

## **ABSTRACT**

### **ENHANCED FAULT IDENTIFICATION USING FAULT EXTRACTION FROM PRE-STACK AND POST-STACK SEISMIC DATA COMBINATION**

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*Faults have major contribution towards building the concept of petroleum system. As such, fault identification has become a vital part in order to create a reservoir characterization, particularly in area with strong tectonic compression. These areas will yield poor seismic images, rendering unclear minor faults within the section. This research aims to identify minor fault patterns that occurred during the development of major fault. Powerful tectonic compression had resulted in the occurrence of intensive antithetic faults at the top of the anticline. These fault developments are the culprits behind the bad seismic image, making fault analysis an obstacle.*

*Difficulties from minor fault identification are a nature of post-stack seismic data, and will be topped by harnessing the pre-stack seismic data. These two seismic input will be carried out with structural seismic attribute. Emphasizing on structural smoothing and local flatness, the conformities of wave signal characteristic will be mapped along the fault structures, isolating them from nearby normal condition. Final result of fault occurrence identification will be shown in a voxel extraction, which can be analyzed further in 3D seismic cube.*

*The result from 3D seismic cube strengthens major fault along the research area with northwest-southeast orientation, and minor faults with northeast-southwest orientation. Major fault is characterized with thrust fault, whereas minor faults are varied within normal and thrust faults, which are antithetic development from major fault.*

**Keywords :** *seismic, attribute, faults, structures, pre-stack, post-stack, structural smooth, local flatness, ant-tracking, voxel extract.*