CHAPTER 5

Conclusion

Sequence stratigraphy provided a powerful tool for developing a coherent time stratigraphic framework for subdividing the progradational sequence, six-stage for depositional history is proposed. The study of a stratigraphic framework of the Plio-Pleistocene sequences integrating both 2D and 3D seismic data, providing insight into depositional history by mean of facies analysis, reflections configuration, shelf edge trajectory and systems tracts together with depositional elements delineated using RGB spectral decomposition technique.

The deposition of the prograding sequences within the study area started during the late stage of growth fault activity. The growth faults, on the other hand, were initiated as a consequence of overpressured fluid caused by loading of the overlying prograding sequences. The growth fault sections contain mass transport complexes and exhibit kinematic indicators identified from the seismic data. Preserved compressional ridge present in the toe domain reveals that the transport direction is from ESE with the internal thrusts. Other significant features such as slump fold, headwall scarp, rotational blocks identified from the seismic data can also act as kinematic indicators provide greater confidence delineating the transport direction of the MTC. The lack of relief between the hanging wall and footwall area resulted by the filling of the MTC pronounce the prograding sequences to accumulate with thickness of about 400-1200m. The prograding sequences within the study area comprise of the Plio-Pliestocence clinoforms known informally as the Giant Forsets Formation. The earliest sequence was deposited on top of the MTC and developed as a highstand systems tract (HST) with high angle ascending trajectory. The HST is followed by the accumulation of falling stage systems tract with low angle descending trajectory. Stacking pattern of the FSST suggested that the sequences experienced short period of falling relative sea-level in the late Pliocene, followed by increased relative sea-level rise during Early Pleistocene. The lowstand systems tract is marked by the onset of relative sea-level rise, and the top boundary is referred as a maximum regressive surface in which entrenchment of channels are well-illuminated using RGB-spectral decomposition technique. This was overtopped by the transgressive systems tract (TST) and then highstand systems tract during a second event of sea-level rise. The slope gradient was smoothen by previously tract and overtopped by the TST and HST. Basin ward shifting of the shelf edge observed on the time structure map suggests high rate sedimentation during Late Pleistocene-Recent. The channels observed within the HST package are about 500m wide, display higher degree of sinuosity and "Y" shaped tributary channels on the shelf area. The geometry of the channels is strongly influence by degree of slope. Two mega channels, approximately 1.5-2 km wide, were observed in the late stage of the highstand systems tract, in the southern part of the study area. These mega-channels incised the top HST package and appeared as an erosional event in the Wheeler Diagram. They were eventually filled up by the recent sediments up to present-day seafloor.