcanic arc tectonic setting, through Sumatra Fault Zone or called as Sumatra Fault System (SFS) that possible to build hydrothermal system. Geological resources such as metallic mineral deposit and geothermal field might be founded in this area. In this study, hydrothermal manifestations distribution are associated with structural geology along Sumatra Fault in North Lebong should be investigated to find a correlation between structural geology and hydrothermal system in the area. Primary data coming from field observation composed of brittle deformation structural geology, hydrothermal manifestation, hydrothermal alteration minerals, supported with secondary data involving lithology and stratigraphy are used to get the aim of this study. Furthermore, structural geology field data area processed in laboratory analysis to find out the kinematic analysis and paleostress. Tectonic inversion might be used using Right Dihedron interaction method to identify tectonic phase in study area. X-Ray Diffraction is used to identify clay minerals that might be formed due to hydrothermal alteration process. Structural geology data analysis result a fact that faults in North Lebong are NW-SE pattern, similarly with Sumatra Fault System main stress. Faults in North Lebong formed by the main stress coming from NE-SW compression as well as subduction process in Sumatra island. Geological process in North Lebong result an extensive regime from that open the area to be extensional valley called as Muaraman valley, but not ideally as pull apart basin. The integrated analysis result an identification of 2 hydrothermal system in North Lebong: an active hydrothermal system located around Tambangsawah and non active hydrothermal system located in Lebong Tambang as a gold and silver mineral deposit. Hydrothermal manifestation such as hot spring, spouting springs, fumarole, steaming ground, and silica sinter, are founded in this study area. Structural geology, dilational jogs has a main role as extensive zone to build a permeable zone. Hydrothermal system conceptual model in this area conclude that structural geology in North Lebong controlled hydrothermal system formation in this area supporting thermal flow convection coming from subsurface going out to the surface as a hydrothermal manifestation in North Lebong. Furthermore, a drifting heat source from Lebong Tambang area to Air Putih area may be occurred during Neogen-recent due to tectonic activity in Sumatra.

Keywords: *structural geology, hydrothermal system, tectonics, North Lebong, Sumatra Fault Zone, dilational jogs*