

3-D Structural Architecture and Evolution of the West Natuna Basin, Indonesia

Ilona, Shanty, ConocoPhillips, Jakarta, Indonesia

The various structures in the West Natuna Basin were formed during two distinct extensional and compressional periods. KRA field, as part of South Kakap Block, is located within this basin.

The major tectonic trends in this area are NNW-SSE. Graben development started during the Eocene and continued until the Early Oligocene, and compression began in the Early Miocene with syn-inversion deposition. Some normal faults resulting from extension were reactivated as thrust faults during compression. While compression was still active, the thrust faults developed as strike-slip faults. In the northeastern part of the study area, the tectonic event resulted in a negative flower structure with a wrench splay fault. Time slices from 3-D seismic were used to describe the structural evolution of this field.

The stratigraphic system of the KRA field consists of four megasequences based on log stacking patterns and reflection configuration from the seismic data. Three depositional systems in the Oligocene – Middle Miocene were interpreted from amplitude maps and proportional slices.