The Structural Geology of the Cribas Region and Its Implications for Petroleum Potential

Valente Ferreira, M.Sc.

Division of Geoscience, Timor Geoscience and Development Society (TGDS), Street of Aimetilaran, Dili, Timor-Leste, Email: ferreira.tgds@gmail.com, December 2018.

Abstract

There are two deformation phases have been well discovered in the Cribas region, namely D_1 and D_2 (1^{st} and 2^{nd} deformation). The D_1 is induced the generalized folding of the Cribas anticline and some possible petroleum traps below unconsolidated sediment units in the southern coast of Timor island. The Cribas anticline is a symmetrical fold type with an E-W sub-horizontal axis and limbs dipping 25^{o} between north and south. The most important structures of D_2 are the major N-S sinistral strike-slip faults and coeval minor folds. The main N-S faults of D_2 are well developed in the Sumasse river, west of Cribas region and also in the Hacraun river, such as N Hacraun fault and S Hacraun fault. The structural environment showed that the strike-slip faults are predominates in the region and there is a diversity of D_2 accommodation structures which emphasized a south vergence of E-W thrust that affecting the core of the Cribas anticline. Then in Tuqueti river, east of Cribas region is one induced the thrusting of the Aituto formation overlies the Cribas formation. These structures pressed some oil seeps in the eastern side of the Tuqueti river and western side of Sumasse river.

Based on geochemical analyses of collected rock samples from the Cribas formation indicated that shale rocks are contained 0.71% Total Organic Carbon (TOC), which means that this rock is probably be a source rock for petroleum and some shale rocks of the Atahoc and Aituto formations remain that the TOC values are below 0.71%.

Key-words: *Structural geology, Cribas region, petroleum potential issues.*